THE DEVELOPMENT OF SETTLEMENT IN THE FAIRBANKS AREA, ALASKA

A STUDY OF PERMANENCE

by

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PREFACE

The thesis, dealing with the lasting character of man's occupation of a portion of the globe, is a contribution to the body of knowledge concerning settlement in the subarctic areas of the world.

The study of the permanence of man's occupation of the Fairbanks area, Alaska, is a contribution to the general body of geographic knowledge concerning settlement. More particularly, the research herein presented adds to the inadequately explored field of subarctic settlement which has taken on new significance in recent years. The strategic importance of the subarctic and the rapidly expanding population of the world focus attention as never before on the region between the temperate lands and the Arctic Ocean.

The study of the Fairbanks area utilized scholarly works in several fields, including professional papers, bulletins, reports and statistics compiled by various government agencies, articles in professional journals, unpublished material found in the area, statements of selected individuals respected for their competence in respective fields, and field observations by the author. In addition, a wide range of publications of various types were examined in search of material on the area.

This study centers on the factors which have made Fairbanks a lasting settlement. This, in itself, is a contribution to knowledge.

The author is grateful to many individuals, agencies and

organizations that have made the study possible. In particular the Arctic Institute of North America and the Carnegie Corporation deserve special thanks for their material support of the research and study. Without their assistance the author's work would have been impossible. Professor J. Brian Bird provided skillful direction for the overall study as director of the author's research. To Professor Bird and Dr. F. Kenneth Hare of the Department of Geography belong much of the credit for the merit the study possesses. The author is indebted to them for their inspiration, encouragement, and instruction during the time of study in residence.

Dr. Kirk H. Stone of the University of Wisconsin shared his infectious enthusiasm for the Northern Lands and devoted many hours acting as a sounding board in addition to providing constructive criticism of sizable portions of the manuscript. His help and illumination are highly valued.

Dr. Ivar Skarland and the administration of the University of Alaska are remembered for placing their facilities at the disposal of the author during the course of field work.

Dr. Erwin Raisz kindly supplied the base map for the physical subdivisions.

The several government agencies contacted were most cooperative. Various offices of the Bureau of Land Management in both Fairbanks and Anchorage extended assistance clearly above and beyond the call of duty. In addition, private citizens of Fairbanks, professional colleagues and others too numerous to mention added in many

ways to the success of the study.

Last, but by no means least, I would like to thank my wife, Marilyn, for her encouragement, sympathy, sacrifice, cartographic skill and typing of the drafts and final copy of the thesis.

TABLE OF CONTENTS

LIST OF TABLES

TABLE PAGE

LIST OF FIGURES

Ph. D. GEOGRAPHY

Robert Leonard Monahan

THE DEVELOPMENT OF SETTLEMENT IN THE FAIRBANKS AREA, ALASKA
A STUDY OF PERMANENCE

Factors which contribute to lasting settlement in the subarctic region of North America are examined and analyzed in this study. Diversification of the economic base is conducive to permanent settlement. A diversified, efficient and well developed transportation system is important. A good communications system including telephone, telegraph, teletype and radio links to the rest of the world help hold settlement. Pleasant living conditions, an extensive selection of consumer goods and services, social organizations and other cultural facilities aid in building pride and identification with the area.

Mining, often considered a contributor to short term settlement, has contributed to the lasting character of the occupation of the Fairbanks area. A rather full utilization of the favorable aspects of the physical environment has been one reason for the success of Fairbanks. Strong personalities that provide leadership, and instill pride and loyalty in the area are an asset of great importance in permanence.

CHAPTER I

INTRODUCTION

The tendency to settle is man's most characteristic pattern on the surface of the earth.[1] Unfortunately many spontaneous, unguided settlements have not long endured. A permanent settlement is more desirable than a temporary one because permanency allows more efficient use of government funds to provide utilities and services for the local population. The study of settlement becomes valuable from the geographer's point of view to the extent that the information derived from the study can be used to guide and predict the course of future settlement, making it more efficient and permanent, and less costly in terms of human and natural resources.

A number of studies have been made on various facets of this topic.[2] Temporary settlement has long been the forte of archaeologists, anthropologists and historians. Some work has been done by geographers and sociologists, but their contributions have been

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[1] Carl O. Sauer, "Cultural Geography," Encyclopedia of the Social Sciences, Vol. VI, (New York: The Macmillan Co., 1931), p. 623.

[2] Clyde F. Kohn, et.al., "Settlement Geography," American Geography Inventory and Prospect, edited by Preston E. James and Clarence F. Jones, (Syracuse, New York: Syracuse University Press, 1954), pp. 124-141.

sporadic and relatively few in number.[3] In the past geographers have directed their study of settlement primarily to determine its origin and function and the facilities men built when occupying the area.[4]

It is the purpose in this study to isolate those factors which tend to insure permanent settlement and those factors which tend to produce a temporary, transient settlement in the hope that by so doing they can be used as guides in the future.

Because of the dynamic character of society, it must be admitted at the outset that these factors will not remain constant and a degree of variability is inherent in this undertaking. Undoubtedly continual research will be needed.

To predict to what degree a given settlement will be permanent requires an investigation of the reasons for its beginning and a careful tracing of its development to the present. There is a strong tendency to assume a settlement will remain as long as it is large. This is especially true when the settlement takes on the formality of a city. In fact the assumption is not warranted. An examination of the archaeological literature dealing with the Biblical lands,

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[3] The following studies serve as examples. J. W. Goldthwait, "A Town That Has Gone Downhill," Geographical Review, Vol. XVII, October 1927, pp. 527-552.

Olen Leonard and C. P. Loomis, "Culture of a Contemporary Rural Community El Cerrito, New Mexico," Rural Life Studies No. 1, Bureau of Agricultural Economics, U. S. Department of Agriculture, November 1941, (Washington: Government Printing Office, 1941), 72 pp.

[4] Kohn, op. cit., pp. 136-137.

North Africa, Thailand, Cambodia, Central America and Western South America gives ample evidence that cities and settlements of considerable size have been strikingly short lived.[5] Numerous mining, lumbering, and even agricultural settlements in North America have suffered the same plight in modern times.[6] It is a safe prediction that more will disintegrate in the future. Not all settlements which were originally the result of mining or lumbering enterprises have perished. This fact gives impetus to the belief that some basic elements are common to those settlements which have survived and lacking in those which have been abandoned.

In broad terms the components which appear to be necessary for a permanent settlement of white people in North America today are, (1) a diversified economic base, (2) effective transportation and communication facilities, (3) organized social institutions, (4) an effective political system with enough power to operate and finance public utilities, (5) conveniences, comforts, aesthetic entertainment and other social pleasures which will subsequently be referred to simply as amenities. The degree of stability and the likelihood of continued occupancy are dependent upon the extent to which these

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[5] Der Orient und Vorderindien, (map) Scale 1:3,000,000,(Gotha: Justus Perthes, n. d.).

Caribbean Area, (map) Scale 1:2,200,000, (Chicago: Denoyer Geppert, 1958).

[6] Goldthwait, op. cit.

components are developed. This statement may seem obvious, but these factors are so vital to the continued existence of a settlement that they are not easily overemphasized.

It must be recognized that this breakdown into categories is not intended to imply that each can be viewed as though existing in a vacuum. It is extremely important to be aware of the cause and effect relationship that each may bear to the other. For instance, increased economic diversity may cause improved transportation and the need for improved transportation may cause the reorganization of the local government structure. In this respect these breakdowns are somewhat artificial, but they will help to avoid confusion.

The diversity of the economic base is probably the most important single consideration. The wider the range of economic activities the more stable and secure the settlement. The reason is that a slump or even complete disappearance of any single activity will not cause the annihilation of the settlement because the others will take up the slack. Of course the size and value of each given enterprise is also important.

Effective transportation and communication systems are next in importance. Diverse types of transportation, frequent service and rapid schedules all aid in reducing the irritation of lost time and thereby contribute to the stability and long life of the settlement. The various media of high speed communication are of great importance for they also bridge the distance and time gap. For this reason, radio, telephone, telegraph, teletype, television and good mail

service are necessary parts of an adequate communication system.

Social and political institutions facilitate general social stability. Well developed social structures are almost essential for enduring settlement because they provide a richer social life and make a given location more attractive and more binding to its residents. An efficient political structure helps perpetuate a settlement because it supplies many essential services such as public utilities, streets, protection for the citizen, laws, justice, and schools.

Settlement in the subarctic or boreal forest parts of North America has often been of limited duration. These short-lived settlements have wasted human resources, the resources of the governments concerned, and have tended to discourage people who might otherwise migrate to and invest in these areas.

There are abundant examples of short-lived mining communities in the subarctic and in other parts of the world. In Alaska examples of communities once important in mining and now dead as communities include Kennecott, McCarthy, Flat, Iditarod, Woodchopper, Nation, Dahl, and Chitina. In the Yukon Territory a partial list of disintegrated settlements would include Last Chance, Hunker, Gold Run and Forty Mile. In addition, communities connected with the mining activity, primarily on transportation routes, have also disappeared. Dyea, Alaska and Grouard, Alberta illustrate this point.[7] The short

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[7] Gorden C. Merrill, "The Human Geography of the Lesser Slave Lake Area of Alberta," Geographical Bulletin No. 3, 1953, pp. 37-49.

life of many of the northern communities has seriously retarded the economic growth of the region and the development of its resources.

The writer believes that the Northern Lands have been misunderstood by most Anglo-Americans and that much of the misunderstanding is due to ignorance. He further believes that some transient settlements can be avoided or possibly turned into abiding communities if the factors which are conducive to lasting settlement can be outlined and generally understood. The present study was undertaken to add to the general body of knowledge of the Northern Lands and the more specific topic of permanent settlement in subarctic regions.

Fairbanks was selected as the focal point of the study for several reasons. The original economic base and attraction to the Fairbanks area was the placer gold deposits which have been long regarded as a fleeting foundation for settlement. The interior location of Fairbanks and the extreme continental climate, a set of conditions not overly attractive to settlement, strengthened the conviction that a study of Fairbanks could be most useful in the study of the prospects for subarctic settlement. Also, the position of Fairbanks as the second city in population in the territory make it a desirable object of scientific investigation.

The idea of permanent subarctic settlement is usually met with skepticism in our Anglo-American culture. "Why would anyone want to go there? It might be all right for a summer visit, but who would want to live there?" are more or less typical reactions noted by the author of people of various geographical locations, economic backgrounds,

and educational attainments. Because of the widespread doubts about settling and settlement in the boreal forest lands of Canada and Alaska, any successful thriving settlements of reasonable duration should be carefully analyzed to find the reasons for success and endurance. This is more apparent because of Alaskan statehood.

It is also felt that a study of the thriving older settlements of Alaska may prove useful to the small but serious and often vocal group who cry "Let's settle Alaska," by pointing out some of the factors that have been responsible for the success of other settlements.[8] This may be helpful to planned group settlement sponsored or directed by government and private agencies.

In Fairbanks a number of economic factors have contributed to perpetuating the settlement. The growth and improvement of transportation has been one significant factor. In the years since settlement started, the forms of transportation have become more varied, the costs lowered, the frequency increased and the speed of service improved. These improvements have increased the number and the strength of ties with other parts of the world. Similarities exist in this respect between Fairbanks and Whitehorse, Yukon Territory. Whitehorse was founded as a transfer point from rail to river boat. With improved transportation and accompanying growth, it has been able to attract the capital of the territory.

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[8] Kirk H. Stone, The Matanuska Valley Colony, Bureau of Land Management, U. S. Dept. of the Interior, (Washington: Government Printing Office, 1950), This study is an outstanding example of the type needed.

Mining fostered the original settlement and has been an important though a variable economic support of Fairbanks throughout its history. Gold mining, serving as a cushion in times of economic depression, has been quite important. Activities and services of the federal government located in the Fairbanks area have long been of importance. The economic contribution of the government to the support of Fairbanks has increased over the years. The effect of the increase in government expenditures and activities has been a strengthening of the basic support which in turn has strengthened the permanence of the Fairbanks area.[9] Traditionally agriculture is considered a strong factor in welding a lasting settlement. However, in the Fairbanks area, though agriculture has contributed some toward holding the community together, it has been less important than has been common in more favored agricultural areas. The University of Alaska has become a more vital asset to the area as the physical plant, faculty and student body grow. Tourist traffic has increased in importance. The improvement of the Alaska Highway and its opening to civilian traffic expanded the number of visiting tourists. Forestry, warehousing, and other factors made minor contributions to the area.

The tangible manifestations of permanence appear in the cultural features of the landscape. The study of these various manifestations is not new. House types are a subject of study for a small group of

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[9] John W. Alexander, "The Basic Non-Basic Concept," Economic Geography, Vol. XXX, No. 3, July 1954, p. 249.

geographers in North America and for a more numerous following in Europe.[10] In the current study the approach is new insofar as it analyzes these cultural features in terms of their indicia of permanency. Houses are of importance for the investment they represent in the area. In general it may be said that the greater the investment in housing, the greater the attachment for an area.

The utilities which serve the people are another indicator of permanence. In many towns and settlements of the Northern Lands, utilities are poorly developed or almost non-existent. The present day Anglo-American regards running water, indoor plumbing, electricity, fire and police protection, and the telephone as virtual necessities and is reluctant to settle in a place where they are not found. The existence or provision of the utilities is a basic factor in the establishment of a permanent settlement. In the case of Fairbanks the development of utilities started approximately three years after the founding of the settlement and have continued to grow and expand up to the present time. They represent a large investment in the area and much of it would be impossible to move to another location. The sewage system and sewage treatment plant, the water system, power plant and electrical distribution lines, sidewalks and paved streets are some of the more obvious examples of this kind of an anchor to the

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[10] Richard Hartshorne, The Nature of Geography, (Lancaster, Pa.: Association of American Geographers, 1939), pp. 229-235.

Kohn, op cit., p. 127.

site.

Government agencies in Fairbanks and the surrounding area make a positive contribution toward preserving the settlement. The jointly operated agricultural experiment station of the United States Department of Agriculture and the University of Alaska, the ranger station of the Division of Forestry, the Bureau of Land Management, the United States Department of the Interior, the Alaskan Geology Branch of the U. S. Geological Survey, the Alaska Road Commission, the Administration Office of the U. S. District Courts and the Federal Building with its offices of various government departments are examples. The payrolls, investments of a continuing nature, and attraction of people from outside the immediate area for information and services represent a positive contribution to lasting occupancy.

The military establishments, an important part of the federal government activity, were attracted to the area by the favorable combination of geographical location, environmental conditions, transportation and amenities. The investment in Ladd Air Force Base, Eileson Air Force Base, Permafrost Research Experiment Station of the Army Corps of Engineers and the Army cold weather testing and training installation at nearby Big Delta, represent large and significant investments in the area. It is recognized that the basic support of the military may be subject to wide fluctuations due to changing world conditions and military strategy. However, the military has been responsible for important growth in transportation, businesses, multiple housing and public utilities, which in turn tend to improve

the prospects of continued existence.

Good transportation plays a significant role in lasting settlement. The more varied the forms of transportation, the more secure the settlement. Fairbanks is well served by three different modes of transportation. The railroad, motor truck and the airplane all render freight service on adequate schedules. Fairbanks serves as a transportation hub for much of interior Alaska. Because of the central function of Fairbanks in transportation, it is also an important commercial center for interior Alaska. Passenger transportation is carried on primarily by aircraft and private motor vehicles. Some passenger traffic is also carried by the Alaska Railroad and by busses on the highway system.

Reliable and varied communications are essential to permanent twentieth century Anglo-American settlement. Fairbanks is well served by telephone, radio and television. The municipal telephone system, linked with the Alaska Communication System long distance telephone circuits, provides connections to the rest of the world. Two local radio stations and the two newspapers have teletype facilities which bring news from the various news services with world coverage. Telegraph lines are maintained and operated by the Alaska Communication System, a part of the United States Army. The local television service supplies entertainment, news, and weather reports. Fairbanks is well served by high speed communication which links it with the rest of the world.

The investments in substantial single family dwellings and

multiple unit housing create effective ties with the Fairbanks area. Investment in single family housing is important because it creates a strong tie to the area for individual families. Large investments in multiple dwelling units reflect the confidence of investors located outside the Fairbanks area in the continued existence of the city and the need for housing.

Amenities are important in attracting and holding people in North America today.[11] Using Ullman's definition for amenities, "pleasant living conditions," Fairbanks compares very favorably with other Northern Lands settlements. The presence of public utilities, surfaced streets, a well developed commercial core and shopping facilities, two theaters, two radio stations, two television stations, the cultural attractions of the University of Alaska, good transportation, a pleasant sunny summer climate, outdoor recreation in the form of riverboating, fishing and hunting, summer homes and resorts on nearby lakes, swimming, skiing and diversified night entertainment provide attractions for a wide range of tastes. Newspapers publicize the attractiveness. From the middle of September to the middle of November the papers carry accounts of many returning from work elsewhere in Alaska to spend the winter in the Fairbanks area.[12]

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[11] Edward L. Ullman, "Amenities as a Factor in Regional Growth," Geographical Review, Vol. XLIV, No. 1, (Burlington, Vermont: Lane Press by American Geographical Society, January 1954), p. 119.

[12] Fairbanks Daily News-Miner and Jessen's Weekly. Both carry numerous short news items on families and individuals returning from construction work, mining and even fishing to winter in Fairbanks.

The intangible aspects which encourage permanent settlement are those unique provincial qualities of the people who make any settlement. Attitudes towards the community with respect to private and public property improvements, schools, improvements in transportation, local government and the general life within the settlement can be determining factors. The strength, forcefulness, influence and abilities of the people who assume roles of authority and leadership in the settlement are also significant factors in the stability and growth of a community.

The following examples illustrate this point in connection with Fairbanks. In May 1903, the first paper printed in Fairbanks carried a news item that "the telegraph will be operating in sixty days." Below this story was a statement in capital letters, "NOW FOR THE RAILROAD."[13] Less than ten years later one of the contributors to the first paper, James Wickersham, Delegate from Alaska, introduced a bill in the United States Congress which led to the construction of the Alaska Railroad. Judge, and later Delegate, Wickersham served Fairbanks well. He was an influential man and his acts and services solidified the people's faith in the area. He was responsible for the mineral claim recording office established in Fairbanks in 1903 and for the transfer of the Fourth Judicial Division headquarters to Fairbanks in 1904. It would be incorrect to say that he alone was

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[13] James Wickersham, Old Yukon, (Washington: Washington Law Book Company, 1938), p. 216. The one page paper is reproduced in reduced size on this page.

responsible for passage of the bill authorizing the railroad, but he was very influential. Men of this caliber working for the development of an area are an intangible asset. It is virtually impossible to measure their effect on others and the development of the area.

The petition to the Secretary of Agriculture for an agricultural experiment station by the residents of Fairbanks in 1904 expressed an intangible attitude with a tangible product.[14] The residents of an Alaska boom town, barely two years old, requested a scientific research installation in a field secondary to the main preoccupation of the residents. This was a unique action for placer mining camps. The petition received prompt action and construction of the station started in 1907.[15]

Another influential man who aided the growth and development of Fairbanks was Alfred Hulse Brooks, the famous Alaskan geologist. As early as 1905, he recommended that a railroad be built to Fairbanks because of its central location.[16] His authoritative knowledge of Alaska was widely recognized and respected, and helped to bring the railroad to Fairbanks.

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[14] C. C. Georgeson, Report on Agricultural Investigations in Alaska, 1905, Office of Experiment Stations, U. S. Dept. of Agriculture, Bulletin No. 169, (Washington: Government Printing Office, 1906), p. 15.

[15] _____, Annual Report of Alaska Agricultural Experiment Stations for 1907, Office of Experiment Stations, U. S. Dept. of Agriculture, (Washington: Government Printing Office, 1908), p. 12.

[16] Alfred H. Brooks, Report on Progress of Investigations of Mineral Resources of Alaska in 1905, U. S. Geological Survey, U. S. Dept. of the Interior, Bulletin No. 284, (Washington: Government Printing Office, 1906), p. 14.

Further confirmation of a view held by the writer appeared in a general news article on Alaska. The unknown author of the article observed that residents of Fairbanks appeared to have a wider range of interest and a more intimate knowledge of world affairs than he had found elsewhere in Alaska.[17]

The great fire which destroyed much of the central business district of Fairbanks on May 22, 1906 revealed important intangible assets. There was no increase in lumber prices at the local mills to profit from the greatly expanded demand for lumber. Loans were freely granted to rebuild businesses, homes, and to replace equipment lost in the fire.[18] Shortly before the fire the people of Fairbanks had contributed $25,000 to aid the victims of the San Francisco earthquake. Outside offers of aid received in Fairbanks after the fire received this reply from the mayor, Mr. B. D. Mills. "We are still on the pay streak and need no assistance."[19] The confidence and vigor shown in the wake of the fire have long been assets of the Fairbanks area. The people of Fairbanks have met disaster or economic reverse with determination, energy and hard work and have emerged with a better town and a more permanent attachment to the area.

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17 Seattle Times, November 10, 1952.

18 Seattle Post-Intelligencer, June 19, 1906.

19 Fairbanks Daily Times, May 23, 1906.

B. D. Mills, "The Great Tanana," Alaska Monthly Magazine, Vol. III, October 1907, p. 181.

CHAPTER II

THE SETTING

The Fairbanks area is located in the east central part of interior Alaska. It lies on the northern margin of the Tanana River flood plain and includes part of the southern edge of the Yukon Tanana Upland (see Figure 1).

The diversity of topography and the centrality of the interior location are factors of importance in the development of the area. The flood plain location on the navigable Chena River, a right bank tributary of the Tanana was important in early transportation development. The flat plain was an advantage in developing overland transportation linking Fairbanks to the rest of Alaska, Canada and the United States. The central location was desirable for the development of an important commercial and transportation function (see Figure 2). The presence of low passes to the southwest, south, southeast, northeast, and west have made it possible to build a surface transportation system with Fairbanks as the focal point. The pass to the southwest through the high and rugged Alaska Range is Broad Pass, elevation 2,363 feet. The pass is used by the Alaska Railroad which links Fairbanks with two tidewater ports on the Kenai Peninsula, Whittier and Seward. South of Fairbanks lies Isabell Pass, 3310 feet, the route of the Richardson Highway into the Copper River Basin. The Richardson Highway runs from the port of Valdez on Prince William Sound to Fairbanks. The Glenn Highway, the route to the

FIGURE 1

Scale: 1 inch to approximately 50 miles.

Base map: "Landform Map of Alaska," by Erwin Raisz. Used through the courtesy of Erwin Raisz.

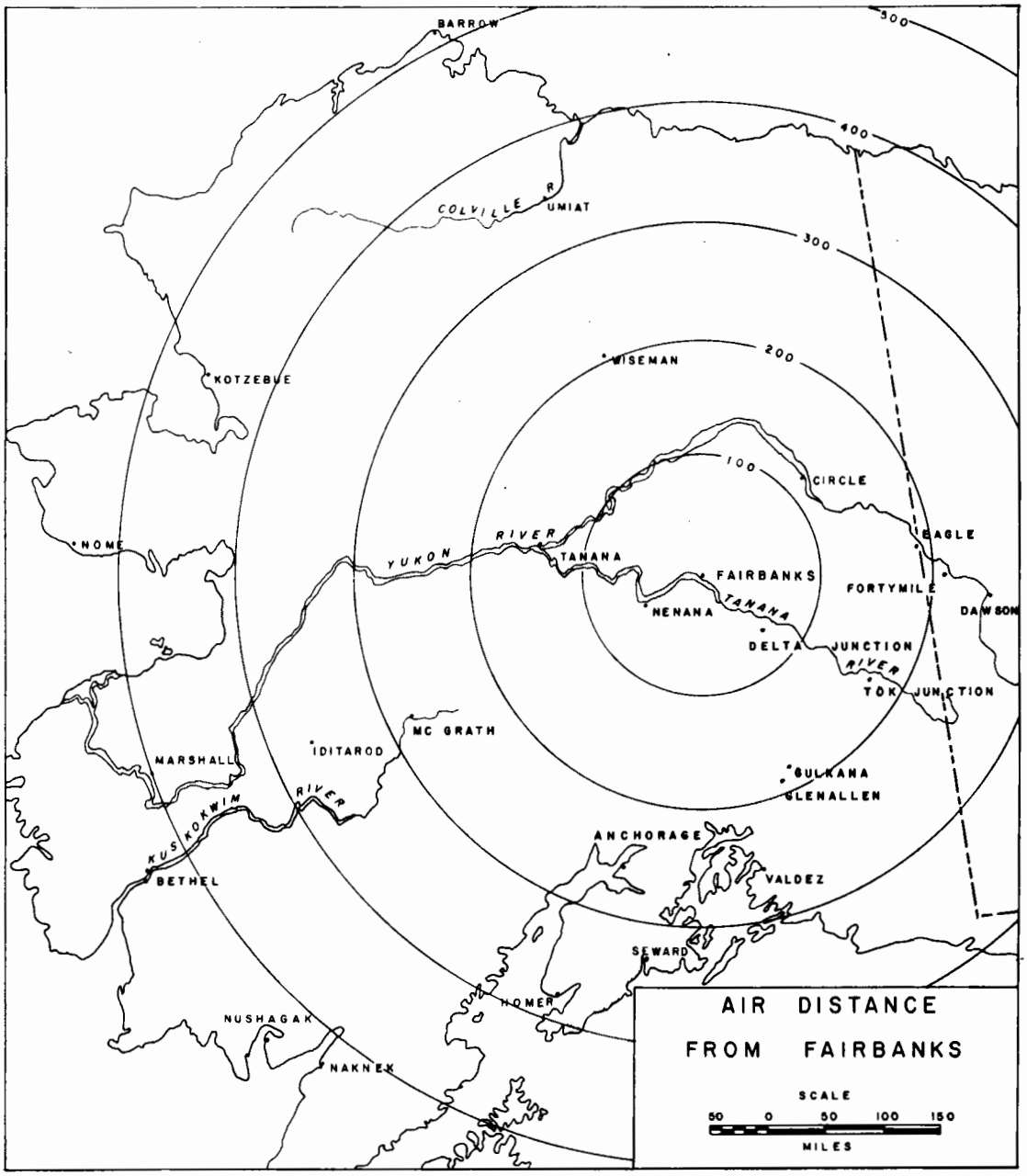
BARROW
300
400
COLVILLE R
UMIAT
300
WISEMAN
200
KOTZEBUE
100
CIRCLE
EAGLE
NOME
YUKON RIVER
TANANA
FAIRBANKS
FORTYMILE
DAWSON
NENANA
TANANA
DELTA
JUNCTION
RIVER
TOK JUNCTION
MC GRATH
IDITAROD
MARSHALL
GULKANA
GLENALLEN
KUSKOKWIM
RIVER
ANCHORAGE
BETHEL
VALDEZ
SEWARD
HOMER
NUSHAGAK
NAKNEK
AIR DISTANCE
FROM FAIRBANKS
SCALE
50 0 50 100 150
MILES

FIGURE 2

Matanuska Valley and the Kenai Peninsula, joins the Richardson Highway on the Copper River Basin. The low divide between the upper Tanana River and the White River in Yukon Territory is occupied by the Alaska Highway which is used for motor vehicle transportation from Canada and the United States to Fairbanks. Northeast of Fairbanks vehicle traffic crosses Eagle Summit, elevation 3,880 feet, on the Steese Highway to Circle City. West of Fairbanks the Tanana and Yukon rivers provide a navigable waterway to the Bering Sea. The central location has become a transportation focus by developing the pass routes.

The flat valley floor also has been utilized for airport construction. The level character of the surface plus the extensive alluvial deposits of sand and gravel have reduced the problems of runway construction and airport operation. In addition to the advantageous topography, the climate of the area is favorable for aircraft operation as well as pleasant living in interior Alaska.

The lower slopes of the Yukon Tanana Upland adjacent to the Tanana flood plain are important agricultural sites. The air drainage from these locations extends the length of the frost free season as much as ten to fifteen days, an important agricultural consideration in high latitude locations.[1]

The interior position of Fairbanks, distant from the coasts of the Pacific Ocean, Bering Sea and Arctic Ocean, has been a desirable

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[1] E. Willard Miller, "Agricultural Developments in Interior Alaska," Scientific Monthly, Vol. LXXIII, 1951. p. 245.

one from the standpoint of military strategy. The area has attracted air bases for both defense and offense.

The Fairbanks area is located in the physiographic province of the Yukon Plateau which covers most of the central interior portion of Alaska.[2] The Fairbanks area occupies part of the Tanana Lowland and the Yukon Tanana Upland, important subsections of the Yukon Plateau (see Figure 2, page 18).

The Yukon and Tanana Lowlands, broad level flood plains, are important physical subdivisions of the Yukon Plateau carved by the two major streams. This alluvium formation is quite young, dating from the Pleistocene to the present time (see Table I). Large quantities of water transported materials were deposited in these areas during the late Pleistocene. Alluvium in depths exceeding three hundred feet have been recorded near Fairbanks.[3] The great depth of this material in the lowland was due to the huge quantities of rock, gravel, sand, silt and clay that were supplied to the left bank tributaries of the Tanana River through glacial action in the Alaska Range. This silty alluvial soil and the flat topography of the flood plain are agricultural assets and the low elevation of the surface, four to five hundred feet above sea level, and the sheltered interior location are desirable conditions for forest growth.

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[2] Wallace W. Atwood, The Physiographic Provinces of North America, (New York: Ginn and Co., 1940), p. 418.

[3] Alfred H. Brooks, Mineral Resources of Alaska Report on Progress of Investigations in 1907. Geological Survey, U. S. Dept. of the Interior, Bulletin No. 345, (Washington: Government Printing Office, 1908), p. 41.

TABLE I

GEOLOGICAL TIMETABLE

Phanerozoic Eon	Cenozoic Era	Cenozoic Period	Pleistocene epoch	1,000,000 BC
			Pliocene epoch	
			Miocene epoch	
			Ogliocene epoch	
			Eocene epoch	
			Paleocene epoch	70,000,000 BC
	Mesozoic Era		Cretaceous Period	
			Jurassic Period	
			Triassic Period	170,000,000 BC
	Paleozoic Era		Permian Period	200,000,000 BC
			Pennsylvanian Period	Carboniferous
			Mississipian Period	
			Devonian Period	260,000,000 BC
			Silurian Period	
			Ordovician Period	350,000,000 BC 400,000,000 BC
			Cambrian Period	500,000,000 BC
Cryptozoic Eon	Pre-Cambrian Eras		Late Pre-C. Proterozoic	
			Early Pre-C. Archeozoic	2,000,000,000 BC

Source: Carl O. Dunbar, Historical Geology, (New York: John Wiley and Sons Inc., 1949), 573 pp.

Closely related to the alluvial deposits of the Pleistocene era are the loessal silt deposits on the Upland surface. The major part of the Upland is blanketed with these deposits which have varied in depth from a few feet to more than one hundred feet.[4] The loessal silt is considered important in the agriculture of the area. On the other hand, from the standpoint of placer gold mining, this deep alluvium is a valueless overburden.

The Yukon Tanana Upland is another physical subdivision of the Yukon Plateau which stretches to the north and east of Fairbanks. The western boundary is the Yukon River in the Rampart section and it extends eastward into the Yukon Territory to the White River. The northern and southern boundaries are the lowlands of the Yukon and Tanana rivers, respectively. The extensive surface of the upland is highly dissected by V-shaped valleys cut by the many small streams of the area during the long period it has been above sea level. The ridge crests, ranging in elevation from 1200 feet near Fairbanks to 3000 feet in the eastern part of the Upland, form a remarkably uniform surface which may be an old erosion surface.[5] Extending above the general level of the ridge are isolated buttes or hills and mountain

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[4] Troy L. Péwé, Effect of Permafrost on Cultivated Fields, Fairbanks Area, Alaska, U. S. Geological Survey, U. S. Dept. of the Interior, Bulletin 989-F, (Washington: Government Printing Office, 1954), p. 322.

[5] J. B. Mertie, Jr., Yukon Tanana Region Alaska, U. S. Geological Survey, U. S. Dept. of the Interior, Bulletin No. 872, (Washington: Government Printing Office, 1937), p. 31.

groups. These have been formed through igneous intrusions and localized uplifts of the plateau surface.[6]

Much variety is found in the rock of the area. The major rock of the Upland is the Birch Creek Schist. This rock is very old, belonging to the pre-Cambrian era (see Table I, page 21) and has been greatly altered through heat and pressure over the succeeding years.[7] The Birch Creek Schist, dominantly a quartz mica schist, has been intruded by igneous rocks during several different geological eras.[8] Because of the economic value of the metals, gold, antimony and tungsten, which are associated with the intrusive rocks, they are the most important rocks of the area from the standpoint of utilization by man. The igneous rocks which were formed during several different geological periods are of economic importance. The placer gold has been derived from the weathering of intrusive rocks and the concentration of the gold in streaks on the bedrock floors of the stream valleys.

The physiographic history of the area is complex and has not yet been fully deciphered. Some headwater sections of the streams

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[6] Ibid., p. 24.

[7] J. Thomas Dutro Jr. and Thomas G. Payne, "Geologic Map of Alaska," Scale 1: 2,500,000, U. S. Geological Survey, U. S. Dept. of the Interior, (Washington: Government Printing Office, 1957).

[8] L. M. Prindle and F. J. Katz, "The Fairbanks Gold Placer Region," Mineral Resources of Alaska Report on Progress of Investigations in 1908, U. S. Dept. of the Interior, Bulletin No. 379, (Washington: Government Printing Office, 1909), p. 186.

draining the upland have eroded narrow sharp V-shaped valleys, others have open valleys much broader than required by the streams that now occupy them and some flow across aggraded headwater plains.[9] Variety also exists in the lower parts of the streams. Some of the streams, the Chena River for example, flow in broad aggraded valleys in their lower courses while others, such as Goldstream Creek, flow in narrow valleys in their lower courses.

The Fairbanks area, because of its interior location, has a decidedly continental climate.[10] The marked variations in seasonal temperatures bear a close relation to variations in solar heat and show the strong influence of the land. Average monthly temperature varies from -9.8° Fahrenheit in January to 60.0° Fahrenheit in July.[11] (See Table II). Record extreme temperatures also show the wide variation expected in an area of continental climate. The record high temperature of 93° Fahrenheit in July 1955 is a surprise to many people unfamiliar with the area. The record low is -66° Fahrenheit recorded in January 1934.[12] The range between extreme temperatures is 159°. The growing season, the period between the last spring date with a temperature reading below 32° Fahrenheit averages one

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[9] Mertie, op. cit., p. 23.

[10] U. S. Department of Commerce, Local Climatological Data with Comparative Data 1955, Weather Bureau, (Asheville, N. C. : National Records Center, 1956), p. 1.

[11] Ibid., p. 3.

[12] Ibid., p. 4.

TABLE II

CLIMATIC DATA FOR SELECTED STATIONS

		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Fairbanks Int'l. Airport.	Av. Temp.	-9.8.	-3.1	9.0	28.9	47.4	59.3	60.9	55.6	44.6	27.5	3.1	-9.1
	Av. Prec.	.99	.51	.58	.29	.74	1.37	1.92	2.26	1.21	.92	.63	.50
Palmer, Alaska	Av. Temp.	13.4	20.9	25.3	36.0	46.9	54.3	55.1	47.8	36.0	22.0	13.8	35.8
	Av. Prec.	1.24	.60	.59	.35	.52	1.59	2.20	3.24	2.90	1.50	.83	.86
Dawson, Y.T.	Av. Temp.	-19.0	-11.5	5.4	28.9	46.5	56.9	59.8	54.5	42.9	26.4	1.9	-13.0
	Av. Prec.	.86	.67	.56	.46	.96	1.25	1.63	1.73	1.41	1.16	1.11	1.01
Whitehorse Y.T. Airport	Av. Temp.	6.6	6.8	21.5	32.4	45.8	54.1	56.4	53.5	45.8	35.2	16.0	4.4
	Av. Prec.	.53	.46	.66	.42	.60	1.06	1.63	1.60	1.42	.77	.97	.70
Fort Yukon, Alaska	Av. Temp.	-19.0	-16.0	1.7	21.7	43.8	58.8	61.6	54.9	41.4	21.3	3.7	-18.0
	Av. Prec.	.38	.34	.28	.17	.32	.71	.96	1.28	.81	.57	.41	.29
Fort Smith, Airport, N.W.T.	Av. Temp.	-14.0	-9.3	4.2	26.6	44.6	55.4	60.8	56.7	45.3	31.6	10.5	-8.1
	Av. Prec.	.61	.58	.58	.49	.95	1.51	2.03	1.64	1.57	1.01	.87	.81
Grand Prairie Airport, Alta.	Av. Temp.	9.3	6.7	20.3	37.4	50.3	56.4	60.8	58.6	49.1	40.9	21.1	8.8
	Av. Prec.	1.29	1.50	.78	.79	1.43	2.26	1.94	1.60	1.39	.81	1.10	1.08
Edmonton, Alta. Airport	Av. Temp.	5.9	11.4	23.2	40.2	51.2	57.7	61.6	59.3	50.2	40.9	24.7	13.1
	Av. Prec.	.86	.66	.78	.92	1.85	3.19	3.35	2.32	1.31	.79	.82	.85
Anchorage, Alaska	Av. Temp.	13.0	18.6	24.8	35.4	45.7	53.7	57.3	55.6	48.0	36.0	22.3	13.8
	Av. Prec.	.76	.60	.60	.40	.51	.15	1.55	2.56	2.71	1.87	1.00	.84
Sitka, Alaska	Av. Temp.	33.3	34.5	36.6	41.0	46.7	52.2	55.1	56.2	52.4	46.1	39.4	34.4
	Av. Prec.	8.69	6.67	7.38	5.51	5.50	3.24	4.88	7.18	11.95	14.70	11.86	9.50

Sources: Canada Department of Transport, Monthly Weather Record (Monthly Statistical Series) 1951, Meteorological Division, Toronto: 1952.

U. S. Department of Commerce, Local Climatological Data with Comparative Data 1955, Weather Bureau, (Asheville, North Carolina: National Records Center, 1956).

Note: Temperatures are in degrees Fahrenheit; Precipitation in inches.

hundred days, (see Table III). The growing season compares favorably with other northern locations, although the relatively short growing season of one hundred days restricts the variety of crops which can be grown in the subarctic environment. Comparing the monthly temperatures of Fairbanks with other subarctic stations of the interior and some on the southern fringe of the subarctic, it is apparent that the major temperature difference is the lower average readings for the winter months, (see Table II, page 25). Precipitation differences are small in the interior part of Northwestern North America to points as far south as Peace River country, (see Table II, page 25). The amount of rainfall is generally adequate for crop production. However, occasional droughts do curtail yields and if they occur in the early part of the growing season may lead to crop failures because of late germination of the plants.[13] Risks are increased in agriculture because of the variability of precipitation and growing season but the high prices for farm products tend to offset the hazards. Once a farmer has accumulated or can obtain capital sufficient to carry him over a bad year, agriculture can be carried on with reasonable security.

The climatic implications for settlement are important. Because of the wide range in temperature, housing, utilities, and transportation facilities must be designed to function at both extremes.

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[13] C. C. Georgeson, Annual Report Alaska Agricultural Experiment Stations for 1913, Office of Experiment Stations, U. S. Dept. of Agriculture, (Washington: Government Printing Office, 1914), p. 14.

TABLE III

FROST FREE PERIOD, SELECTED STATIONS

Station	Number of Days
Fairbanks, Alaska	100
Palmer, Alaska	100
Dawson, Yukon Territory	79
Matanuska, Alaska	105
Mayo, Yukon Territory	68
Big Delta, Alaska	100
Fort Vermillion, Alberta	87
Homer, Alaska	107
Watson Lake, Yukon Territory	62
Kenai, Alaska	72
Fort Nelson, British Columbia	103
Kasilof, Alaska	91
Fort St. John, British Columbia	108
Anchorage, Alaska	113

Sources: Unpublished records, Weather Bureau Office, Anchorage Alaska, 1956.

Lenore Helda, Agriculture in Alaska, Joint Publication: Department of Agriculture, Territory of Alaska, Circular No. 1 (revised). Agricultural Experiment Station, University of Alaska, Bulletin No. 22, September 1956.

A. Leahey, Report on A Soil Survey Along the Alaska Military Highway and the Yukon River System, Experimental Farms Service, Preliminary Report, Ottawa, 1943.

The wardrobe of the individual must also meet the great seasonal changes in temperature. The necessary adaptations to cope with the temperature changes make the costs of housing, utilities, transportation and clothing higher than in less rigorous climatic locations.

The vegetation of the Fairbanks area is part of the taiga or northern boreal forest dominated by needle leaf evergreen trees.[14] White spruce (Picea glauca) tends to dominate in well drained areas and is the most valuable tree of the area for lumber and commercial exploitation. Black spruce (Picea mariana) is the most common tree of the poorly drained areas. Forest fires, still a serious problem throughout interior Alaska, have the effect of destroying existing stands of timber and altering the composition of the forest re-established on the site.[15] The usual forest vegetation which follows a severe fire in the Fairbanks area and the interior consists of paper birch (Betula papyrifera var.), quaking aspen (Populus tremuloides), and some white spruce on the better drained sites. On poorly drained sites the black spruce usually succeeds itself following even very severe fires.[16] Another tree commonly seen in the lowlands is the larch or tamarack (Larix laricina).

The undercover of vegetation varies considerably with the site

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[14] A. W. Küchler, "Natural Vegetation," (map) Goode's World Atlas, Tenth Edition, edited by Edward R. Espenshade Jr., (Chicago: Rand McNally and Co., 1957), p. 16-17.

[15] H. J. Lutz, Ecological Effects of Forest Fires in Interior Alaska, Forest Service, U. S. Department of Agriculture, Technical Bulletin No. 1133, (Washington: Government Printing Office, 1956), p. 90.

[16] Ibid., p. 90.

conditions. On south facing slopes which are well drained and have a low permafrost table, common plants include high bush cranberry (Viburnum pauciflorum), low bush cranberry (Vaccinium vitus-idaea), twin berry (Linnaea borealis var. Americana), bear berry, (Arctostaphylos uva-ursi), dwarf dogwood (Cornus canadensis), bluejoint (Calamagrotis canadensis), horsetail (Equisetum arvense), fireweed (Epilobium angustifolium), and sandwort (Arenaria) as common members of the plant association.[17] The ground cover of the lowlands in the area includes laborador tea (Ledum palustre spp. groenlandicum), dwarf willow (Salix sp.), sphagnum moss (Spagnum sp.), caribou-moss lichen (Cladonia spp.), dwarf birch (Betula nana), blueberry (Vaccinium uliginosum), wild rose (Rose acicularis), as well as other shrubs and plants. The berries of the understory are of minor local importance in adding diversity to the diet through jellies, jams and sauces made from them. Black spruce and sphagnum moss usually indicate the presence of permafrost within approximately two feet of the surface.

Permafrost, which is perennially frozen ground, is a very common phenomenon in the Arctic and covers extensive areas of the subarctic. In the Arctic zone, where permafrost underlies virtually all of the land surface, depths of one thousand feet and more have been recorded. In the subarctic the depth of permafrost is usually

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[17] Field identification was largely through assistance extended to the author by N. Talmadge Nelson, Range Specialist, Bureau of Land Management, Anchorage, Alaska. However, the author assumes all responsibility for any errors or omissions.

less and unfrozen areas are more common. The Fairbanks area is included in the latter classification. Permafrost is generally absent on the hilltops and the moderate to steep south-facing slopes of the area.[18] Permanently frozen ground is found on the north-facing slopes and over most of the floodplain. The greatest depth of permafrost in the Fairbanks area, that is, two hundred sixty-five feet, was recorded on the floodplain at Mile 11 from Fairbanks on the Richardson Highway.[19]

Knowledge of the exact location and character of permafrost is vital to successful settlement. An example of the importance of this information is found in the central business district of Fairbanks. The area is underlaid by a wedge of permafrost which is thickest in the western part and tapers out into unfrozen ground in the eastern part, east of the main north-south street. The large multi-story buildings are built in the area of unfrozen ground where the serious construction problems associated with permafrost are absent. These problems include general and differential settling of foundations and the provision and maintenance of water and sanitary lines. A good discussion of these and other problems is included in the work by Muller.[20]

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[18] Péwé, op. cit., p. 325.

[19] Ibid.

[20] S. W. Muller, Permafrost or Permanently Frozen Ground and Related Engineering Problems, Strategic Engineering Study 62, Corps of Engineers, U. S. Army, (Washington: Government Printing Office, 1945), p. 231.

Knowledge of the distribution and character of permafrost is of vital concern in agriculture. Differential settling of land underlaid by clear ice lenses in the permafrost has forced the abandonment of some cropland in the Fairbanks area.[21] If these areas could be located in advance of settlement, of investment in buildings, and of land clearing, the permanence of settlement could be increased. The value of permafrost in subterranean irrigation of crops has been inferred by various authors.[22] It seems that in many localities this would be of only temporary value because the permafrost frequently retreats to depths beyond the reach of plant roots. At present, there is no known research on this aspect of the relation of permafrost to agriculture. If the value of permafrost in supplying water to growing crops could be proven, attention should be given to agricultural techniques which would maintain the level of permafrost at an optimum depth.

Permafrost has been important in the various phases of gold mining activity in the Fairbanks area. In the prospecting phase, it has been important because of the increased expense and difficulty incurred in reaching bedrock where placer gold might have been found. Once gold was located and exploitation started by shaft and tunnel,

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21 Péwé, op. cit., p. 333.

22 Ibid., p. 323.

C. C. Georgeson, Annual Report of the Alaska Agricultural Experiment Stations, 1919, Office of Experiment Stations, States Relation Service, U. S. Department of Agriculture, (Washington: Government Printing Office, 1920), p. 14.

the permafrost became a valuable ally. The frozen alluvium eliminated the need for extensive timbering and also kept the workings dry. Indeed, some rich gold bearing areas of "live ground," that is, unfrozen material, were abandoned because the water could not be controlled. In the dredging phase permafrost became an item increasing the cost of mining because it had to be thawed before working the ground. Several years and considerable expense were involved in removing permafrost from placer gold areas in preparation for dredging.

The presence of permafrost creates problems in the construction of transportation facilities. The permafrost must be eliminated or protected to give a stable road bed foundation for railroads and highways or runways for aircraft.

Understanding and adjusting to permafrost conditions is essential to permanent settlement. The foregoing discussion indicates the need for increased knowledge of the character and distribution of permafrost in the Fairbanks area in order to make settlement less costly and more permanent and productive. This applies to all areas of northern settlement where permafrost is present.

Soils of the Fairbanks area are as fertile as those found in many productive areas of the United States and southern Canada.[23] The major limitations on the productivity of the soils are the short

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[23] Neil Michaelson, Exploratory Physical Studies of the Fairbanks Chatanika Soil Series, Tanana Valley, Alaska. Alaska Agricultural Experiment Station, U. S. Department of Agriculture, Technical Paper No. 15, (Palmer, Alaska: February 15, 1952), p. 1.

growing season and the moisture deficiency during the early months of that brief season. For best yields from the soils it is desirable to add commercial fertilizers to increase the nitrogen and phosphorous content. Forage production may be increased from 400 to 600 percent by the addition of fertilizer containing these elements.[24] The exact amounts as well as other essential elements for good crop growth depend on the results of soil analysis for individual fields. The high costs of labor and machinery in northern agriculture make it imperative to obtain maximum yields.

The soils of the Fairbanks area belong in general to the Subarctic Brown Forest soils, which are classified as an intrazonal group merging with the Tundra and Podsol soil groups but have distinct profile characteristics.[25] The most distinctive member of the Subarctic Brown Forest group is the Fairbanks series.[26] It is one of the most important agricultural soils of the area. The parent material is loess, a wind-blown material most of which was deposited in the area during the last great ice age. The Fairbanks series is the well-drained member of a soil catena,[27] which includes the thin lithosol of the Gilmore series as the upper member occupying the

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[24] Charles E. Kellogg and Iver J. Nygard, Exploratory Study of the Principal Soil Groups of Alaska Agriculture, U. S. Department of Agriculture, No. 7 (mimeographed).

[25] Ibid., p. 58.

[26] Michaelson, op. cit., p. 3.

[27] A group of soils developed on similar parent material with differing profile characteristics due to variations in relief and drainage. From the Latin for chain.

steep slopes and ridge tops and the Chatanika-Salcha series as the lower member in the lower, poorly drained areas.[28] The Fairbanks series is the dominant soil of the south-facing "benchlands" or middle, gentle slopes of the area near Fairbanks. These south-facing slopes form one of the most important areas for agricultural development. The slope and orientation of the land provides good water drainage and early warming of the soil makes it possible to cultivate and plant the soils of the Fairbanks series as much as two weeks ahead of the soils of the flood plain. Another advantage of the soils of gentle slopes is good air drainage which sometimes provides an additional ten or fifteen days of growing season after flood plain sites have been frosted.[29] Due to the well-drained character and their topographic position on sloping land, there is an earlier onset of drought conditions in dry years. The slope factor increases the susceptability to water erosion and demands careful and skillful management to prevent serious soil losses. The Fairbanks series is one of the most valuable agricultural soils of the region in spite of the early onset of moisture deficiency in dry years.

The Gilmore soils are of little agricultural importance. The thin mantle of weathered material underlaid by bedrock and the steep slope of this soil series precludes agricultural use.

The Chatinika-Salcha series occupies the lower south-facing

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[28] Michaelson, op. cit., p. 4.

[29] Miller, op. cit., p. 245.

slopes transitional to the alluvial soils of the floodplain. Permafrost underlies much of the uncleared areas of this soil series and together with a lack of structural porosity impedes drainage.[30] Higher organic content, lower soil temperatures and a dominance of gray colors in the profile distinguish the Chatanika-Salcha soils from the Fairbanks series. Improvement in the agricultural value of the Chatanika-Salcha series is usually noted as the length of time and area under cultivation increases. The level of permafrost begins to recede following clearing and after five to ten years the permafrost has little effect on soil temperatures and drainage. The possibility that the land may be underlaid by ground ice is a threat to successful agricultural use. The melt of the ice develops a hummocky surface and often forces agricultural abandonment of the land.[31] Increases in the cleared acreages of Chatanika-Salcha series reduces the problem of "frost pockets" or isolated cleared fields surrounded by forest. The large cleared areas improve air drainage and lengthen the growing season.[32]

The alluvial soils of the floodplain are azonal soils, that is, little difference exists between the soils in which plants grow and the alluvial material. The azonal condition is due to the

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[30] Michaelson, op. cit., p. 4.

[31] Pewe, op. cit., p. 343.

[32] Observation expressed in personal conversation with the author by John E. Osguthorpe, Superintendent, Fairbanks Experiment Station, July 1952.

youthfulness of the alluvium, insufficient time has elapsed since the soils were deposited to permit the formation of true profile characteristics. Alluvium is widely recognized as a highly desirable agricultural soil due to general dominance of silt sized particles, the "newness" of the soil, which means that leaching of valuable plant nutrients is minimal, and also that water is relatively easy to obtain because of the close relationship with streams.[33] Handicaps in the utilization of the alluvial soil of the Fairbanks area are the presence of permafrost below most of the uncleared land and the shorter frost-free season due to cold air drainage from the adjacent hills. The latter is the most serious because of the short growing season of the area. Some relief can be achieved by the use of overhead sprinkler irrigation although the costs for an adequate system might prove prohibitive. Expansion of cultivation is taking place on the alluvial soils of the floodplain particularly along the Badger Road and in the area between Fairbanks and the Tanana River.

The physical setting of the Fairbanks area has been well utilized by the residents. They have taken advantage of the centrality of the location and the local topography and have developed a transportation and distribution center. Agriculture has successfully adjusted to the short growing season and frozen subsoil conditions which are

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[33] A few examples of important areas of alluvial soil include the Fraser River Lowland in British Columbia, the Nile Valley and Delta in Egypt, the Ganges Valley in India and the Mississippi Valley in the United States.

common in subarctic areas. The problem of low winter temperatures has been overcome to the point where winter comfort levels are comparable with cities in Canada and the northern United States. Successful adaptation to the natural or physical environment and exploitation of the favorable aspects have contributed to the growth and permanence of settlement in the Fairbanks area.

CHAPTER III

TRANSPORTATION - PACE SETTER FOR DEVELOPMENT OF THE FAIRBANKS AREA

Introduction. Transportation has been a major factor in the development of Fairbanks and its environs. Improvement in transport has been followed by changes in the economy, a broadening of the economic base, greater investment in the area and hence greater permanence. River boats carried the majority of the goods and people following the discovery of gold and the founding of Fairbanks. A local railroad was built in the first few years of settlement which improved and lowered local transportation costs. The completion of the Alaska Railroad in 1923 provided cheaper, more dependable, year-around transportation and made possible the large scale mining developments. In the late 1920's Fairbanks became the aviation center for the interior. The development of air transportation helped to speed and lessen the cost of movement to isolated areas of mining activity and helped to expand the hinterland of Fairbanks.

In 1942 ferrying airplanes to Russia brought about changes in the transportation system and overall structure of the economic life of Fairbanks. Ferrying the planes led to the construction of a major base for servicing planes, to instructing the Russian pilots, and to other activities required prior to transferring the ships to Russia. The Alaska Highway, the overland link for Fairbanks and Alaska with Canada and the United States, was built to supply the

ferry route fields and supplement other forms of military transpor- to Alaska. Following the war there was a general overall improvement in the transportation to the Fairbanks area.

Adequate and varied transportation has been a factor in the expansion of the size, importance and permanence of subarctic settlements other than Fairbanks. Two important Canadian examples have been Whitehorse, Yukon Territory and Churchill, Manitoba. Whitehorse was served by rail, riverboat and air in the period prior to Pearl Harbor.[1] The railroad was particularly important in moving supplies to the center section of the Alaska Highway during the construction period. The focus of rail, highway, river and air transportation at this point has been important in holding the Royal Canadian Air Force Base and attracting the government of the Territory. Whitehorse serves as transfer point for goods from rail to river and truck transport. It is the major transportation and distribution center for the Yukon Territory.[2] Churchill was served by rail and ocean transportation. The availability of good transportation to bring in construction materials, heavy military equipment, fuel, food and other necessary supplies appears to have been an important factor in the choice of Churchill for the establishment of a large airfield in 1942.

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[1] Merle Colby, Alaska, (New York: Macmillan Co., 1939), Pp. lvii, ix, lx, lxi.

[2] Gerald F. Ridge, "General Principles for the Planning of Sub-Arctic Settlements," unpublished Ph.D. dissertation, McGill University, Montreal, Quebec, 1953, p. 304.

The varied transportation service and physical environment have been of importance in the establishment of the Joint Services Arctic Testing and Experimental Station in 1946.

Anchorage, Alaska has a somewhat similar background. Anchorage started as a railroad construction center at the head of navigation on Cook Inlet. The rail transportation, access to water transportation and the established character of the settlement have been important in its growth and expansion.

Primitive Transportation of the Pre-White Settlement Period. The Tanana Valley and the Fairbanks region were quite isolated and visited very infrequently until the beginning of the twentieth century. One of the earliest recorded visits to the area was made by a military expedition under the command of Lieutenant Henry T. Allen, United States Army, in the summer of 1885.[3] One of the first reliable maps of the Tanana Valley was produced by Lieutenant Allen. Because of a shortage of food, his expedition moved rapidly through the area and missed the mouth of Chena Slough. Later expeditions also suffered food shortages which retarded exploration and close examination of the Tanana Valley.

Alfred H. Brooks, the patriarch of Alaskan geologists, descended the Tanana River with a United States Geological Survey party during the summer of 1898. A more detailed map of the Tanana Valley

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[3] Henry T. Allen, An Expedition to the Copper, Tanana, and Koyukuk Rivers in 1885, 49th Congress, 2d. session, Ex. Document 125, Senate Document 2449, map in pocket.

was prepared by this group.[4] Later the same year a military expedition also descended the Tanana.[5] At the mouth of Chena Slough they found the fishing camp of an old Indian chief which is the first known record of settlement in the near vicinity of Fairbanks.

Traveling or working in this area was extremely difficult in the days before white settlement as some of the previous references have indicated. The few trails of the area were of limited usefulness during the warm months because of widespread boggy conditions. Because of the poor conditions of the trails, pack horses were of limited value in bringing in supplies during the prospecting season. The Tanana River and many of its tributaries were dangerous and difficult for small boat travel. Rapids, swift currents, log jams, sweepers,[6] and the cold, silt laden waters were some of the hazards for boat and raft travel.[7] The region lacked a source of supplies and poor transportation routes which linked the Tanana valley

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[4] A. H. Brooks, "A Reconnaissance in the Tanana and White River Basins, Alaska, in 1898," Twentieth Annual Report of the U. S. Geological Survey, Part 7, Geological Survey, U. S. Department of the Interior, (Washington: Government Printing Office, 1900), map facing p. 444.

[5] Lieutenant J. C. Castner, Narratives of Explorations in Alaska, Senate Sub-report No. 1023, 56th Congress, 1st Session, (Washington: Government Printing Office, 1900), p. 692.

[6] Sweepers are logs attached on the bank which extend horizontally into the stream dipping in and out of the water with a sweeping movement caused by the force of the current.

[7] U. S. Congress, House, Dangers to Travelers at Stream Crossings, House Document No. 271, 58th Congress, 3d Session, (Washington: Government Printing Office, February 1905), p. 7.

with other parts of the world made penetration by prospectors and others very difficult. The average prospector was a man of limited means who carried most of his supplies on his back. When the sources of prospecting equipment and supplies were from three hundred to eight hundred miles round trip from the buried placers of the Fairbanks region, it is not surprising that the area was relatively unknown. People other than prospectors and military exploration parties were not often seen in interior Alaska at this time. The discovery of gold in the Klondike region of the Yukon Territory on August 16, 1896 generated great interest in the gold of the Northern Lands. The discoveries greatly stimulated prospecting throughout the Yukon River drainage.

In the pre-discovery days at least one party reached the region much better equipped than the ordinary prospectors. The group had a small steamboat which enabled them to carry supplies sufficient for two summers work and the intervening winter.[8] A few prospectors had pack horses, but they were expensive to buy and had trouble on the low swampy sections of the trail. It was difficult to carry oats or other high energy feed in large enough quantities to maintain the horses in peak working condition. The animals were often abandoned at the end of the prospecting season because it was too much trouble to get them back to winter quarters.

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[8] Alaska Yukon Magazine, "First Voyage of the Tanana Chief," Vol. II, March 1909, p. 555.

The original gold strike near Fairbanks was aided in part by the difficulties of transportation in this region. In August of 1901 the Lavelle Young was trying to ascend the Tanana River to Tanana Crossing where the Valdez-Eagle Trail crossed the Tanana.[9] This vessel had a load of trading goods on board and it was the desire of the owner of these goods, Captain E. E. Barnette, to establish a trading post at Tanana Crossing. Either the swift current or the low water level of the Tanana prevented the Lavelle Young from ascending Bates Rapids which are on the Tanana above the mouth of Chena Slough. Captain Adams, master of the vessel, had heard that the rapids could be circumvented by going up Chena Slough and he dropped back to the mouth of the Chena to try this. It proved impossible and according to the terms of the contract, he was to drop the goods at the point where upstream progress stopped. Captain Barnette succeeded in persuading him to drop back down stream several miles to a higher, well wooded area along the Chena. Barnette built a cache here to store his trading goods for the winter which marked the first known white settlement at the site. Felix Pedro and his partner, who were prospecting in the area, were delighted to find a source of supplies so close to the scene of their operations. Barnette's cache eliminated the 300 mile round trip to Circle City which had been necessary to replenish their stores. In July of the following year, 1902, Felix Pedro made his historic strike on Pedro Creek and the town of Fairbanks

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[9] Wickersham, op. cit., p. 185.

started to grow.

River Boat Period 1901 - 1923. Following the discovery of gold, the chief mode of transportation was the river boat. Two routes were used; one was from Skagway to Whitehorse in the Yukon Territory by the White Pass and Yukon Railway, and thence along the Yukon and Tanana rivers to Fairbanks. The two customs clearances were a disadvantage on this route. The second ran from the Bering Sea port of St. Michael up the Yukon and Tanana rivers to Fairbanks and did not involve customs clearances.

The freight rates to Fairbanks were quite high in comparison with Nome and other important Alaska mining camps. In 1904 the freight rates from Seattle to Fairbanks via St. Michael were from one hundred thirty-five dollars to two hundred twenty dollars per ton, depending on the classification of the goods.[10] At the same time the rates from Seattle to Nome were from fifteen dollars to thirty-five dollars per ton.[11] The difference in freight charges between Fairbanks and Nome was due to the cost of river boat transport. Freight charges from Seattle to Nome and to St. Michael, the transfer point to river boats, were the same.[12] This great

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[10] C. W. Purrington, Methods and Cost of Gravel and Placer Mining in Alaska, U. S. Geological Survey, U. S. Department of the Interior, Bulletin 263, (Washington: Government Printing Office, 1905), p. 230.

[11] Ibid.

[12] Ibid., Pp. 230-231.

differential on freight was due in part to the high costs of river boat operation, short open season, navigation hazards and fluctuations of the river level. However, some writers attributed the high cost of transportation to Fairbanks to the monopoly on river transportation held by the North American Transportation Company and the Northern Commercial Company.[13]

It is interesting to note the relative disadvantage which Fairbanks had in comparison with the rival town of Chena with regard to river transportation. During low water stages on the Chena River, Fairbanks was inaccessible for all except the small, very shallow draft river boats. Thus it was necessary to land goods bound for Fairbanks at Chena, fronting on the Tanana River which was open to any vessels which could ascend that stream. The extra expense incurred when goods had to be transferred to smaller boats or carried by horse to Fairbanks was a serious competitive disadvantage.

Until the coming of the Alaska Railroad in the early 1920's, river boats carried most of the freight and supplies destined for the Fairbanks area. The service provided by water transportation was seasonal and usually functioned from around the first of June to early October. The seasonality of river boat transportation made a great deal of planning necessary for successful business or mining operations and required capital which could be tied up in supplies

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[13] H. Erdmann, Alaska Ein Beitrag zur Geschichte Nord Kolonisation, (Berlin: D. Reimer, 1909), p. 112.

over the winter. The supplies and machinery for mining in the early spring had to be on hand the preceding fall for two reasons. One, the mining season opened before the river navigation season by as much as a month. Two, transportation to the creeks from the river ports was cheaper in the winter because of the easier movement over the frozen ground.

There were several other types of transportation used in the early days of Fairbanks to complement the river form. The dog team and sled was one of the earliest and was very widely used in the winter when the ground was frozen and snow covered and when river boat movement was impossible. Dog sleds were a practical form of transportation because the dogs could pull their lightweight, nutritious food more easily than other forms of animal transport. Dogs hitched in a single straight line pulling a narrow sled required little trail improvement. They traveled easily over the winter snow cover and seldom broke through the crust. Dog sleds were the chief form of winter transportation in the very early days of the camp and transported the mail to the outlying area for a number of years.

Pack horses were in great demand to move supplies from Fairbanks and Chena to the nearby gold producing creeks. Wagon roads were built and improved to replace pack trails. Subscriptions by the businessmen of Fairbanks financed the construction of these first roads.[14] Freight rates from Fairbanks to the creeks declined two

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[14] Purrington, op. cit., p. 220.

hundred dollars to four hundred dollars per ton.[15] A bridge across the main channel of the Chena River replaced the cable ferry from Fairbanks to Garden Island by June of 1904. The bridge was reconstructed annually until the construction of a steel bridge thirteen years later by the Alaska Road Commission.[16] Fairbanks prospered at the expense of the rival Chena, because of the cheaper and easier movement of men and materials over the wagon roads from Fairbanks to the creeks. The main road to the creeks from Fairbanks extended along the west side of Birch Hill up the valley of Isabella Creek, over the divide into Engineer Creek, down this valley for a short distance and then up the Goldstream Valley to the vicinity of the present day town of Fox where the road branched to serve various creeks, (see Figure 3). This road was shorter and crossed less swampy ground than the trails from Chena. The progressive attitude of the merchants helped Fairbanks overcome the water transportation disadvantage and outstrip Chena. By 1904 Fairbanks was considered as the most important supply center in interior Alaska, (see Figure 4), eclipsing Circle, Eagle, Fort Yukon, Tanana, and other interior towns.[17]

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[15] Ibid., Rates were reduced from five hundred - six hundred dollars per ton to two hundred - three hundred dollars per ton.

[16] U. S. Army, Report of the Board of Road Commissioners for Alaska 1917, War Department, (Washington: Government Printing Office, 1917), p. 15.

[17] L. M. Prindle, The Gold Placers of the Fortymile, Birch Creek and Fairbanks Regions, Alaska, Geological Survey, U. S. Department of the Interior, Bulletin No. 251, (Washington: Government Printing Office, 1905), p. 69.

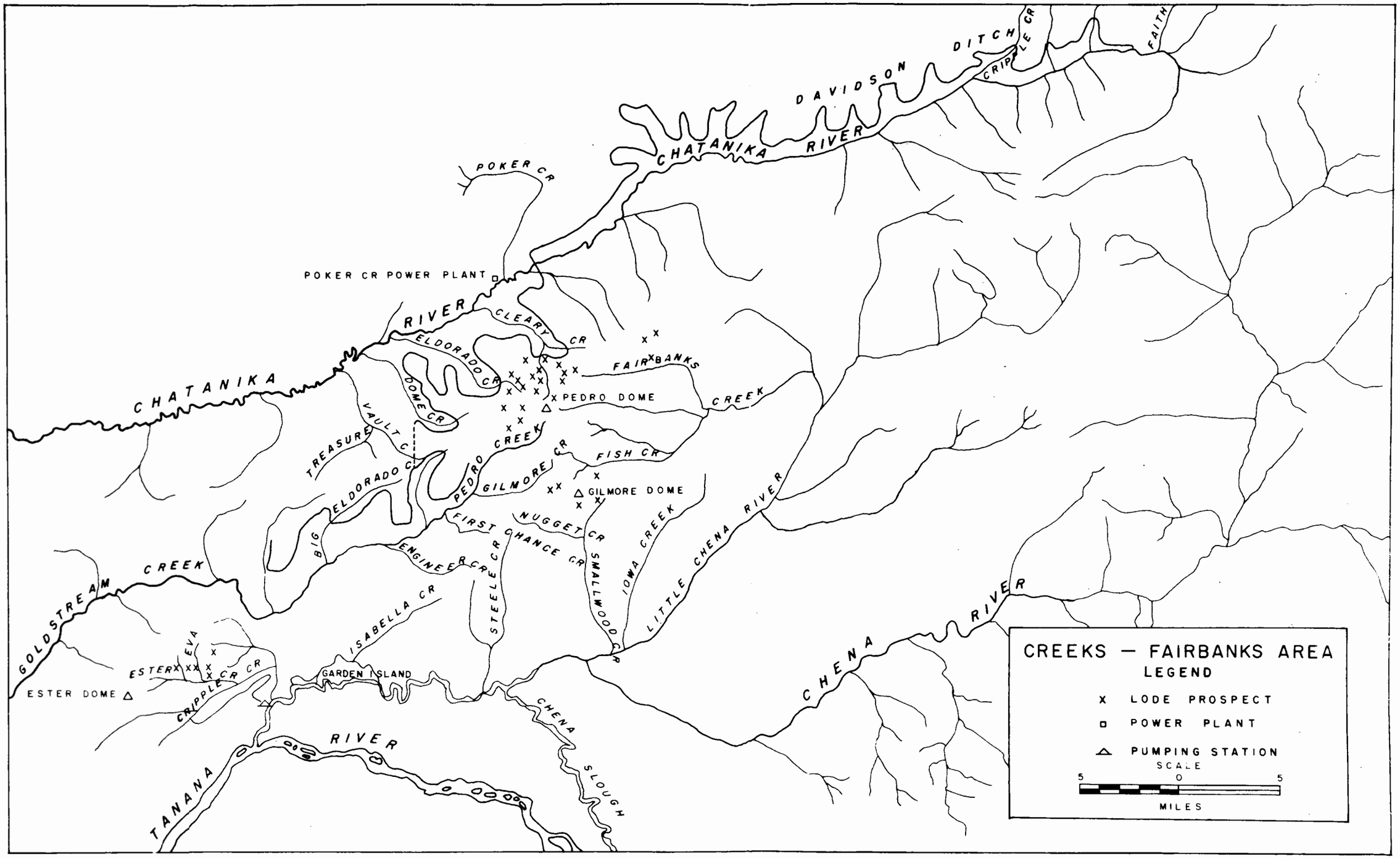
CHATANIKA RIVER
DAVIDSON DITCH
CRIPPLE CR
FAITH
POKER CR
POKER CR POWER PLANT
CHATANIKA RIVER
CLEARY CR
ELDORADO CR
FAIRBANKS CREEK
PEDRO DOME
DOME CR
VAULT CR
TREASURE
PEDRO CREEK
GILMORE CR
FISH CR
GILMORE DOME
BIG ELDORADO CR
FIRST CHANCE CR
NUGGET CR
SMALLWOOD CR
IOWA CREEK
LITTLE CHENA RIVER
ENGINEER CR
STEELE CR
GOLDSTREAM CREEK
ISABELLA CR
ESTER
EVA
CRIPPLE CR CR
ESTER DOME
GARDEN ISLAND
CHENA RIVER
TANANA RIVER
CHENA SLOUGH
CREEKS — FAIRBANKS AREA
LEGEND
LODE PROSPECT
POWER PLANT
PUMPING STATION
SCALE
5 0 5
MILES

FIGURE 3

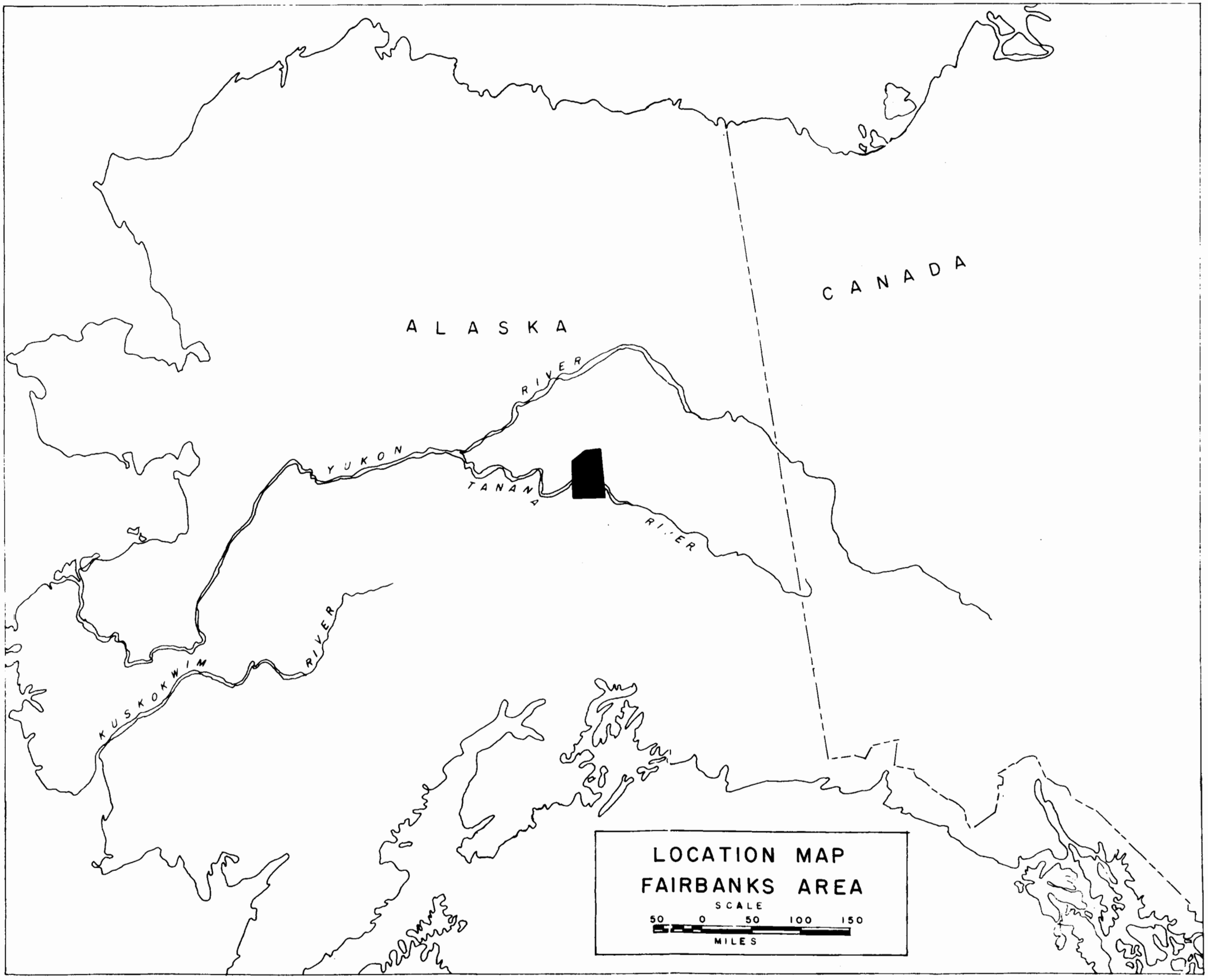
CANADA
ALASKA
YUKON RIVER
TANANA RIVER
KUSKOKWIM RIVER
LOCATION MAP
FAIRBANKS AREA
SCALE
50 0 50 100 150
MILES

FIGURE 4

In 1904 when Fairbanks was less than two years old, work started on a railroad to improve the local transportation. It was promoted by Falcon Joslin, a Fairbanks attorney, and was incorporated for five hundred thousand dollars supplied by English investors. Equipment for the railroad was landed on the last boats of the 1904 river season. The movement of this equipment provides a good example of transportation in the early days of the camp. The rails were transhipped eleven times between Seattle and Chena. Six flat cars destined for the railroad and shipped during the same season still rest in the bed of the Yukon River.[18] The early river boat transportation was slow, subject to various hazards and the numerous rehandlings of the freight added to the expense of shipments.

The Tanana Valley Railroad was well engineered and adequately met the challenge of permafrost, low marshy ground and other northern railroad problems. The administrative and maintenance headquarters were originally built at Chena and were later moved to Garden Island, across the slough from Fairbanks. The shift was due to the decline and abandonment of the town of Chena. The road was dedicated and the last spike in the twenty-six mile line to Gilmore in the upper Goldstream Valley was driven on July 17, 1905.[19] It was later extended

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[18] A. H. Brooks, Report on the Progress of Investigations of Mineral Resources of Alaska in 1905, Geological Survey, U. S. Department of the Interior, Bulletin No. 284, (Washington: Government Printing Office, 1906), p. 112.

[19] Wickersham, op. cit., p. 475.

to Chatanika in the Chatanika valley at the mouth of Cleary Creek and operated over forty-five miles of track. The railroad was the first type of transportation in the Tanana Valley that was not seriously affected or stopped completely by the spring break-up or the fall freeze-up. The railroad needed no seasonal conversion from runners to wheels which was an advantage over horse drawn transportation.

The Fairbanks-Valdez Trail, which later became the Richardson Highway, was a major step in improving and diversifying transportation to Fairbanks. This route had its beginning in 1901 when congress appropriated one hundred thousand dollars for roads and trails in Alaska. Most of the money was spent on the construction of a crude pack trail from Valdez to Fort Egbert at Eagle. In 1904 an additional fund was made available for the survey of a wagon road over the same route. This was not built because it was evident by then that Fairbanks was a more important center than Eagle and Fort Egbert and attention was turned toward providing a trail and road into this area. The official reports of the Alaska Road Commission state that this route was suitable for dog team travel by 1909.[20] However, other government records show that this route was used before this time. As early as the winter of 1905-1906 Fairbanks was a

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[20] Alaska Road Commission, "Report Upon the Construction and Maintenance of Roads, Bridges, and Trails, Alaska," Annual Report of the Chief Engineers to the Secretary of War 1924, Part II, (Juneau, Alaska; Alaska Daily Empire Print, 1924), p. 46.

mail distribution center for the interior and even for such far distant points as Nome.[21] Enterprising Alaskans were operating a twice weekly stage service over this route in the winter of 1906-1907.[22] A new cutoff built in 1906 saved approximately fifty miles.[23]

For a number of years the Valdez-Fairbanks Trail was unusable in summer where it crossed low level ground that became a quagmire after the spring thaw. After the freeze-up and the first snows, the trail had a firm smooth surface and to serve well it required only tree removal and some notching of sidehills to provide a suitable roadbed.. The period of winter travel usually extended from early October through April.

The Fairbanks-Valdez Stage Company was incorporated in 1905 to provide winter travel over this route. The company used sleds and horses to move freight and passengers. The rates quoted in 1907 were one hundred fifty dollars per passenger from Valdez to Fairbanks and one hundred twenty-five dollars on the south-bound trip. Small quantities of freight were carried between these points for seventy-five cents a pound and large quantities for fifty cents a pound,[24] or one thousand dollars per ton. During the winter of 1906-1907 around

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[21] U. S. Congress, House, Mail and Pack Trails in Alaska, House Report No. 3875, 59th Congress, 1st Session, (Washington: Government Printing Office, 1906), p. 23.

[22] Mills, op. cit., p. 254.

[23] Ibid., p. 254.

[24] H. J. Brand, Directory of the Tanana Valley 1907, (Fairbanks, Alaska: Tanana Directory Co., 1907), p. 21.

twenty-five hundred persons and about two thousand tons of freight moved over the route.[25] The equated cost of the winter transportation over the Fairbanks-Valdez trail was one million, three hundred twelve thousand, five hundred dollars using the lower rates for freight and passengers. The amount expended for overland winter transportation is equal to more than fourteen percent of the total gold production in 1906.[26] Improvement in transportation and lowering the costs were essential to make capital available for permanent improvements and it was towards this goal that the residents directed their attention.

In 1910 the Fairbanks-Valdez trail was considered as the most important overland route in Alaska by the Alaska Road Commission and it was improved as rapidly as funds would permit. By 1911 the trail was passable for light drawn wagons and in the summer of 1913 the first truck and automobile passages were accomplished. This opened a new era of transportation for the Fairbanks area and cars were faster and cheaper than horses. Although there were no roads classed as automobile roads until some years after World War I, regular mail and passenger service was maintained over this route by motor vehicle for a number of years prior to this change in classification.

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[25] U. S. Army, Report of the Board of Road Commissioners for Alaska to the Secretary of War 1907, War Department, (Washington: Government Printing Office, 1907), p. 10.

[26] Philip S. Smith, Past Placer-Gold Production from Alaska 1870-1930, Geological Survey, U. S. Department of the Interior, Bulletin 857-B, (Washington: Government Printing Office, 1934), p. 96. Fairbanks Gold production in 1906 - $9,000,00.

The people of Fairbanks have long been conscious of the importance of transportation to their well being. In addition to asking for improved transportation, they did something about it. As mentioned earlier, the first wagon roads to the creeks were financed by contributions of the Fairbanks merchants. They repeated the action in 1915 when, in spite of a gradual decline in the output of gold, the Fairbanks Commercial Club contributed four thousand, nine hundred ninety-seven dollars and fifty cents to the Alaska Road Commission for the construction of a sled trail to Chena Hot Springs.[27]

The highway system of Alaska suffered during World War I. Funds for the Alaska Road Commission were drastically reduced and an inadequate amount of maintenance was possible. A shortage of labor, particularly the skilled type, was widespread in the Territory and hampered the road maintenance operations on the Richardson Highway where there were a number of serious maintenance problems which are inadequately resolved even today.[28] These problems include bridge and road washouts caused by flooding glacial streams, glaciering,

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[27] U. S. Army, Report of the Board of Road Commissioners for Alaska 1916, War Department (Washington: Government Printing Office, 1916), p. 13.

[28] During the author's visit in the summer of 1952, the section of the Richardson Highway between Delta Junction and Big Timber Lodge was closed several times for periods of a few days to two weeks. This made it necessary to make a detour via Tok Junction which added nearly one hundred miles to a trip from Fairbanks to Valdez, Anchorage or other southern points on the highway system. These closures were due to flooding of the road and bridge washouts.

and heavy snows in the Thompson Pass area.[29] Wages and the cost of supplies increased during the war period and provided another deterrent to road maintenance.

A bad washout, caused by a flood in Keystone Canyon some fifteen miles from Valdez, closed the southern end of the Richardson Highway in July 1919. For nearly two years it was closed and overland movement to Fairbanks was via the Copper River and Northern Railroad, which was built in 1911 to Chitina where a branch road connected with the Richardson Highway.

About the time World War I started in Europe, work was resumed on the construction of a railroad from the coast to the interior. This project had long been the goal of the people of the Fairbanks area and had a number of capable champions in men like Alfred H. Brooks of the United States Geological Survey and Judge James Wickersham who represented Alaska as its delegate to Congress. A number of routes were proposed and the one currently used from Seward to Fairbanks via Broad Pass was finally selected. Work on the Fairbanks end of the line was started in 1915 and proceeded rather slowly. Roadbed construction was finally completed on November 3, 1919 when narrow gauge track linked Fairbanks with North Nenana at the Tanana River. The government first leased the Tanana Valley Railroad during the government fiscal year 1916-1917 and later purchased it

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[29] Stephen Taber, "Some Problems of Road Construction and Maintenance in Alaska," Public Roads, July - September 1943, p. 250.

for around three hundred thousand dollars.[30] The branch line to Chatanika was maintained and regular service was provided. The branch to Chena was torn up in 1919 because it was not used. Merchandise landings on the Chena docks were last recorded in 1917.[31] For all practical purposes Chena may be considered abandoned after this time; it had lost the transportation battle.

Even before the railroad was extended to North Nenana it was very useful to Fairbanks. The right of way crossed some good stands of spruce which were a valuable addition to the depleted and increasingly expensive supply of wood for fuel. After the narrow gauge line had been extended to the Tanana River across from Nenana some coal was shipped.[32] Significant movement of coal for fuel had to wait until the bridge over the Tanana was completed in February 1923.

Alaska Railroad 1923 - 1940. The completion of the Alaska Railroad in 1923 gave Fairbanks reasonable assurance that a dependable year-around transportation was available by which goods could

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[30] A. W. Greely, Handbook of Alaska, Its Resources, Products and Attractions in 1924, 3d Edition, (New York: Charles Scribners and Sons, 1925), p. 46.

[31] U. S. Department of the Interior, "Indian Affairs - Territories," Annual Report of the Department of the Interior 1918, Vol. II, (Washington: Government Printing Office, 1919), p. 95.

[32] A. H. Brooks, et. al., Mineral Resources of Alaska Report on Progress of Investigations in 1920, Geological Survey, U. S. Department of the Interior, Bulletin No. 722, (Washington: Government Printing Office, 1922), p. 26.

be supplied more quickly and at about one half the price of river freight.[33] Actual rates are shown in the following table.

TABLE IV

FREIGHT RATES, SEATTLE OR TACOMA TO SELECTED ALASKA POINTS

1923 Joint Rates, Water and Alaska Railroad to Fairbanks
(Ton units unless otherwise indicated)

Commodity	Carload
Groceries, mixed	$41.00
Flour, in sacks	28.20
Mining machinery, no piece over 4000 lbs.	30.00
Lumber, common, per 1000 board feet	21.10

Water Rates to Nome
(Ton units unless otherwise indicated)

Commodity	Carload	Less Than Carload
General merchandise	$16.00*	$19.00*
Mining machinery, no piece over 4000 lbs.	13.50*	16.00*
Coal, sacked	13.65*	15.65*
Lumber, common, not over 30 feet per M.	21.00*	23.00*

* Add $8.00 to $12.00 per ton for lighterage.

Source: Norman L. Wimmler, Placer Mining Methods and Costs, Bureau of Mines, U. S. Dept. of the Interior, Bulletin No. 259, (Washington: Government Printing Office, 1927), p. 19.

The completion of the bridge across the Tanana River at Nenana and the change over to standard gauge track on the Fairbanks

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[33] U. S. Army, Annual Report of the Engineers to the Secretary of War 1926, Part II, (Juneau, Alaska: 1926), p. 30.

section cleared the way for equipment and supply movement adequate for large scale mining development. Following World War I, the gold mining industry had felt the increasing cost of supplies and declining fuel supplies rather acutely. The railroad helped to lower the cost of supplies and provided a direct connection with the extensive lignite deposits of the Healy area. The transportation improvement was utilized by the Fairbanks Exploration Company a short time after the completion of the railroad. The Fairbanks Exploration Company began consolidating claims and moving in machinery in preparation for a big scale, long term development of the lower value placer ground. Preparations included the construction of a powerhouse fired by coal to provide electricity for the operation of its dredges. A cheap source of fuel was of primary importance for dredge operation and for many years the Fairbanks Exploration Company has been one of the chief customers of the Healy coal fields.

Caterpillar tractors came into the transportation picture in the latter part of the 1920's. They were used for moving heavy freight to outlying mining camps during March and April when the ground was frozen and snow covered and the period of very low temperatures had passed. Several large sleds were pulled by each caterpillar. Around 1930 they rented at rates of forty to fifty dollars a day.[34] Twenty miles was the usual daily run.

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[34] James M. Hill, Lode Deposits of the Fairbanks District, Alaska, Geological Survey, U. S. Department of the Interior, Bulletin No. 849-B, (Washington: Government Printing Office, 1933), p. 54.

After the rail line was completed the Alaska Road Commission embarked on a program of road improvement designed to supply traffic for the Alaska Railroad. The local road network was expanded and improved to better serve the farmers and the various mining operations in the vicinity. A major project extending over several years was the improvement of the Fairbanks-Circle Trail, which was first put through as a sled road, then constructed to wagon road standards and was later improved and named the Steese Highway.[35] The Steese Highway was built to improve the access to a number of mining properties lying between Fairbanks and Circle and to give Circle an overland transportation route during the summer. This highway added new territory to the Fairbanks trading area and eased the supply problem for the mining camps between Circle and Fairbanks. By 1936 the extension of the Elliot Highway to Livengood connected another mining area to the expanding Fairbanks trading area[36] (see Figure 5).

Fairbanks residents readily took to the airplane. The first airplanes in the area were those of an Army experimental flight from New York to Nome and return in 1920.[37] The Army flight was followed

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[35] Board of Road Commissioners for Alaska, Annual Report of the Alaska Road Commission Fiscal Year 1929, Part II, (Juneau, Alaska: June 1929), p. 38.

[36] Alaska Territorial Highway Department, Biennial Report of the Alaska Territorial Highway Engineer and Superintendent of Public Works 1935 - 1936, n. d.,p, 52.

[37] St. Clair Street, "The First Alaskan Air Expedition," National Geographic Magazine, May 1922, p. 550. An earlier stunt pilot performed over Fairbanks on July 4, 1914 as described in: Jean Potter, The Flying North, (New York: MacMillan Co., 1947), p. 26.

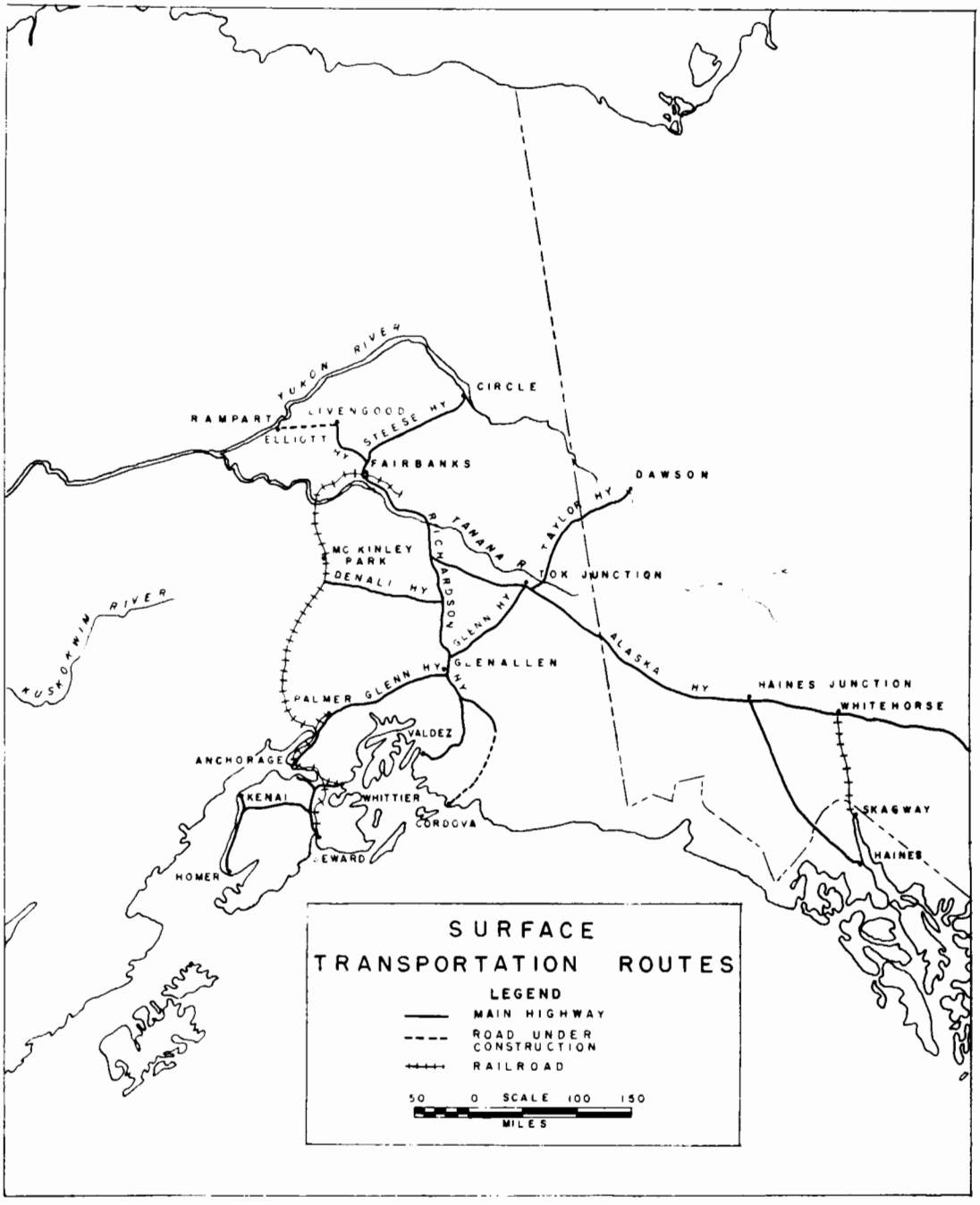
YUKON RIVER
CIRCLE
RAMPART
LIVENGOOD
ELLIOTT HY
STEESE HY
FAIRBANKS
DAWSON
TAYLOR HY
TANANA R.
RICHARDSON HY
MC KINLEY PARK
DENALI HY
TOK JUNCTION
KUSKOKWIM RIVER
GLENN HY
ALASKA HY
GLENALLEN
PALMER GLENN HY
HAINES JUNCTION
WHITEHORSE
VALDEZ
ANCHORAGE
KENAI
WHITTIER
CORDOVA
SEWARD
SKAGWAY
HAINES
HOMER
SURFACE
TRANSPORTATION ROUTES
LEGEND
MAIN HIGHWAY
ROAD UNDER CONSTRUCTION
RAILROAD
50 0 SCALE 100 150
MILES

FIGURE 5

by the introduction of airmail service between Fairbanks and McGrath in 1924 by Ben Eielson.[38] He proved the feasibility of the airplane in Alaska and after participating in several remarkable polar flights he founded the Farthest North Airplane Company in Fairbanks. The prospectors, miners and trappers adopted plane travel as soon as it was available. They covered distances in a few hours that formerly took days and weeks and saved money as well. The airplane was widely used on mercy missions, flying the seriously ill and injured to centers like Fairbanks where hospital and doctor facilities were available. This reduced one of the great hazards of the isolated areas, the fear and reality of being injured or becoming ill with very meager or no means for treatment. Many mercy flights were flown by the pilots often under adverse conditions and at great personal risk. The valuable service is still performed today, chiefly through the Air Search and Rescue units of the United States Air Force.

Weeks Field construction was started in 1928 with the building of two, four hundred by two thousand foot runways. Other fields were built in the surrounding territory at Brooks (on the Tolovana River), Fort Yukon, Palmer Creek (in the headwaters area of the Chena River), and Circle Hot Springs, (see Figure 6). Still other fields were added as plane numbers increased and more people recognized the usefulness of this form of transportation. Service to these outlying points was provided by planes based at Fairbanks.

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[38] Colby, op. cit., p. 93.

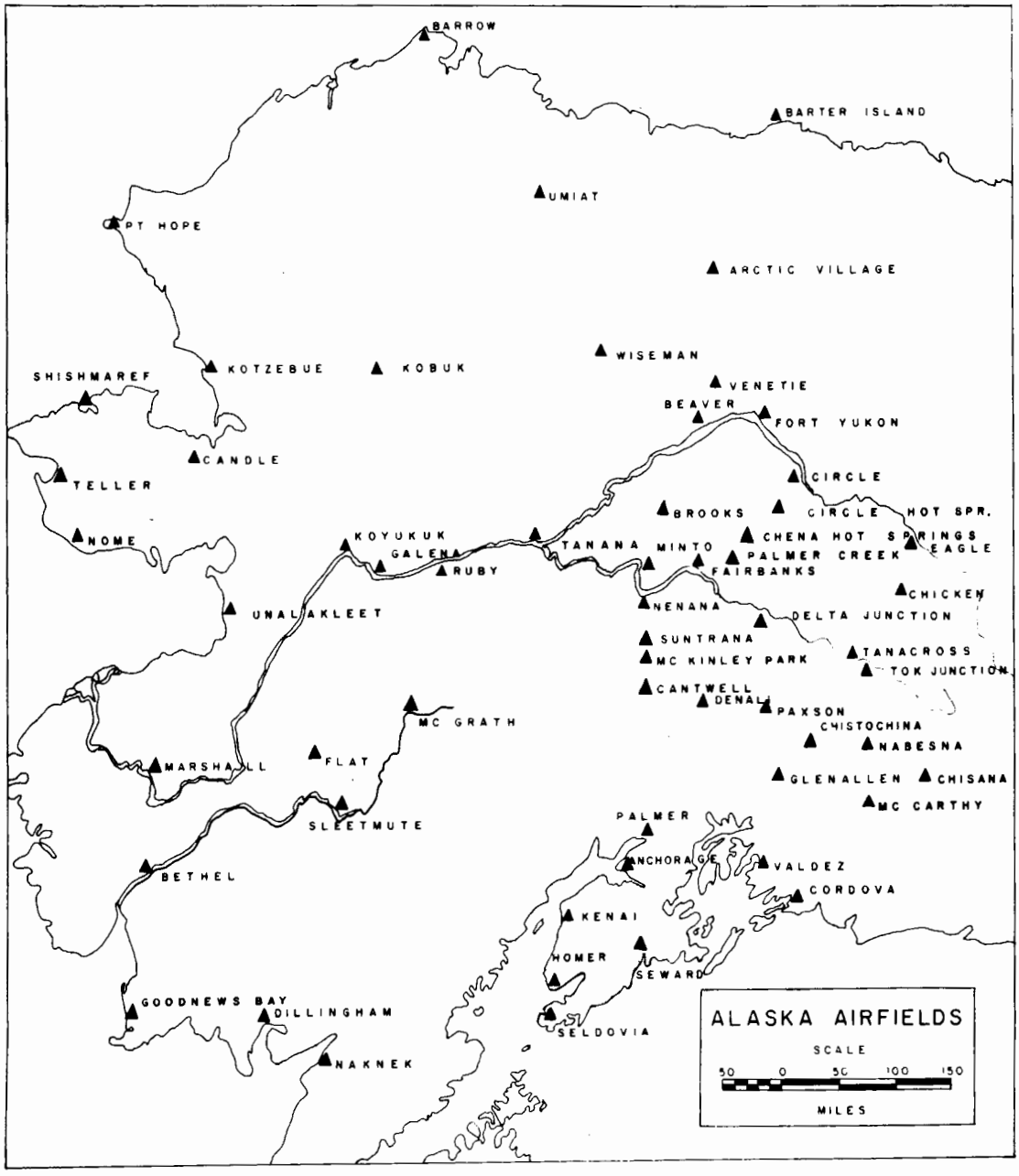
BARROW
BARTER ISLAND
UMIAT
PT HOPE
ARCTIC VILLAGE
WISEMAN
SHISHMAREF
KOTZEBUE
KOBUK
VENETIE
BEAVER
FORT YUKON
CANDLE
TELLER
CIRCLE
BROOKS
CIRCLE HOT SPR.
NOME
KOYUKUK
GALENA
RUBY
TANANA
MINTO
CHENA HOT SPRINGS
PALMER CREEK
EAGLE
FAIRBANKS
CHICKEN
UNALAKLEET
NENANA
DELTA JUNCTION
SUNTRANA
MC KINLEY PARK
TANACROSS
TOK JUNCTION
CANTWELL
DENALI
PAXSON
CHISTOCHINA
MC GRATH
NABESNA
MARSHALL
FLAT
GLENALLEN
CHISANA
MC CARTHY
SLEETMUTE
PALMER
ANCHORAGE
VALDEZ
BETHEL
CORDOVA
KENAI
HOMER
SEWARD
GOODNEWS BAY
DILLINGHAM
SELDOVIA
NAKNEK
ALASKA AIRFIELDS
SCALE
50 0 50 100 150
MILES

FIGURE 6

Originally Weeks Field was an asset to Fairbanks because it was located on the borders of the city and provided air travelers with quick and easy access to the business district. In fact, it was so near the city that it was troubled by the fog that formed over the city in the winter. With the help of the Civilian Conservation Corps, one runway was extended to Chena Slough which enabled planes to escape the fog and also facilitated the seasonal change from wheels to floats which was carried out on many aircraft. After the war the addition of bigger two engine planes and four engine models in Alaskan air transportation made Weeks Field totally inadequate. Expansion of the field was out of the question because there was already a serious safety problem caused by traffic pattern intersections with Ladd Air Force Base flights, (see Figure 7). The runways of Ladd Field were less than three miles from Weeks Field and led directly over this installation. This conflict was resolved by closing Weeks Field as an airport on October 15, 1951.[39] Today Weeks Field serves Fairbanks as a place of residential development. The area has been transformed into one of the better planned residential areas of the city. Fairbanks Manor Apartments, which have two hundred and seventy-two rental units are located in the old Weeks Field area. Play areas for children and a curving street pattern conforming to the modern practice in residential areas are features of this development.

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[39] Richard A. Cooley, Fairbanks, Alaska A Survey of Progress, Alaska Development Board, (Juneau, Alaska: July 1954), p. 43.

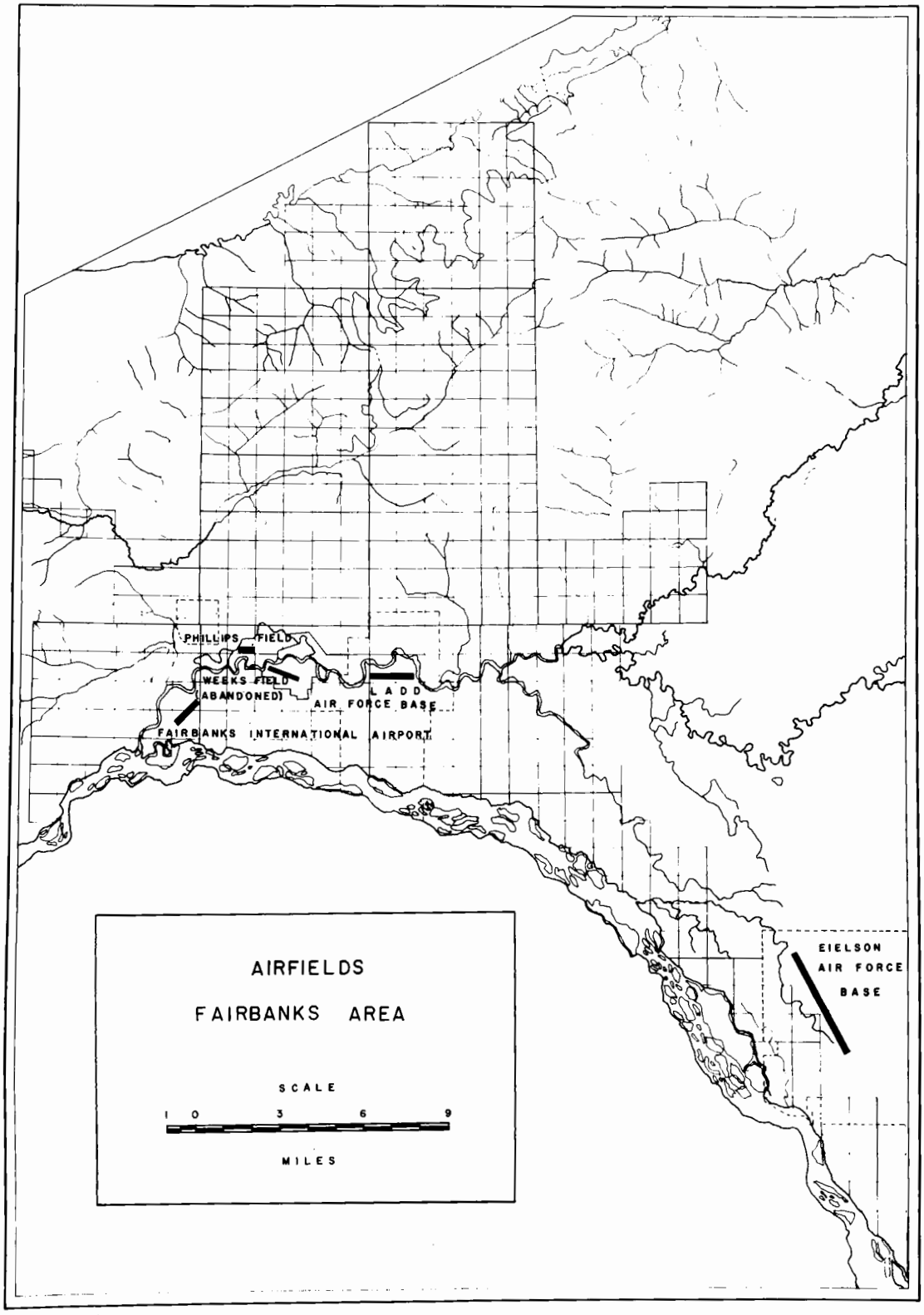
PHILLIPS FIELD
WEEKS FIELD (ABANDONED)
LADD AIR FORCE BASE
FAIRBANKS INTERNATIONAL AIRPORT
EIELSON AIR FORCE BASE
AIRFIELDS
FAIRBANKS AREA
SCALE
1 0 3 6 9
MILES

FIGURE 7

For several years the Air Force permitted use of its facilities by commercial multi-engine ships on a limited basis, but this proved unsatisfactory for both the Air Force and the commercial operators. After considerable agitation by various Alaskans and interested organizations, Congress finally approved funds for the construction of a new airport,located outside the area of serious traffic interference with the military operations,which was capable of handling the larger commercial aircraft.[40] Thus,improvements in air transportation facilities were primarily due to the military whose presence is closely linked to the existing transportation network.

This new field, the International Airport, is some five miles west and south of Fairbanks, (see Figure 7, page 64). The field has a six thousand foot runway which is adequate for current multi-engine operation and could be extended without difficulty. The surfaced runway, taxiway, control tower and other physical assets represent an investment of nearly five and one-half million dollars.[41] This is a valuable physical addition of a permanent nature as well

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[40] U. S. Congress, House, Alaska Airports, Hearings before the committee on interstate and foreign commerce, 80th Congress, 1st Session on HR 3509, (Washington: Government Printing Office, 1947), pp. 3-28.

[41] U. S. Congress, House, Alaska Airports, Hearings before a subcommittee of the committee on interstate and foreign commerce, 81st Congress, 1st Session,on HR 6049, (Washington: Government Printing Office, 1949), p. 10.

as a transportation asset for the area.

The local bush pilots and small private plane owners reacted against the new airport. They did not like the fees that were levied at the new field nor the restrictions that were set up for operations. The solution to their problem was the construction of Phillips Field, a privately owned and operated field, on Garden Island. The oiled runway is about four thousand feet long and is adequate for small plane operation. Here is another small but important permanent investment in the Fairbanks area. It is a material expression of the dislike of regulations in this case necessary for the orderly operation of a large airport. This action may be interpreted as a vigorous protest against the passing of frontier conditions in air transportation.[42]

Diversified Transportation - World War II to the Present. The conflict with Japan and the alliance with Russia brought military aviation bases to Fairbanks and a highway link with the United States and Canada. It also led to an expanded road network within Alaska and improvement of the Alaska Railroad.

Soon after the completion of the Alaska Railroad, Fairbanks and other towns began working for a highway connection to the United States. A commission investigated the possibilities of a highway in

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[42] Frederick Jackson Turner, "The Significance of the Frontier in American History," Proceedings of the 41st Annual Meeting of the State Historical Society of Wisconsin (1893), (Madison, Wisconsin: 1894), p. 96.

1930 and several other subsequent investigations took place sponsored by both the United States and Canadian governments. The United States government reported favorably on the project and was ready to go ahead. However, much of the road construction needed to link Alaska and the United States was located in Canada and during the thirties Canada felt that it had more pressing projects on which to expend its funds. The second World War and the ferry route for delivering planes to Russia made the road link a strategic necessity to supply the airfields along the route. In the interests of national defense the United States provided funds for the construction of the highway. In less than nine months after the start of construction, in March of 1942, the pioneer road was pushed through from Dawson Creek, British Columbia and an overland link between Fairbanks and the United States became a reality.[43]

The original pioneer road was steadily improved and was an important communication line during the war. In addition to serving as a supply line for the fields along the ferry route to Russia, it was also a service road for the Petroleum Products' pipelines from Whitehorse to Fairbanks and other intermediate points. It was opened to limited civilian traffic in 1946 and with the improvement of the road and the service facilities, it was opened to the general motoring

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[43] U. S. Army, The Alaska Highway, Public Relations Branch, Northwest Service Command, Mimeograph and Multilith Section, U. S. Signal Corps, 1944, p. 15.

public.

The highway seems to have had a strong psychological effect in breaking the feeling of isolation which had long existed in the minds of the residents. Although at present there have been no known attempts to measure this phenomenon, it has been apparent in the people's conversations. There is something about being able to reach a place by automobile that integrates it with the rest of the world in the minds of many United States citizens, particularly those in Alaska.

The Alaska Railroad was in poor condition at the outbreak of the second World War. The rolling stock was old and decrepit and much of it had been used in the construction of the Panama Canal. Even more important were the light, poorly ballasted and aligned rails, many wooden bridges in need of repair or replacement, and other facilities which were inadequate and needed improvement. Under army operation the road was improved and delivered substantial amounts of construction material, military supplies and freight to Fairbanks. The line was extended by the Army during the war to serve Ladd and Eielson air fields. This extension is still in use and is now under the jurisdiction of the Alaska Railroad.

In 1947 Congress authorized funds for the general rehabilitation of the Alaska Railroad. The track was changed from seventy pound to one hundred and fifteen pound rail, treated ties were put down, and a new seven and one-half million dollar terminal was erected

at Fairbanks.[44] This included seventy-five industrial sites on spur tracks on Garden Island and almost all were leased by 1952.[45] This terminal, finished in 1950, included repair, maintenance and service facilities for rolling stock, additional storage track and other improvements. The addition of the facilities added permanence to the Fairbanks area by the increased employment they provided as well as the large capital investment.

The improved service and provision of industrial sites with direct rail service by the Alaska Railroad encouraged expansion by business enterprises in Fairbanks. New plants and warehouses were built on the industrial sites. This expansion increased permanence through larger investments and greater economic diversification.

The larger the investment in an area, particularly in immovable items or items which can only be moved with difficulty and great expense, the more binding the attachment to the area and the greater the permanence. Economic diversification, encouraged by the provision of sites with improved transportation and less handling, also aided permanence. The unsophisticated phrase of "not putting all your eggs in one basket" is definitely applicable in assessing permanence. As the economic base broadens, the probability of a crippling

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[44] U. S. Department of the Interior, Annual Report of the Alaska Railroad Fiscal Year 1950, Alaska Railroad, (Washington: Government Printing Office, n. d.), p. 5.

[45] Oral communication with representative of the Industrial Sites Department, Anchorage, Alaska. June 1952.

blow to the livelihood of the community decreases. This is a valid generalization, though not a new one. It is worthy of measure and would be a significant study in itself. The development of a ratio of the spread of economic activity to the degree of permanence would be very helpful in evaluating existing settlement and an aid in predicting the probable success of planned future settlement.

Another transportation advance is the Petroleum Products pipe line extending from Haines, Alaska to Fairbanks. The six hundred and fifteen mile line parallels much of the Alaska Highway system between these points and was built to serve the military installations in the Tanana Valley and along the Alaska Highway. The cost was in excess of thirty million dollars.[46] It is interesting to note that this addition has caused difficulty in the economic structure of the Alaska Railroad. The railroad, charged by congress to operate on a paying basis, suffered a sizeable drop in revenue which caused a net operating loss.[47]

Today Fairbanks is well served by several different forms of transportation. Various private firms and the United States Government have invested sizeable sums in permanent installations and equipment of a less permanent and more mobile nature.[48] Regular freight

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[46] Jessen's Weekly, October 15, 1953.

[47] Fairbanks Daily News-Miner Progress Edition, November 20, 1957, p. 86.

[48] It would be very desirable to measure the amount of permanent attachment of transportation in the area but this is beyond the scope of the present study.

service by truck is maintained between Fairbanks and Valdez, Anchorage, Great Falls, Montana and Seattle, Washington. Scheduled air service connects Fairbanks with the major towns in Alaska, the United States, and Canada. Contract and charter flights will carry goods and passengers to almost any point in Alaska. The Alaska Railroad still carries the bulk of the freight, picking up its shipments from ocean ships at Whittier and Seward. (Current freight rates are shown in Table V). Passenger traffic is handled on a daily schedule to Mount McKinley, Anchorage, Seward, and way points. The new pipeline further diversifies the transportation service. Its future for civilian use is dependent on military requirements and policy.

Expansion of the transportation system continues. The Steele Creek Road running east from Fairbanks is being extended to Chena Hot Springs. The road is now passable during the winter months and Alaska Road Commission plans call for a year-around road in 1958.[49] Preliminary construction was initiated in 1957 to extend the Elliott Highway from Livengood to Rampart.[50] Thirty miles of the winter road from Fairbanks to Nenana was built to all weather standards in 1957 and the remainder is scheduled for completion in 1958.[51] A bridge across the Tanana River has not been included in the present plans.

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[49] Fairbanks Daily News-Miner , op. cit., p. 124.

[50] Personal conversation with Mike Sankovich, Fairbanks resident, October 24, 1957.

[51] Fairbanks Daily News-Miner, op. cit., p. 69.

TABLE V

FREIGHT RATES - SEATTLE TO FAIRBANKS FOR SELECTED COMMODITIES FEBRUARY 4, 1958

Commodity	Alaska Steamship and Alaska RR Combined Rate	Alaska Freight Lines Barge Truck	Lynden Transfer Line operated Direct truck	Air Freight
Mining Machinery per ton	$59.12	$70.40	$170 - $200.	$310 - $380.[c]
Groceries	$62.20 - 89.90	$67.70 - 81.60	$170 - $200.	$380
Vegetables:				
Winter (squash etc.)	$135.96	$145. - $155.	$170 - $200.	$340.[b]
Potatoes & Onions	$59.74 - 84.25		$170 - $200.	$340.[b]
Fresh	$85.08 -178.19		$170 - $200.	$340.[b]
Milk and Cream				$300.[c]
Petroleum Products:				
Lube oil, asphalt mix etc.	$60.77 - 79.93	$64.00 - 69.00[a]	$170 - $200.	$380.
Gasoline, Benzine, etc.	$62.21 - 80.34	$65.60 - 70.60	$170 - $200.	$380.
Agricultural Implements including wheeled vehicles.	$48.82 - 63.45	$70.40	$170 - $200.	$380.

[a] 30,000 lb. minimum, will not handle less.

[b] 2,000 lb. minimum

[c] 100 lb. minimum

Source: Interstate Commerce Commission Tariffs, February 4, 1958 through the courtesy of Donald J. Osbjornson, Traffic Manager, Pacific American Fisheries, South Bellingham, Washington.

Ferry service in the open water season and an ice crossing in the winter may be supplied in 1958.[52]

Transportation diversity and improvement have been important in the permanence of settlement in the Fairbanks area. Expansion of the transportation system and continued improvement are favorable factors in the growth and economic stability of this part of Alaska.

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[52] Ibid.

CHAPTER IV

MINING - THE IMPETUS FOR WHITE SETTLEMENT

Following the discovery of gold on Pedro Creek, some seventeen miles north and east of Fairbanks in July of 1902, annual gold production climbed rapidly to a peak of nearly ten million dollars in 1909. The rich deposits paid for heavy machinery, stores, businesses, municipal improvements and other fixed assets which helped hold the settlement during the period of decline. The decline in gold production and population lasted from 1910 until the completion of the Alaska Railroad in 1923. The opening of the railroad was accompanied by a rival in the mining industry which now turned to large scale dredging. This resulted in a growth of population and heavy investment. The revival of mining continued up to World War II and also included lode mine development. During the second World War mining practically ceased and the manpower was used on more vital military projects. After the war, increased costs led to the closure of most lode operations and restricted placer mining to the highly mechanized and more efficient operators. However, detailed analysis of the development of mining discloses significant contributions of the industry to the permanence of settlement in the Fairbanks area.

Important Physical Factors. Placer gold deposits, the main support of mining activity had exceptional physical conditions which aided the stable development of the area. The depth of the deposits,

over two hundred feet in some cases, increased the investments for equipment and added to the difficulties of finding the gold.[1] Permanently frozen ground slowed prospecting, development of the claims, and added to mining expense. Prospecting was difficult, time consuming, and expensive, and digging prospecting shafts cost from seven to ten dollars a foot in the early days of the mining development.[2] The type of miners who developed the Fairbanks district were, for the most part, determined working men who were willing to risk many hours and days of hard labor in hopes of finding a paying placer claim. The difficulties of claim development gave Fairbanks a bad name throughout Alaska and the Yukon Territory in the early years of development.[3]

Thawing the permanently frozen ground in order to sink a prospect shaft to bedrock entailed much labor. A wood supply was required to heat large stones which were then pushed into the shaft. After several hours the stones cooled, thawing from one to two feet of material at the bottom of the shaft. The stones were then lifted from the shaft to be reheated and the thawed material removed.[4] As

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[1] Purrington, op. cit., p. 29.

[2] Ibid., p. 42.

[3] Thomas A. Rickard, "Through Yukon and Alaska," Mining and Scientific Press, (San Francisco: 1909), p. 266.

[4] N. L. Wimmler, Placer Mining Methods and Costs in Alaska, Bureau of Mines, U. S. Department of the Interior, Bulletin No. 259, (Washington: Government Printing Office, 1927), p. 72.

development of the claims progressed, hot water and sometimes steam were forced into the frozen ground of shafts and tunnels through pointed pipes driven several feet into the frozen material.[5] Still later a technique for thawing with cold water was used in the Fairbanks district.[6]

The permafrost and the depth of the ground necessitated a substantial and relatively fixed investment in boilers and hoisting machinery during the first twenty years of mining. A degree of permanence uncommon in placer mining camps was provided by the capital invested in this relatively fixed machinery.

The climate of the region has influenced the development of mining and its contribution to stability of settlement.. The light and variable precipitation was a serious problem in placer mining. Because of limited and spasmodic rainfall, the largest dredge operator in the area built the Davidson Ditch. The ditch, seventy-two miles long, required six siphons to cross various stream valleys between the point of origin in the headwaters of the Chatanika River and the Goldstream Valley, (see Figure 3, page 48). A rock tunnel three-fourths of a mile in length was also constructed to carry the

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[5] Alfred H. Brooks, Report on Progress of Investigations of Mineral Resources in Alaska, 1905, Geological Survey, U. S. Department of the Interior, Bulletin No. 284, (Washington: Government Printing Office, 1906), p. 115.

[6] Wimmler, op. cit., p. 77.

water through the summit north of Fox.[7] The large investment in the ditch was immovable and brought a stability to placer gold mining in the area. A rough estimate of the cost of this ditch may be obtained from a similar ditch built in the vicinity of Dawson, Yukon Territory around 1907. The ditch was eighty-five miles long, had nineteen and six-tenths miles of flume, twelve and six-tenths miles of pipe and cost approximately seven million dollars.[8] Prior to the completion of the Davidson Ditch, all placer mining operations had been dependent on very local and limited surface water supplies of the creeks which were directly related to the local precipitation. The small amount and the marked variations that were found from season to season often led to fluctuations in the amount of gold produced. (See Table No. VI).

The above physical factors, deep gold bearing gravels, permafrost, and light and variable precipitation have been important in necessitating investments and development that have been conducive to stability and a long production period in comparison with other gold placer mining areas.

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[7] Philip S. Smith, Mineral Industry of Alaska in 1926 and Administrative Report, Geological Survey, U. S. Department of the Interior, Bulletin No. 797, (Washington: Government Printing Office, 1927), p. 19

[8] Harold A. Innis, "Settlement and the Mining Frontier," Canadian Frontiers of Settlement, Vol. IX, edited by W. A. Mackintosh and W. L. G. Joerg, (Toronto: The Macmillan Co. of Canada Ltd. at St. Martin's House, 1936), p. 244.

TABLE VI

ALASKA'S MINERALS AND FAIRBANKS GOLD PRODUCTION 1902 - 1958

Year	Alaska				Fairbanks		
	Total Mineral	Gold			Gold		
		Total	Placer	Lode	Total	Placer	Lode
1902	8,476	8,335	5,887	2,448	0	0	0
1903	9,089	8,748	6,010	2,738	40	40	0
1904	9,627	9,115	6,025	3,090	400	400	0
1905	16,491	15,846	12,340	3,506	6,000	6,000	0
1906	23,502	22,037	18,607	3,430	9,320	9,320	0
1907	20,841	19,350	16,491	2,959	7,845	7,845	0
1908	20,093	19,293	15,888	3,405	9,180	9,180	0
1909	21,141	20,412	16,253	4,159	9,650	9,650	0
1910	16,875	16,127	11,985	4,142	6,242	6,224	17
1911	20,720	16,853	12,540	4,313	4,608	4,544	64
1912	22,582	17,146	11,990	5,155	4,371	4,176	195
1913	19,547	15,627	10,680	4,947	3,677	3,328	349
1914	19,110	15,764	10,730	5,034	2,739	2,514	225
1915	32,790	16,702	10,480	6,222	2,683	2,465	218
1916	48,386	17,242	11,140	6,102	1,839	1,800	39
1917	40,695	14,657	9,810	6,847	1,358	1,310	48
1918	28,219	9,481	5,900	3,581	827	800	27
1919	19,627	9,426	4,790	4,456	772	730	42
1920	23,331	8,366	3,873	4,493	600	580	20
1921	16,994	8,074	4,226	3,848	608	570	38
1922	19,420	7,422	4,395	3,027	747	693	54
1923	20,331	5,985	3,608	2,377	628	603	25
1924	17,457	6,286	3,564	2,722	781	680	101
1925	18,221	6,360	3,223	3,137	605	521	84
1926	17,665	6,707	3,769	2,938	513	462	51
1927	14,404	5,927	2,982	2,945	398	347	51
1928	14,061	6,845	3,347	3,498	1,023	940	83
1929	16,066	7,761	4,117	3,644	1,221	1,138	83
1930	13,812	8,476	4,837	3,639	2,916	2,782	134
1931	12,278	9,507	4,842	4,665	2,665	2,486	169
1932	11,638	10,209	5,522	4,687	2,965	2,785	180
1933	10,366	9,701	5,152	4,549	3,252	3,077	175
1934	16,721	16,007	8,955	7,052	5,877	5,474	403
1935	18,312	15,940	9,703	6,237	5,712	5,317	395
1936	23,594	18,433	11,328	7,105	6,027	5,642	385
1937	26,989	20,373	12,655	7,718	5,314	4,891	423
1938	26,607	23,170	14,897	8,273	6,081	5,653	428
1939	25,674	23,686	16,365	7,321	6,591	6,041	550
1940	28,724	26,459	18,966	7,493	7,872	7,315	557

TABLE VI (continued)

ALASKA'S MINERALS AND FAIRBANKS GOLD PRODUCTION 1902 - 1958

Year	Alaska				Fairbanks		
	Total Mineral	Gold			Gold		
		Total	Placer	Lode	Total	Placer	Lode
1941	26,809	24,341	17,205	7,136	5,989	5,402	587
1942	20,094	17,067	12,254	4,812	6,462	5,955	507
1943	9,055	3,485	1,473	2,012	625	500	125
1944	6,903	1,725	1,176	549	550	500	50
1945	10,174	2,384	2,019	364	511	363	148
1946	12,430	7,937	7,725	213	4,072	4,022	50
1947	18,458	9,800	9,676	124	5,317	5,278	39
1948	13,024	8,694	8,498	196	4,469	4,459	10
1949	15,302	8,030	7,738	291	3,333	3,326	7
1950	17,852	10,125	9,699	426	4,093	4,082	11
1951	19,569	8,387	8,348	39	3,853	3,853	0
1952	26,284	8,419	8,375	44	4,385	4,377	8
1953	24,252	8,882	8,859	23	4,780	4,766	14
1954	24,407	8,697	8,663	35	4,983	4,987	5
1955	25,412	8,725	8,645	80	5,141	5,141	0
1956	23,408	7,325	7,264	62	4,030	4,030	0
1957	29,886	n. a.	n. a.	n.a.	n. a.	n. a.	n.a.
1958	21,077	n. a.	n. a.	n.a.	n. a.	n. a.	n.a.

Sources: U. S. Department of the Interior, Mineral Industry of Alaska, U. S. Geological Survey, various Bulletins, 1902-1944.

U. S. Department of the Interior, Mineral Yearbooks, Bureau of Mines, various years, 1941 - 1958.

Mining as the Factor Initiating Settlement - The Strike, 1902. Ivan Petroff, the first United States census official in Alaska, reports that in 1880 prospectors had long been at work in the upper Yukon and had found gold in paying quantities only on the Tanana River.[9] However, the early activity left no mark in the Fairbanks area. A. H. Brooks, the well known Alaskan geologist, found "colors" on the river bars in the lower Tanana in 1898 and suggested that prospecting might be quite rewarding in this area.[10] He attributes the lack of prospecting in this area to the relative inaccessibility for prospectors. The absence of a nearby source of supplies led to hurried trips through the area by the gold seekers who had to outfit on the coast at Valdez or at one of the Yukon River ports.

Difficulties of navigation on the Tanana River in 1901 which led to the placing of Barnette's cache near the heart of present day Fairbanks, improved the supply situation, (see page 43). Felix Pedro and his partner, Frank Costa, knew of the Barnette cache in 1901 and when they returned to their prospecting in 1902, they got their supplies from this source. In July of 1902, while prospecting in the

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[9] Ivan Petroff, Report on the Population, Industries and Resources of Alaska, Tenth Census of the United States, (Washington: Government Printing Office, 1882), p. 5.

[10] A. H. Brooks, "A Reconnaissance in the Tanana and White River Basin, Alaska in 1898," Twentieth Annual Report of the United States Geological Survey, Part 7, Geological Survey, U. S. Department of the Interior, (Washington: Government Printing Office, 1900), p. 487.

vicinity of Pedro Dome, some fifteen miles northeast of Fairbanks, Pedro made the historic strike on what is now known as Pedro Creek.

The Rush - 1902 - 1909. Following the establishment of Barnette's cache on Chena Slough in 1901 and the discovery of gold by Felix Pedro in 1902, a stampede started similar to those of other newly discovered gold deposits in this northern region. Just before the spring breakup of 1903, the stampede started with people arriving via the trails from towns along the Yukon River. More came by river boat after the opening of the navigation season. On April 9, 1903, Judge James Wickersham arrived just ahead of the advance wave of stampeders and described Fairbanks as Barnette's trading post, a partly finished two story log cabin, eight other cabins, and a few tents.[11] He established a recording office for the mineral claims of the district and drove an iron stake on the river front from which town lots were measured. In July of 1903, there were some twenty-two buildings in Fairbanks proper and four on Garden Island as indicated by Mr. Gerdine's map of the area at this date.[12] The population grew rapidly and it is estimated that some eight hundred spent the

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[11] Wickersham, op. cit., p. 182.

[12] L. M. Prindle, The Gold Placers of the Fortymile, Birch Creek and Fairbanks Regions, Alaska, Geological Survey, U. S. Department of the Interior, Bulletin No. 251, (Washington: Government Printing Office, 1905), map facing p. 60.

winter of 1903-1904 in the area.[13]

The promise of Judge Wickersham to establish a mineral claim recording office at Barnette's trading post on the Tanana River was important in the development of Fairbanks.[14] The records were transferred from the Circle City District to the Fairbanks District on May 10, 1903.[15] In the first four years of operation, twelve thousand claims were recorded on fifteen hundred creeks.[16] The recording office gave Fairbanks a function that attracted miners from a large area to record mineral claims. The claim recording office also meant that Fairbanks was the information center concerning new mining areas and development in the district. The growth of Fairbanks as a supply center was facilitated by the gravitation of miners to the town to record claims, to learn of the latest area of mining development and to seek employment on the promising new claims. By June of 1904, the headquarters of the Fourth Judicial District had been transferred to Fairbanks from Eagle.[17] Governmental functions generally add stability to any community which in turn contributes

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[13] A. H. Brooks, "Placer Mining in Alaska," Contributions to Economic Geology, 1903, Geological Survey, U. S. Department of the Interior, Bulletin No. 225, (Washington: Government Printing Office, 1904), p. 66.

[14] Wickersham, op. cit., p. 185.

[15] Brand, op. cit., p. 15.

[16] Ibid., p. 15.

[17] Ibid., p. 431.

to permanence.[18]

The location of the center of law, order and records in Fairbanks gave it a positive attraction over its rival, Chena. Other factors apparently contributed to the rise of Fairbanks at the expense of Chena. At least one writer and some of the early residents attributed this to excessive land prices in Chena.[19] All seemed to think that Chena had a superior site and was the preferred location for water transportation. Better building sites and a better water supply were also cited for Chena. However, Fairbanks was near the gold producing creeks, was a government center, had citizens with a more progressive attitude and the building sites were cheaper than those in Chena.[20]

The population of the Fairbanks district during the summer of 1904 has been estimated at five thousand with approximately three thousand wintering.[21] The number of people present in the area was

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[18] John W. Alexander, Economic Base Study of Madison, Wisconsin, Wisconsin Commerce Papers, Vol. IV, (Madison, Wisconsin: 1953), p.5.

[19] Hudson Stuck, Voyages on the Yukon and Its Tributaries, (New York: Scribner and Sons, 1917), p. 292.

[20] _____, Ten Thousand Miles with a Dogsled, (New York: Scribner and Sons, 1915), p. 249.

Also personal conversations of the author in July 1952 with several of the early residents and miners of the area.

[21] Alfred H. Brooks, "Placer Mining in Alaska in 1904," Report on Progress of Investigations of Mineral Resources of Alaska in 1904, Geological Survey, U. S. Department of the Interior, Bulletin No. 259, (Washington: Government Printing Office, 1905), p. 26.

considered to be in excess of what the region could support.[22] The observation is supported by a population estimate of twenty-five hundred people in the summer of 1905.[23] The value of gold mined in this year amounted to six million dollars, an increase of five million, four hundred thousand dollars over the previous year.[24] The great increase was due to the beginning of production for a number of properties and the first season of significant mechanization in the mining operations.[25]

The Northern Commercial Company, a pioneer trading company in Alaska, added an electricity plant and steam heat for the central part of the business district.[26] The investment in facilities of this kind is taken as evidence of the confidence of an old, well-established company in the future of Fairbanks. The Northern Commercial Company also operated a water supply system for the central core of Fairbanks

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22 Ibid., p. 26.

23 Alfred H. Brooks, Report on Progress of Investigations of Mineral Resources of Alaska in 1905, Geological Survey, U. S. Department of the Interior, Bulletin No. 284, (Washington: Government Printing Office, 1906), p. 112.

24 Philip S. Smith, Past Placer Gold Production from Alaska 1870 - 1930, Geological Survey, U. S. Department of the Interior, Bulletin No. 857-B, (Washington: Government Printing Office, 1934), p. 96.

25 Alfred H. Brooks, Report on Progress of Investigations of Mineral Resources of Alaska in 1905, Geological Survey, U. S. Department of the Interior, Bulletin No. 284, (Washington: Government Printing Office, 1906), p. 115.

26 Ibid., p. 112.

to which they added fire mains in May of 1906.[27] The fire mains were important in checking the spread of the fire which destroyed a major part of the business district in late May of 1906.[28] Year around mining started in this eventful year adding economic stability to the young settlement.[29] Gold bearing gravel was stockpiled on the surface for sluicing with snow melt water in the spring. Year around employment encouraged a more permanent type of settlement, fuller development of social and cultural amenities, family groups, schools, and similar features of a fixed occupance. Population during the summer of 1906 was estimated to be between five and six thousand.[30] Unemployment was high during the summer due to a heavy migration of job seekers. The problem of a large influx of people seeking seasonal employment during the late spring and early summer months still exists in Fairbanks and throughout the Territory of Alaska.[31]

An aid to mining was the continued improvement of transportation. Wagon roads connected all creeks with the Tanana Mines

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[27] Brand, op. cit., p. 21.

[28] Ibid.

[29] Alfred H. Brooks, Report on Progress of Investigations of Mineral Resources in Alaska in 1906, Geological Survey, U. S. Department of the Interior, Bulletin No. 314, (Washington: Government Printing Office, 1907), p. 36.

[30] Ibid., p. 35.

[31] Alaska Territorial Employment Service, Local Office Bi-Monthly Labor Market Summary for the Period March 1st through April 30, 1957, (Juneau, Alaska: n. d.), p. 1 (mimeographed).

Railroad (later the Tanana Valley Railroad) or directly with Fairbanks and Chena.

Investment in machinery and boilers for hoisting and thawing continued to grow and by 1907 the total operating boiler capacity exceeded seven thousand horsepower.[32]

Fuel was provided by local timber but was a heavy drain on the forests.[33] Aware of the possible consequences of the exhaustion of the forest reserves, the Tanana Electric Company constructed a hydroelectric plant near the mouth of Poker Creek in the Chatanika Valley. The plant functioned only briefly because of water shortages and management problems. The early concern of local businesses and citizens over threats to permanence is shown in the attempt to develop hydroelectric power.

The shortage and high cost of development capital in the rush period led to a "cream skimming" process as only the richer mine properties and the more lucrative businesses and enterprises could pay the high costs. In 1908 development capital carried rates as

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[32] Alfred H. Brooks, Mineral Resources of Alaska Report on Progress of Investigations 1907, Geological Survey, U. S. Department of the Interior, Bulletin No. 345, (Washington: Government Printing Office, 1908), p. 41.

[33] _____, Mineral Resources of Alaska, Report on the Progress of Investigations in 1908, Geological Survey, U. S. Department of the Interior, Bulletin No. 379, (Washington: Government Printing Office, 1909), pp. 183; 198.

high as two percent per month.[34] The high interest rates served as a deterrent to permanence because some businesses,which would be desirable for the general welfare and convenience of the community and would add permanence, could not pay the high costs of capital. High rates of interest have been a problem for Fairbanks and for much of Alaska for many years. Interest rates on money for development and operation of businesses and industries have been considerably higher in Alaska than in the United States. They have made development of a wide range of economic activities very difficult. The net result of the restricted range of the economic base has been less permanence.

A threat to the community came in 1909 when it became clear that new discoveries were not keeping pace with the exhaustion of rich gold bearing ground. To offset this the businessmen of Fairbanks financed the construction of a small three stamp ore crusher to encourage lode gold prospecting.[35] The first shipment of ore from any property in the Tanana Basin was milled free.[36] The mill helped

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[34] L. M. Prindle and F. J. Katz, "The Fairbanks Gold Placer Region," Mineral Resources of Alaska Report on the Progress of Investigations in 1908, Geological Survey, U. S. Department of the Interior, Bulletin No. 379, (Washington: Government Printing Office, 1909), p. 230.

[35] L. M. Prindle, "Auriferous Quartz Veins in the Fairbanks District," Mineral Resources of Alaska Report on Progress of Investigations in 1909, Geological Survey, U. S. Department of the Interior, Bulletin No. 442, (Washington: Government Printing Office, 1910), p. 228.

[36] Tanana Magazine, Quartz Edition, December 1912, p. 24.

to stimulate interest and activity in lode mining which expanded the economic base. The possible exhaustion of the placers was faced squarely and steps were taken to diversify the support of the area. There is no evidence of any widespread desire to leave while the richer placers were being exhausted.

The Decline - 1910-1923. Following the peak year of production in 1909 the gold output sharply dropped one-third to a little over six million dollars in 1910. The drop marked the beginning of a long period of declining production which ended with the entry of the United States Smelting, Refining and Mining Company in 1924 and the use of large scale mechanized equipment. The decline was not a period of decay and inactivity in the Fairbanks area. During this period the foundations for some of the later expansion and diversification of the economic base of Fairbanks were laid. Construction of the Alaska Railroad occurred during this period and was important in the revival of mining and attracting the military at a later date. The prospecting and blocking out of lode gold, tungsten and antimony deposits provided a fund of knowledge and resources which have been exploited with varying degrees of activity up to the present time.

Lode prospecting led to the development of a number of properties around Ester Dome, Pedro Dome and the ridge extending in a northeast direction from Pedro Dome between the heads of Fairbanks and Cleary Creeks. Ore crushing mills were placed on many of these properties and operated for varying periods. They are still on the

properties and could begin production when the economic conditions again become favorable. The mills represent an attachment to the area. Most of the properties and mills are being maintained so that they could be quickly and easily put back into production. This is a form of "depression insurance" assuming that the price of gold remains fixed, and is desirable from the standpoint of permanence.

The first dredge in the Fairbanks area was introduced in 1911.[37] It had previously operated on Stewart River in the Yukon Territory and it was not an outstanding success as it was small and subject to frequent breakdowns. However, it did show that some of the ground was suitable for dredging and may have helped to stimulate interest along lines which later led to large scale dredging, the most important part of the local mining economy.

By 1913, a fuel problem confronted the mining industry of the area. The area had been dependent on wood for generating power and for heating since the founding of Fairbanks and by this year, 1913, the easily accessible supplies had been consumed. The price of wood rose to twenty-five dollars a cord and added a heavier cost to placer mining ground which was gradually decreasing in unit value. It also increased the financial burden of development and production on lode properties. One of the reasons for the vigorous agitation

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[37] Alfred H. Brooks, "Alaska," Mineral Resources of the United States for Calender Year 1911, Geological Survey, U. S. Department of the Interior, (Washington: Government Printing Office, 1912), p. 417.

for the Alaska Railroad was to bring coal from the Nenana and Healy fields west of Fairbanks to relieve the serious fuel shortage. An improved fuel supply would lessen the threat to mining, the economic mainstay of the area.

The discovery of gold in 1914 in the Livengood area, some sixty miles to the northwest, led to the opening of a new tributary area for Fairbanks. The first effect of this new mining tract was the attraction of miners and prospectors from the Fairbanks area. However, as time progressed, it became more closely integrated with Fairbanks.

During World War I many young energetic men who were the strength of the labor force, enlisted in the service of their country and left the Territory. As a result, prospecting activity decreased and a shortage of skilled miners occurred. Population in Fairbanks declined sixty-seven percent between the 1910 and 1920 census because of declining gold production and the manpower loss during World War I.[38] The population loss in the Territory was fourteen and five-tenths percent between 1910 and 1920.[39] Fairbanks suffered a greater percentage drop in population than did the Territory because of the steadily falling gold production. By 1919 gold production had dropped ninety-two percent from the peak year of 1909, from nine million, five hundred forty thousand dollars to seven

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[38] U. S. Department of Commerce, Fourteenth Census of the United States: 1920, Population- Alaska, Bureau of the Census, (Washington: Government Printing Office, 1920), p. 3.

[39] Ibid.,p. 1.

hundred thirty thousand dollars.[40]

The effect of the first World War was not entirely detrimental to mining and permanence in the Fairbanks area because the war stimulated prices for antimony and tungsten and led to the discovery and development of these ores.[41] Antimony properties were located in Eva, Treasure, Vault and Chatham Creek basins.[42] Tungsten ore was discovered in the summer of 1915 in two areas. Prospects were located on the ridge between Fish and Smallwood creeks and also on the ridge at the heads of First Chance, Steele and Engineer creeks.[43] (See Figure 3, page 48). Although production was relatively short-lived on all the properties involved, it helped in a small way to dull the threat of the war to permanence and mining.

The price increase of antimony started in July of 1914. At that time the price on the New York market was seven and two-tenths cents per pound. By August of the same year it had reached seventeen and two-tenths cents per pound, an increase of two hundred thirty-nine percent and continued to climb until it reached a peak of

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[40] Alfred H. Brooks, et. al., Mineral Resources of Alaska Report on Progress of Investigations in 1919, Geological Survey, U. S. Department of the Interior, Bulletin No. 714, (Washington: Government Printing Office, 1921), pp. 64; 79.

[41] _____, Mineral Resources of Alaska Report of Progress of Investigations in 1915, Geological Survey, U. S. Department of the Interior, Bulletin No. 642, (Washington: Government Printing Office, 1916), p. 17.

[42] Ibid., p. 29.

[43] Ibid., p. 61.

forty-six cents per pound in March of 1916.[44] This provided an incentive to develop the antimony deposits of Fairbanks as well as elsewhere in the world. Production in China also rose and eventually the market was glutted and most of the productive properties around Fairbanks were shut down in 1916. However, in 1915 about six hundred eighty-five tons of fifty-eight percent ore was produced in the Fairbanks area and shipped by water via St. Michael to a smelter in San Francisco.[45] This returned about sixty thousand dollars to the producers. Production and value were doubled in the following year, (see Table VI, page 78), in spite of the closing of nearly all of the productive properties in August due to the decline in prices.

Active interest and development work on tungsten properties started in 1915 because of increased demand and higher prices fostered by the war. Production continued through 1918 (see Table VI, page 78) and then all the producing mines were closed. Tungsten deposits have been reopened during periods of national shortages

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[44] F. L. Hess, "Antimony," Mineral Resources of the United States 1916 Part I - Metals, Geological Survey, U. S. Department of the Interior, (Washington: Government Printing Office, 1919), p. 728.

[45] Alfred H. Brooks, et. al., Mineral Resources of Alaska Report on Progress of Investigations in 1915, Geological Survey, U. S. Department of the Interior, Bulletin No. 642, (Washington: Government Printing Office, 1916), pp. 29; 59.

and when overseas supplies have been threatened.[46]

Fairbanks area mines and industries obtained some lignitic coal from the Nenana fields in the fall of 1919. The Alaska Railroad was completed from the Fairbanks terminals to the point on the north bank of the Tanana, directly across the river from the tracks in Nenana. Until 1923 the coal had to cross the river by boat in the summer and sled in the winter which added to the costs. Some coal was sold in Fairbanks for seven dollars a ton in carload lots in 1920.[47] Even after the bridge across the Tanana River was built in 1923, the through rail connections with the coal fields did not give the stimulus to lode mining that was expected. Increased costs in other phases of mining partly offset the reduced fuel costs.[48]

Nevertheless, the completion of the railroad bridge across the Tanana River at Nenana and the conversion of all the main line Alaska

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[46] U. S. Department of the Interior, Mineral Yearbooks 1943-1944, Bureau of Mines, (Washington: Government Printing Office, 1945 - 1946), p. 779: p. 656 respectively.

Philip R. Holdsworth, Report of the Commissioner of Mines for Bienniums ended December 31, 1952 - December 31, 1954, Department of Mines, Territory of Alaska, (Juneau, Alaska: DeLong's Totem Press, 1953 - 1955), p. 48: p. 76 respectively.

[47] A. H. Brooks, et. al., Mineral Resources of Alaska Report on Progress of Investigations in 1920, Geological Survey, U. S. Department of the Interior, Bulletin No. 722, (Washington: Government Printing Office, 1922), p. 26.

[48] Philip S. Smith, Mineral Industry of Alaska in 1924 and Administrative Report, Geological Survey, U. S. Department of the Interior, Bulletin No. 783, (Washington: Government Printing Office, 1926), p. 8.

Railroad track to standard gauge prepared the way for the end of the period of decline and the entrance of a new phase of activity. With cheaper, reliable, year-around transportation, big mining companies became interested in the extensive low unit value placer ground of the Fairbanks area.

The Revival, 1924 - 1941. The revival period was ushered in by the consolidation of claims under the Fairbanks Exploration Company and the development of large scale dredging. The price increase of gold in 1933 and expanded mining brought relatively prosperous conditions to Fairbanks in a period of widespread economic depression. United States participation in World War II and the demands and changes brought about by this conflict ended this period.

An addition to permanence and a new era of placer mining were launched in August 1924. A number of placer properties in the Fairbanks area were consolidated under the Hammond Consolidated Gold Fields and the United States Smelting, Refining and Mining Company. The operating company was called the Fairbanks Exploration Company, a jointly owned enterprise. This was known locally as the "FE" Company and the United States Smelting, Refining and Mining Company assumed full control in 1925.

Undertaking a large dredging program in this area required the resolving of two difficult problems, permafrost and water supply. The first, permafrost, was partially solved in the Klondike region of the Yukon Territory by the use of cold water for thawing, a technique

later refined and patented.[49] This method required several years of stripping and thawing work on the ground before it was ready for dredging and made mining a long term, high investment proposition. This in itself tended to add permanence and stability because it is highly unlikely that money would be invested in stripping and thawing operations and then abandoned. The details of the procedure emphasize the planning, attachment to a site, and the investment entailed, particularly because the process is still used.

The ground is first core drilled and a very accurate determination is made of the gold values. During the summer the valueless overburden is removed by "hydraulic giants," which are moveable nozzles directing a powerful stream of water against the overburden, breaking it up and washing it away. When the overburden is frozen the hydraulic giants are operated intermittently to give the ground a chance to thaw after being exposed to the air. After hydraulicing is completed, steel points with pipes attached are driven to bedrock. These are spaced about twenty feet apart in a square pattern and cold water is forced through these points to thaw the ground so that it can be dredged. Preparing the ground for dredging requires several years and a large investment in labor and equipment.

Another serious consideration was the problem of adequate water. As pointed out earlier, the early mining operations were

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[49] T. A. Rickard, "Dredging on the Yukon," Mining and Scientific Press, Vol. XCVII, 1908, p. 355.

totally dependent on local precipitation for their water requirements and a prolonged dry spell often halted mining activity. Large scale operations planned by the F. E. Company needed an adequate and dependable supply of water. To supply the water the Davidson Ditch was built from the headwaters of the Chatanika River. This ditch was over seventy miles long and required the construction of several large siphons to carry the water across some of the wider valleys and a tunnel three fourths of a mile in length through the height of land between Vault and Fox creeks. This represented a sizeable investment (figures not released by the company) and required careful and constant surveillance to arrest leakage when carrying water.[50] The investment and attachment in maintenance were an expression of permanence by the mining industry. The value of this ditch was shown in later years when other placer and lode operators experienced difficulties and reduced production due to water shortages.[51]

Another addition which reflected a permanent attachment was the F. E. Company powerhouse, completed in 1927.[52] The fuel used

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[50] Philip S. Smith, Mineral Industry of Alaska in 1928 and Administrative Report, Geological Survey, U. S. Department of the Interior, Bulletin No. 813, (Washington: Government Printing Office, 1930), p. 28.

[51] _____, Mineral Resources of Alaska Report on Progress of Investigations in 1933, Geological Survey, U. S. Department of the Interior, Bulletin No. 864, (Washington: Government Printing Office, 1936), p. 26. Report of a typical water shortage situation.

[52] _____, Mineral Industry of Alaska in 1928 and Administrative Report, Geological Survey, U. S. Department of the Interior, Bulletin No. 813, (Washington: Government Printing Office, 1930), p. 28.

was coal from the Nenana field and this was brought to the Garden Island location by the Alaska Railroad. General progress was aided and transportation costs for the F. E. Company were cut by cooperation of the Alaska Road Commission in building roads into areas where mining activity was underway and where ground was being developed.[53]

The power plant, shops and offices of the F. E. Company on Garden Island, the dredges which had been constructed on the various creeks, and the expanded road network represented increases in permanent attachment visible in 1930. Population in the town of Fairbanks increased eighty-two percent over the 1920 figure. Gold production approached three million dollars, the highest production since 1913. The years of preparation by the F. E. Company were starting to show in the production figures through the five dredges operated by this company in 1930. Four smaller dredges were also active but the major part of the production came from the F. E. Company dredges.

Lode activity increased as the decade of the thirties opened. One handicap was the lack of experienced "hard rock" men and the use of placer miners in their place.[54] The lack of experienced labor in hard rock mining has been a characteristic of the area since the early developments. Most of the properties were developed by local men and

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[53] Fred H. Moffit, Mineral Industry of Alaska in 1925 and Administrative Report, Geological Survey, U. S. Department of the Interior, Bulletin No. 792, (Washington: Government Printing Office, 1927), p. 18.

[54] Hill, op. cit., p. 54.

few had the skill of drilling, powder handling, mill operating, and other crafts which are an integral part of lode mining. The lack of skilled men hampered development of the lode mining industry.

The acquisition of large blocks of placer ground in the Cripple Creek area, some six miles west of Fairbanks, by the F. E. Company in 1932 started a new mining expansion for the area. A new electric power plant and pumping station were started in 1933 to supply water to the Cripple Creek area.[55] (See Figure 3, page 48). The water was lifted over four hundred feet and then carried by ditch along the hills above the mining area to provide a head for washing away the overburden with hydraulic giants. The pumping station and power plant are located about five miles west of Fairbanks and about two miles south of the Agricultural Experiment Station. The mining expansion was in spite of the general depression in the United States and in many other areas of the world in the 1930's. Here was an industry that flourished under depression conditions, growing even before the gold price increase in October of 1933.

Good evidence of the healthy economic conditions in the Fairbanks area was given in the "Census of Partial Employment, Unemployment and Occupations," taken in 1937. The census reported seven

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[55] Philip S. Smith, Mineral Resources of Alaska, Report on Progress of Investigations in 1933, Geological Survey, U. S. Department of the Interior, Bulletin No. 864, (Washington: Government Printing Office, 1936), p. 35.

hundred seventy-nine people totally unemployed in the Territory of Alaska. In the reporting district for Fairbanks, the Fourth Judicial Division, only two people were reported as totally unemployed and three as partially unemployed.[56] Fairbanks is the major population concentration in the Fourth Judicial Division, hence the figures indicate the favorable employment situation of Fairbanks in the depression years, even if all the unemployed in the Judicial Division were in Fairbanks. Gold mining was largely responsible for the favorable employment conditions because of the "good" price for gold, (thirty-five dollars an ounce), and the relatively low price of supplies and labor. At the same time, unemployment was a serious problem in the United States and many other parts of the world.

During the period of the revival of mining activity, significant developments of a permanent nature were noted. The expanded and improved highway system was built and maintained primarily to serve mines and miners. The Steese Highway linking Fairbanks and Circle City, the Elliott Highway joining Fox and Livengood, improvements on the Richardson Highway between Fairbanks and Valdez and the expansion and improvement of the local road network were built primarily to serve areas of mining activity. (See Figure 5, page 60). The Lathrop Building, the Nordale Hotel, and other businesses with

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[56] U. S. Department of Commerce, "Final Report on Total and Partial Unemployment 1937," Census of Partial Employment, Unemployment and Occupations, Vol. III, Bureau of the Census, (Washington: Government Printing Office, 1938), p. 714.

large investments in buildings and equipment were indirectly supported by mining. The fixed investment in the power plant, ditches, buildings and equipment by the F. E. Company and the new stamp mills on various lode properties were directly due to the mineral resources. The increases in population (see Table VII), and investment in housing and businesses were closely related to mining.

Enforced Closure 1942 - 1945. Mining contributed indirectly to permanence and the defense effort during the war years. The pool of labor skilled in the operation and maintenance of heavy machinery and the earth moving machinery of the mining industry was an asset to the military construction program. Much of the earth moving machinery was taken over by construction companies and various government agencies for use in defense construction. The machinery and skilled labor permitted rapid expansion of military bases. Although the loss of equipment to the military handicapped the mining industry in the early post-war years, it did help in the establishment and expansion of the military as a support of Fairbanks.

Production remained nearly normal in the Fairbanks area in 1942 despite competition for manpower and loss of equipment to military construction. However, the Gold Mine Closure Order, War Production Order L-208, was issued on October 8, 1942 and shut down the operations near the end of the productive placer season.[57]

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[57] U. S. Department of the Interior, Minerals Yearbook 1943, Bureau of Mines, (Washington: Government Printing Office, 1945), p. 236.

TABLE VII

POPULATION FAIRBANKS AREA ALASKA

	1910	1920	1929	1939	1950	1957
Fairbanks	3,541	1,155	2,101	3,455	5,771	15,257
Surrounding Villages within 25 miles.	1,141	201	138	963	2,596	11,867*
TOTAL	4,682	1,356	2,239	4,418	8,367	27,124

* Within a twenty mile radius of Fairbanks.

Sources: U. S. Department of Commerce, U. S. Census Bureau Reports 1910-1950, (Washington: Government Printing Office).

Helen Eyinck, Civil Defense Population Survey, October 20, 1957, p2, mimeographed.

The year 1943 marked the low point of mining activity. Several small placer claims and one lode property formed the mining industry of the area in that year.[58] The strict regulations imposed by the Mine Closure Order were eased in the following year and two F. E. Company dredges were reactivated. The order was not fully rescinded until July 1, 1945 which was late in the season to open mining.

Although gold mining, the major mining activity in the Fairbanks area, was hard hit by the war, tungsten mining experienced a brief revival. There was activity and some production at the tungsten deposits in the vicinity of Gilmore Dome. (See Figure 3, page 48). A limited amount of antimony was recovered as a byproduct of gold lode mining. Production of tungsten and antimony is possible only when the price is very high. Favorable prices existed because of war demands and shortages created by the loss of overseas sources. The period of production was short lived but did illustrate a degree of versatility in the mining industry that has favorable connotations from the standpoint of permanence.

The Post-War Adjustment, 1945 - 1953. In this period mining assumed a less dominating role in permanence than in the pre-war period due to the addition of the military, expansion in transportation activity and a general expansion of the economy of Fairbanks.

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[58] Ibid.

Mining employment has climbed slowly since the war. The severe competition for labor and the increased wages offered by the construction industry in the post-war years plus the increased costs of supplies and the fixed price of gold have forced the mine operators to operate very efficiently or close their properties. Lode properties were particularly vulnerable to the changed economic conditions of the post-war period. Operations like the Cleary Hill mine were in production for a short time but reverted to a maintenance basis with one or two men employed during the summer. However, these operations stand ready to be reactivated when economic conditions again become favorable.

Placer gold activity has always been the mainstay of mining in the Fairbanks area. The production figures in Table VI, page 78, bear this out and also show that this area has been the major placer gold producer of Alaska since the late twenties. The dominant position has been due to the dredges of the F. E. Company working the extensive low unit value placer ground of the valleys adjacent to Fairbanks. In the post-war period this company has employed from two hundred men, immediately following the war, to five hundred and fifty men since 1951. (See Table VIII). These figures are for the dredging season which extends from March 1st to October 1st in most years.

In addition, approximately one hundred twenty-five men remain

TABLE VIII

UNITED STATES SMELTING, MINING AND REFINING COMPANY,

FAIRBANKS DEPARTMENT, (F. E. COMPANY) EMPLOYMENT

1946 - 1958*

Year	Employment
1945-1946	198
1947-1948	440
1949-1950	335
1951-1952	550
1953-1954	550
1955-1956	475
1957-1958	350

Sources: Benjamin D. Stewart, Report of the Commissioner of Mines for the Biennium ended December 31, 1946, Department of Mines, Territory of Alaska.

_____, Report of the Commissioner of Mines to the Governor of Alaska for Biennium ended December 31, 1948, Department of Mines, Territory of Alaska, (Juneau, Alaska: 1949).

Leo H. Saarela, Report of the Commissioner of Mines for the Biennium ended December 31, 1950, (Juneau, Alaska: 1951).

Phil R. Holdsworth, Report of the Commissioner of Mines for Biennium ended December 31, 1952, Department of Mines, Territory of Alaska, (Juneau, Alaska: 1953).

_____, Reports of the Commissioner of Mines for Bienniums ended December 31, 1954 and December 31, 1956, Department of Mines, Territory of Alaska, (Juneau, Alaska: DeLong's Totem Press, 1955 and 1957).

_____, Report of the Commissioner of Mines for Biennium ended December 31, 1958, Dept. of Mines, State of Alaska, (Juneau, Alaska: n. d.).

in the employ of the F. E. Company the year around.[59] Unfortunately, it is the company policy not to make public information on remaining years of operating life and exhaustion of reserves.[60] Information of this kind would be extremely valuable in assessing the future role of placer mining in the permanence of settlement in Fairbanks. However, it is believed that the F. E. Company operations will continue for many years to come, based on the extensive holdings of the Company in the various valleys around Fairbanks which have not yet been dredged and also on the purchase of the Callahan Zinc and Lead Company dredge in the nearby Livengood area.[61]

Fairbanks has long played the role of a mining center. In the post-war period this role seems to be growing stronger. Evidence of this is shown in the construction of the new Brooks Building on the campus of the University of Alaska and the choice of the Fairbanks Office of the United States Geological Survey as the information distribution center for Alaska.[62] The new Brooks Building has

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[59] Personal correspondence with Mr. J. D. Crawford, Vice President and General Manager of Alaskan Operations, United States Smelting, Refining and Mining Company, Fairbanks, Alaska. August 15, 1953.

[60] Ibid.

[61] Philip R. Holdsworth, Report of the Commissioner of Mines for the Biennium ended December 31, 1954, Department of Mines, Territory of Alaska, (Juneau, Alaska: DeLong's Totem Press, 1955).

[62] U. S. Department of the Interior, Information Service, for release March 1, 1955, U. S. Geological Survey, (Washington: Government Printing Office, n. d.), p. 1.

greatly improved the facilities for research and study of geology and mining in the Territory. The value of the academic work is enhanced by the inclusion of the Fairbanks area office of the United States Geological Survey in the building and the assay office of the Territorial Department of Mines. Here is a desirable combination which provides a close liaison between the theoretical and practical sides of geology and mining.

Further support of the central role of the Fairbanks area in the mining industry is shown by the number of mining operators and companies mining outside the Fairbanks area who list Fairbanks addresses in their reports to the Territorial Department of Mines. These are shown in Table IX. Although it is known that this list is not complete and not all miners headquartering or wintering in Fairbanks list Fairbanks addresses, it is an indication of the role Fairbanks has in the mining industry of Alaska. The use of Fairbanks as a headquarters for mine operators and for mine operation outside the Fairbanks area is a definite contribution to permanence. It shows that the contribution of mining to the support of Fairbanks is not totally dependent on the mineral resources in the immediate vicinity. Instead, it is spread over much of the Second and Fourth Judicial Divisions. The distribution is revealed in an examination of the location of the operations of the various miners and mining companies. (See Table IX). In addition, there are a number of miners who winter in Fairbanks, but report other addresses for their mining operations. The money spent for supplies, transportation, and living

TABLE IX

NUMBER, TYPE AND LOCATION OF MINING OPERATIONS

FAIRBANKS AREA, ALASKA

1935 - 1958

Year	Offices in Fbks. Operations outside Fbks. Area.			Offices Outside Fbks, Oper. in Area			Offices & Oper. Fbks Area.			Office in Fbks. Oper. Outside	Office Outside Oper. in Area.	Office & Oper. in Fbks.
	Pl	Lo	Oth*	Pl	Lo	Oth	Pl	Lo	Oth	Total	Total	Total
1935	5	1	0	0	0	0	9	22	0	6	0	31
1936	5	1	0	0	0	0	9	22	0	6	0	31
1937	17	1	0	0	1	0	13	20	0	18	1	33
1938	17	1	0	0	1	0	13	20	0	18	1	33
1939	15	2	0	2	5	0	12	9	0	17	7	21
1940	15	2	0	2	5	0	12	9	0	17	7	21
1941	-	-	-	-	-	-	-	-	-	-	-	-
1942	-	-	-	-	-	-	-	-	-	-	-	-
1943	-	-	-	-	-	-	-	-	-	-	-	-
1944	-	-	-	-	-	-	-	-	-	-	-	-
1945	33	5	2	1	0	0	16	9	0	40	1	25
1946	33	5	2	1	0	0	16	9	0	40	1	15
1947	39	4	2	1	1	0	18	8	0	45	2	26
1948	39	4	2	1	1	0	18	8	0	45	2	26
1949	29	2	2	1	1	0	13	7	0	33	2	20
1950	29	2	2	1	1	0	13	7	0	33	2	20
1951	29	4	1	1	1	0	10	10	0	34	2	20
1952	29	3	1	1	1	0	10	11	0	33	2	21
1953	26	5	3	2	1	0	15	6	0	34	3	21
1954	24	5	5	0	1	0	14	4	-	34	1	18
1955	23	8	5	2	0	0	10	5	3	36	2	18
1956	23	7	6	2	0	0	9	8	3	36	2	20
1957	18	4	6	0	1	0	9	5	3	28	1	17
1958	17	4	6	0	1	0	9	5	3	27	1	17

Source: B. D. Stewart, L. H. Saarela, Phil R. Holdsworth, Report of Commissioner of Mines for Biennias ended December 31, 1936 to December 31, 1958, Territorial Department of Mines, (Juneau, Alaska).

* Pl - Placer: Lo - Lode: Oth - Other.

expenses in Fairbanks by the group operating outside the environs promotes a healthy economic condition, a basic support of Fairbanks, according the basic-nonbasic concept set forth by Alexander.[63] The strengthening of the geology, mining and metallurgy offerings of the University of Alaska and the increased staff and services of the United States Geological Survey are factors in favor of a continuation or even a growth of this trend. The recent (1954) addition of oil companies and radioactive mineral exploration headquarters in Fairbanks may be forerunners of further diversification of the mining base and growth of the central function of Fairbanks in mining and mineral exploitation.[64] The headquarters for the exploration activity in Navy Petroleum Reserve Four were located in Fairbanks until exploration ceased in 1953. Under different strategic and economic considerations or under a different administrative policy in Washington, D. C. the petroleum reserve activity could be reactivated and Fairbanks would probably again be selected for the headquarters. The proposal for the development of the Gubik natural gas field for civilian use would give Fairbanks a key role in the distribution

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[63] John W. Alexander, "The Basic-Nonbasic Concept of Urban Economic Functions," Economic Geography, Vol. XXX, No. 3, July 1954, pp. 246-261.

[64] Philip R. Holdsworth, Report of the Commissioner of Mines for the Biennium ended December 31, 1954, Department of Mines, Territory of Alaska, (Juneau, Alaska: DeLong's Totem Press, 1955), pp. 107-108.

system as well as a new source of power, if the proposal becomes a reality.[65] At the present time it seems unlikely that the Navy would consent to release the gas field from the withdrawal area. There would also be the additional problem of financing the construction of the pipeline and the distribution facilities.

Summary. Mining initiated the original settlement of the Fairbanks area. The rich placer deposits provided the support for many of the permanent attachments that helped hold the settlement through the period of declining production. The presence of large quantities of lower value placer ground and the lode deposits which needed lower cost transportation in order to be exploited were a big factor in justifying the construction of the Alaska Railroad. The mining industry also played an important role in attracting the Alaska Agricultural College and School of Mines which later became the University of Alaska. The entry of the United States Smelting, Mining and Refining Company into placer gold dredging provided an important element of stability and permanence in the life of the area that had previously been lacking. The huge investment in mining equipment, placer claims, power plants, ditches and stripping operations which are years ahead of actual gold production are factors which make for permanence in the placer mining operations. The currently inactive lode operations provide a reassuring cushion

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[65] Alaska Development Board, Possibility of Commercial Development of Gubik Gas Field and Use of Natural Gas as a Source of Heat and Power in the Railbelt Area of Alaska, (Juneau, Alaska: June 30, 1954,) p. 11.

against the "hard times" that proved useful in the depression of the 1930's. Up to 1940 the mining industry provided the major support for the Fairbanks area. The expressions of permanence which have come from this support are largely due to the efforts of the men who have guided the businesses and government of Fairbanks through the years. Why Fairbanks has attracted this type of men is a puzzling question, for which there is no known answer at present. The late Mr. Austin Lathrop, long known as Alaska's only millionaire who lived in the Territory, lived in Fairbanks and conducted his businesses from this point. Among his interests was the Healy River Coal Corporation which operated in the Healy coal fields with headquarters in Fairbanks. Through his mining and other interests he made several contributions to permanence in Fairbanks. One was the Lathrop Building, where he maintained his business headquarters; another was the source of capital which he provided for various enterprises including mining. He was also responsible for some of the significant amenities, a radio station and two first rate movie houses.

Energetic and responsible men have long been associated with mining in Fairbanks and this, plus a type of mining that requires a substantial investment (that is, shaft and drift mining in the early days) , large scale mechanized placer mining and lode mining, have combined to add permanence which is not generally characteristic of gold mining areas.

In short, the characteristics of the mining industry, described

in the foregoing account, and the unusual type of men associated with the industry have accounted for its sizeable contribution to permanence.

CHAPTER V

AGRICULTURE

Agriculture has made some contribution to permanent settlement in the Fairbanks area from the earliest days. The contribution of farming has varied, depending in large part on the attractiveness of alternate forms of employment. Mining and military construction work serve as two outstanding examples of economic activities which have been responsible for slumps in agricultural interest and production.

A significant factor in the early success and growth of the Fairbanks area was the presence of land suitable for agriculture. Today the extent of this land is estimated to be possibly three hundred thousand acres.[1] Early development of agriculture was largely due to the high costs of transportation and the uncertainties of transportation facilities. Freight charges of one hundred thirty-five dollars to two hundred twenty dollars per ton prevailed for water transportation from Seattle to Fairbanks in 1904.[2] The high freight charges provided in effect a "protective tariff" which

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[1] Hugh A. Johnson, Present and Potential Agricultural Areas in Alaska, Alaska Agricultural Experiment Station, U. S. Department of Agriculture, Bulletin No. 15, (Washington: Government Printing Office), p. 16.

[2] Chester W. Purrington, Methods and Costs of Gravel and Placer Mining in Alaska, Geological Survey, U. S. Department of the Interior, Bulletin No. 263, (Washington: Government Printing Office, 1905), p. 233.

allowed agriculture to compete with the successful and renumerative mining, the support of the area.

During the winter of 1904, residents of Fairbanks petitioned the Secretary of Agriculture for the establishment of an Agricultural Experiment Station.[3] The interest of the people of Fairbanks in expanding and improving farming was taken as evidence of their consideration of agriculture as a continuing form of economic activity. The Agricultural Experiment Station was established by Executive Order on March 22, 1906.[4] Agriculture grew and prospered during the period of increasing gold production, largely because of the economic incentive provided by the high freight rates. Reliable, factual information on agricultural production and development during this and succeeding periods is sketchy and fragmentary. Recorded data is shown on Table X.

Agriculture grew during the period of declining gold production which lasted from 1910 to the completion of the Alaska Railroad in 1923. The demand for agricultural products exceeded the local supply and with reduced employment and opportunity in mining, agriculture became a more attractive source of income. Although there

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[3] C. C. Georgeson, Report on Agricultural Investigations in Alaska, 1905, Office of Experiment Stations, U. S. Department of Agriculture, Bulletin No. 169, (Washington: Government Printing Office, 1906), p. 5.

[4] _____, Annual Report of Alaska Agricultural Experiment Stations for 1907, Office of Experiment Stations, U. S. Department of Agriculture, (Washington: Government Printing Office, 1908), p. 12.

TABLE X

AGRICULTURE - FAIRBANKS AREA, ALASKA

YEAR	ACRES IN CULTIVATION	ACRES IN POTATOES	HAY	GRAIN	VEGETABLES	OTHER CROPS	ACRES IDLE	CATTLE	HOGS	HOMESTEADERS	LAND FILED ON AND PATENTED		NUMBER OF CLAIMS	LAND FILED ON NO PATENTS ISSUED
											Acres	Claims		
1904								Present for meat supply						
1905										82 on file				
1906														
1907					28 acres on two farms			A few					Some hot houses. A dozen or more men making money in market gardening.	
1908	Many acres									130 on file in Fairbanks Recording District.				
1909	180 - 190								Wm. Young 65					
1910									A farm 60					
1911		20 growers						30 milk cows		200 or more			Agricultural Fair. Lack of grading hurt potatoe market	
1912		300 tons											Disease killed 75% hog population	
1913													Drought, early freeze hurt agriculture. Rabbits serious pests.	
1914	More than 1000	Estimate 700 tons						Estimate 40 dairy cows	Est. 300		12,457	87	1	40
1915											3,504	20	1	80
1916											1,088	7		
1917											720	6		
1918		550 tons									320	2		
1919	999 acres cleared by 38 farmers	153 acres reported 220 acres estimated		144 acres 500 bu. harvested, estimated.						98 on surveyed land. Estimated 75 outside surveyed area	680	5		

TABLE X (continued)

AGRICULTURE - FAIRBANKS AREA, ALASKA

YEAR	ACRES IN CULTIVATION	ACRES IN POTATOES	HAY	GRAIN	VEGETABLES	OTHER CROPS	ACRES IDLE	CATTLE	HOGS	HOMESTEADERS	LAND FILED ON AND PATENTED		NUMBER OF CLAIMS	LAND FILED ON NO PATENTS ISSUED
											Acres	Claims		
1920	1764	150	500	6000 Bu. harvested						107	468	5		
1921	1499	152	1036	211	100		321				281	2	Flourmill begins operation in December	
1922											2543	20	No grain production, early freeze	
1923	924	65		567		129	81	157		48 farms operating	275	2		
1924											1155	8		
1925											779	6		
1926				Over 40 tons of flour produced							740	12		
1927											618	4		
1928										50 settlers more or less dependent on agriculture				
1929								87 cows			684	6		
1930				200 acres oats							354	3		
1931											-	-		
1932											466	3		
1933											322	5		
1934											697	10		
1935											1448	15		
1936											1113	10		
1937											618	6		
1938	Few hundred acres										2043	16		

TABLE X (continued)

AGRICULTURE - FAIRBANKS AREA, ALASKA

YEAR	ACRES IN CULTIVATION	ACRES IN POTATOES	HAY	GRAIN	VEGETABLES	OTHER CROPS	ACRES IDLE	CATTLE	HOGS	HOMESTEADERS	LAND FILED ON AND PATENTED		NUMBER OF CLAIMS	LAND FILED ON NO PATENTS ISSUED
											Acres	Claims		
1939	Few hundred acres						1706	154		30 Farms reporting crop land	1377	13	1	107
1940	620						1356 Approx.			41 Farms	1679	21		
1941								87			924	13		
1942											594	9	1	43
1943											880	12	1	80
1944											1265	16	1	40
1945	1400 Approximately	Over 100			Cabbage 10 acres			100 cows			976	14	1	120
1946											2187	26	11	724
1947	522[a]	134[a]	19[a]	113.4[a]	71[a]	40[a]	134[a]			Not more than 30 full & part time farmers.	4086	51	59	4739

[a] Statistics on 19 of 25 reporting farms.

TABLE X (continued)

AGRICULTURE - FAIRBANKS AREA, ALASKA

YEAR	ACRES IN CULTIVATION	ACRES IN POTATOES	HAY	GRAIN	VEGETABLES	OTHER CROPS	ACRES IDLE	CATTLE	HOGS	HOMESTEADERS	LAND FILED ON AND PATENTED		NUMBER OF CLAIMS	LAND FILED ON NO PATENTS ISSUED
											Acres	Claims		
1948										Not more than 30 full and part time farmers	2757	33	46	4093
1949	510[a] 2039	136[a]	68[a]	17[a]	51[a]	85[a] 1017 harvested	143[a] 725 acres	178		43 Farms reporting cropland. About 30 farmers selling crops	2857	43	53	4492
1950	484[b]	90[b]	54[b]	18[b]	54[b]	72[b]	198[b]				812	11	65	5879
1951													89	7246
1952	702[c]	216[c]	72[c]	90[c]	18[c]	198[c]	108[c]						134	1,2660[d]
1953	2,260	590	635	205	65	140	625	184	127					
1954	2,500	475			60	1965				Over 50 selling crops				
1955	2,675	330			34	1477	834	284	25					
1956	2,876	498			26	1546	806	241	62					

a Report of 17 farms excludes two large dairies and two hog farms.

b Report of 18 farms

c Report of 18 farms

d To June 30, 1952

Sources For Data Shown In Table No. X

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1905: C. C. Georgeson, Report on Agricultural Investigations in Alaska, Office of Experimental Stations, U. S. Department of Agriculture, Bulletin No. 169, (Washington: Government Printing Office, 1906), p. 17.

1907: _____, Annual Report of Alaska Agricultural Experiment Stations for 1907. Office of Experiment Stations, U. S. Department of Agriculture, (Washington: Government Printing Office, 1908), Pp. 14-15; 16; 79; 81-82.

1908: U. S. Department of the Interior, Report of the Governor of the District of Alaska to the Secretary of the Interior 1908, Office of Experiment Stations, U. S. Department of Agriculture, (Washington: Government Printing Office, 1910), pp. 6.

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William Young and William Waechter, "Proof of Alaska's Resources," Alaska Yukon Magazine, Vol. IX, April 1910, p. 325. Production report on farm of William Young.

1910: C. C. Georgeson, Annual Report of Alaska Agricultural Experiment Stations for 1910, Office of Experiment Stations, U. S. Department of Agriculture, (Washington: Government Printing Office, 1911), p. 59.

1911: U. S. Department of the Interior, Report of the Governor of the District of Alaska to the Secretary of the Interior 1911, (Washington: Government Printing Office, 1912), p. 15.

Sources For Data Shown In Table No. X

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1913: _____, Annual Report of Alaska Agricultural Experiment Stations for 1913, Office of Experiment Stations, U. S. Department of Agriculture, (Washington: Government Printing Office, 1914), pp. 14-15.

1914: Hugh Hammond Bennett and T. B. Rice, "Soil Reconnaissance in Alaska, with an Estimate of Agricultural Possibilities," Bureau of Soils Field Operation Report (1914), Sixteenth Report, Bureau of Soils, U. S. Department of Agriculture, (Washington: Government Printing Office, Sept. 20, 1915), pp. 189; 201; 207; 208.

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Sources For Data Shown In Table No. X

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1922: C. C. Georgeson, Report of the Alaska Agricultural Experiment Stations 1922, Alaska Agricultural Experiment Stations, U. S. Department of Agriculture, (Washington: Government Printing Office, 1923), p. 2.

1923: A. W. Greely, Handbook of Alaska, Its Resources, Products and Attractions in 1924, 3d. Edition, (New York: Charles Scribners and Sons, 1925), pp. 142-143.

1926: U. S. Department of the Interior, Annual Report of the Governor of Alaska to the Secretary of the Interior for the Fiscal Year Ended June 30, 1927, (Washington: Government Printing Office, 1927), p. 90.

1928: C. C. Georgeson, and W. L. G. Joerg, "The Possibilities of Agricultural Settlement in Alaska," Pioneer Settlement, American Geographical Society Special Publication No. 14, (New York: American Geographical Society, 1932), p. 59.

1929: U. S. Department of Agriculture, Report of the Alaska Agricultural Experiment Stations 1929, Alaska Agricultural Experiment Stations, (Washington: Government Printing Office, 1930), pp. 2; 10-11; 45.

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George Sundborg, Opportunity in Alaska, (New York: Macmillan Company, 1945), pp. 85-86.

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1940: Fritz Bartz, Alaska,(Stuttgart, Germany: K. F. Koehler Verlag, 1950), p. 276.

1941: British Columbia and Yukon-Alaska Highway Commission, Report on the Proposed Highway Through British Columbia and the Yukon Territory to Alaska, August 1941, (Ottawa: King's Printer, 1942), p. 44.

1945: U. S. Department of Agriculture, Report on Exploratory Investigations of Agricultural Problems of Alaska, Agricultural Research Administration, Miscellaneous Publication No. 700, (Washington: Government Printing Office, 1949), pp. 41; 139; 144.

George W. Gasser, The Tanana Valley, Circular No. 2, (Juneau, Alaska; Alaska Development Board, April 1, 1946), p. 15.

1947: O. L. Mimms, et. al., Some Economic Aspects of Farming in Alaska With Chief Attention to the Matanuska Valley, Alaska Agricultural Experiment Station, Bureau of Agricultural Economics, U. S. Department of Agriculture, Progress Report, (Washington: Government Printing Office, January 1950), p. 21.

1949: Richard A. Andrews and Hugh A. Johnson, Farming in Alaska, Alaska Agricultural Experiment Station, U. S. Department of Agriculture, Bulletin No. 20, (Palmer, Alaska: October 1956), p. 5.

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1954: Richard A. Andrews and Hugh A. Johnson, Farming in Alaska, Alaska Agricultural Experiment Station, U. S. Department of Agriculture, Bulletin No. 20, (Palmer, Alaska: October 1956), pp. 4-5.

1955: U. S. Department of Agriculture, Agricultural Production Alaska 1955, Alaska Agricultural Experiment Station and Alaska Department of Agriculture, n. d. mimeographed, pp. 1-5.

1956: U. S. Department of Agriculture, Farm Production Alaska 1956, Alaska Agricultural Experiment Station and Alaska Department of Agriculture, n. d. mimeographed, pp. 1-5.

are variations in the reports available during this period, it is apparent that the expansion of agricultural activity and production is the keynote. Reported acreage in cultivation reached a peak of more than seventeen hundred acres in 1920, (see Table X, page 114).

The appropriation of the public domain by homesteading was recorded by a branch of the General Land Office, U. S. Department of the Interior, established in the Fairbanks area in 1914. The number of homesteaders is recorded under Number of Claims for each year on Table No. X, pages 113 - 116. The amount of land appropriated is listed under Land Filed On and Patented and Land Filed On, No Patent Issued. The division is an important one because only those who carried through and received a patent can be considered as potential farmers.[5] The large number of claims for which no patent has been issued from 1947 to 1952 requires explanation. Many of those homesteaders have undoubtedly received a patent for their land. It is possible to extend the time for completing the requirements to as much as five years.[6] From six months to as much as three or four years is required for the government to issue the patent after the

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[5] A patent is a deed from the government, transferring the land to private ownership.

[6] U. S. Department of the Interior, Information Relative to the Use and Disposal of Public Lands and Resources in Alaska, Bureau of Land Management, Information Bulletin No. 2, (revised), (Washington: Government Printing Office, 1957), p.30-31.

requirements are completed.[7] After World War II the issuance of a patent became an even less reliable indicator of agricultural interest due to the relaxation of cultivation requirements for veterans of military service. An expanded discussion of this problem occurs later in the chapter.

The large number of homesteads recorded in 1914 reflected the formal transfer of records from the United States Commissioner to the General Land Office following the official government survey which established townships and sections in the area.[8]

Construction crews started building the line of the Alaska Railroad from Fairbanks to North Nenana in 1916 which expanded agricultural markets for vegetables and potatoes.[9] The horses used in the construction and the high grain prices of the World War I period led to greater grain production.[10]

The Farmers Agricultural Association, a local group, in 1920

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[7] U. S. Department of the Interior, General Land Office Records, Bureau of Land Management, Land Office, Fairbanks, Alaska, July 1952. (unpublished).

[8] Ibid. The cadastral survey of the Fairbanks area started in 1913 and the General Land Office records were opened in 1914.

[9] C. C. Georgeson, Annual Report of the Alaska Agricultural Experiment Stations 1916, Office of Experiment Stations, States Relations Service, U. S. Department of Agriculture, (Washington: Government Printing Office, 1918), p. 50.

[10] _____, Report of the Alaska Agricultural Experiment Stations 1920, States Relations Service, U. S. Department of Agriculture, (Washington: Government Printing Office, 1922), p. 9.

purchased and brought to Fairbanks a flour mill capable of milling twenty-five barrels of flour per day.[11] This association was supported by the businessmen of Fairbanks who financed the mill.[12] The mill operated until the early thirties when it burned. At that time interest in agriculture was at a low ebb and the mill was not rebuilt.

Before the addition of the Alaska Railroad to the transportation service of the area, local agricultural production was a valuable asset in face of the uncertainties of river boat transportation. Agriculture also aided in checking the population exodus through the declining gold production period which provided an alternate form of economic activity and thereby added stability and permanence.

A decline started following the completion of the railroad which continued virtually unchecked until the revival of homesteading following World War II. Several factors contributed to the decline. The most obvious was the improved and cheapened transportation provided by the railroad following its completion in 1923 which improved the competitive position of producers in the United States. Another factor closely linked with this was the generally low agricultural prices that prevailed in American agriculture during the decades of 1920 and 1930. A third and very important factor was the attractive employment alternative offered by the new type of mining.

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[11] Ibid. p. 9.

[12] Ibid. p. 39.

The completion of the railroad provided transportation conditions which made it possible to start large scale gold dredging operations. The dredging provided stable employment with a fairly good income that had advantages over agriculture. The risk inherent in subarctic agriculture made mining employment attractive. Also the reduced profits in agriculture due to the lower prices in the United States and cheaper transportation made the mining industry a desirable economic alternative.[13]

During World War II the attractive employment provided by military construction proved a superior attraction to agriculture. The high wages and acute shortage of all kinds of labor for construction took men from agriculture. Food prices were regulated and held down by government control while construction wages climbed with many hours of overtime each week.

The lack of sizeable investments in production equipment, barns and other outbuildings, land clearing, houses, and other farm necessities simplified the change to construction work and other lucrative employment. Much of the farming machinery was horse drawn, inadequate and dated back to the earlier period of greater agricultural activity. Fertilizer, tractors, farm machinery and other farm

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[13] Louis P. Merrill and William A. Rockie, "Erosion Conditions in the Yukon-Tanana Area of Alaska," typescript, December 1938. Abstract seen in George Sundborg, Bibliography and Abstracts on the Subject of Agriculture in Alaska, 1867-1942, (Juneau, Alaska; National Resources Planning Board, 1942), p. 128.

supplies were in extremely short supply during World War II. Production of many items of importance in agriculture was drastically curtailed to produce more essential war material. Another handicap during the wartime period was the serious shortage and uncertainty of transportation space for items other than food and high priority military supplies.

The bachelor status of many of the farmers also increased their mobility as an occupational group.[14] Without a wife and children, the men were much freer to move to outlying mining operations and construction projects. Single men would not have great concern over the lack of social amenities and schools, while it would be necessary for family men to maintain two residences, one on their holdings in the Fairbanks area and another at their place of employment. The added expense and the intangible factor of the separation from the family served as a deterrent to the movement of married farmers into alternate types of economic activity.

There are a number of deterrents to agricultural development which must be overcome if agriculture is to make its full contribution to permanent settlement in the area.[15] Limited risk capital,

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[14] U. S. Department of Agriculture, Report of the Alaska Agricultural Experiment Stations 1929, (Washington: Government Printing Office, 1930), p. 2.

[15] Allan H. Mick and Hugh A. Johnson, "Soil Resources and Agricultural Development in Alaska," Arctic, Vol. VII, 1954, p. 239. Nos. 3 and 4.

particularly for long term use has been a chronic agricultural problem in the Fairbanks area and most of Alaska.[16] Long term loans of ten to twenty years have been almost nonexistent in Alaskan agriculture outside the Matanuska Valley.[17] Some of the individuals interested in farming are homesteading the land and have not received patent or title. Due to this condition, the usual farm loan collateral, the land, is unacceptable because the title to the land still rests with the Federal Government. The shortage of capital has hampered land clearing, provision of an adequate water supply, the purchase of basic mechanical equipment, and the construction of barns, storage houses and machinery sheds. It has also been a deterrent to providing comfortable housing for the farmer and his family. The limited capital available was primarily for short term loans, usually not over three years. The problems of development and the climatic risks in sub-arctic agriculture made the use of such loans for development purposes virtually impossible.

High interest rates have also restrained agricultural development. Interest rates charged on bank loans have been eight percent per annum.[18] Other sources of capital usually charged higher rates.

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[16] Richard A. Andrews and Hugh A. Johnson, Farming in Alaska, Alaska Agricultural Experiment Station, U. S. Department of Agriculture, Bulletin No. 20, (Palmer, Alaska: October 1956), p. 5.

[17] Ibid.,p. 3.

[18] Cooley, op. cit., p. 60.

One of the most successful farmers of the Fairbanks area was fortunate enough to find six thousand dollars to finance his partly developed farm with an interest charge of twelve percent per year.[19]

To provide necessary capital many farmers were forced to seek off-farm employment. This has handicapped development because of the slow accumulation of capital. The retarded development rate has discouraged some potential farm operators. Often the opportunities for off-farm work would coincide with the period of peak labor requirements on the farm which usually resulted in inadequate preparation for crop production and poor care and harvesting of the crops. In subarctic agriculture this is especially damaging because of the short growing season. Planting must be done as early as possible to insure the growth of the crop to maturity, and harvesting cannot be delayed or postponed because of the high risk of frost or rain losses. August, the wettest month of the year, is also the beginning of the harvest. In sixteen of the thirty-five years of record the first temperatures below thirty-two degrees were recorded in August (see Table XI). Off-farm employment is a poor way to finance a farm. Adequate capital on a long term and reasonable interest charge is essential to expand the valuable contributions of agriculture to permanence.

The lure of high wages in construction work is another deterrent

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[19] Field interview by the author.

TABLE XI

GROWING SEASON - FAIRBANKS, ALASKA

Year	Last Spring date of 32° or below	First Fall date of 32° or below	Growing Season Frost Free Days
1905	July 11	August 22	42
1906	May 15	August 25	102
1907	May 22	September 1	102
1908	May 11	August 31	112
1909	May 15	August 1	78
1910	May 22	August 21	91
1911	June 2	- - -	-
1930	May 9	September 16	130
1931	June 3	August 19	77
1932	June 8	September 1	85
1933	June 1	August 27	87
1934	May 30	September 7	99
1935	May 24	August 22	90
1936	May 17	September 7	113
1937	May 19	September 14	118
1938	May 20	September 17	120
1939	May 12	August 23	103
1940	May 17	September 4	110
1941	May 24	September 6	105
1942	May 10	September 10	123

TABLE XI (continued)

GROWING SEASON - FAIRBANKS, ALASKA

Year	Last Spring Date of 32° or below	First Fall Date of 32° or below	Growing Season Frost Free Days
1943	May 23	August 17	86
1944	May 20	August 3	75
1945	May 14	September 7	116
1946	May 9	August 6	89
1947	June 1	August 18	78
1948	May 20	August 20	92
1949	May 15	September 9	117
1950	June 2	August 28	87
1951	May 20	September 12	115
1952	May 14	September 5	114
1953	May 11	September 7	119
1954	May 17	September 7	113
1955	May 22	August 30	100
1956	May 17	September 3	109
AVERAGE	May 22	August 29	100 days

Source: U. S. Department of Commerce, Local Climatological Data with Comparative Data 1955, Weather Bureau, (Asheville, North Carolina: National Records Center, 1956), p. 2.

to agricultural improvement and expansion. This problem is closely related to the shortage of loan funds discussed in the preceding paragraphs. The guarantee of cash income each week compared with the slow arduous and discouraging task of farm development often resulted in a shift from an interest in farming to the greater immediate rewards of construction work.[20] The results have been detrimental to permanence because of the weaker ties with the area and the greater mobility of construction workers.

The large amount of land held by absentee owners retards agriculture. Included in this category are many acres of good agricultural land, often located adjacent to the existing road network of the area. In some cases the owner has died, leaving no heirs, or has moved from the Territory leaving no record of his new place of residence. In areas outside the organized school districts there is no way of returning the land to the public domain or territorial ownership. The unfavorable situation is due to the absence of a territorial property tax. Within organized school districts a property tax is levied and tax delinquent properties of three years or more are sold at a public sale to satisfy the tax claims against them.[21]

Following World War II a trend towards family homesteads became pronounced as veterans and their families moved into the

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[20] Cooley, op. cit., p. 56.

[21] Jessen's Weekly, January 22, 1953. A list of delinquent properties and the time of sale is indicated.

Fairbanks area. Much of the movement was prompted by the relaxed requirements for veterans. Some of the veterans had served in Alaska during the war and had returned to homestead. Others were attracted by the publicity given Alaska during World War II and by the improvement of transportation made possible by the Alaska Highway.

The homesteading requirements for veterans in the period following World War II led to much homesteading for speculation and other nonagricultural purposes which retarded agricultural expansion in the area. The situation resulted from the special homesteading privileges given to World War II veterans. Veterans were not required to clear or cultivate land and could apply for and receive title to as much as one hundred and sixty acres after constructing a habitable cabin or dwelling and residing on the land for seven months during the first year following the application.[22] Much land appropriated in this way has been used for residential or commercial purposes which are both fitting and proper, but other provisions were made for obtaining land from the public domain for a variety of uses other than for agriculture.[23] The use of homesteading laws to acquire land for the above purposes has resulted in the removal of an excessive amount of desirable

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[22] U. S. Department of the Interior, Alaska Information Relative to the Disposal and Leasing of Public Lands in Alaska, Bureau of Land Management, Information Bulletin No. 2, (Washington: Government Printing Office, 1948), p. 18.

[23] Ibid., p. 19. Up to five acres may be purchased from the government for a home site. As much as eighty acres may be purchased for legitimate trade, manufacturing, fur farming or other industries.

agricultural land.

The regulations for nonveterans required a habitable dwelling, seven months of residence for each of three years, one-sixteenth of the homesteaded area in cultivation at the end of the second year, and one-eighth in cultivation during each year thereafter until documented evidence of completion of the requirements was filed.[24]

A fortunate change in homesteading regulations took place on June 18, 1954. Public Law 402, Eighty-third Congress, Second Session, Sixty-eighth Statute, provides in pertinent part for veterans of World War II and the Korean conflict, " - - that such compliance shall include bonafide cultivation of at least one-eighth of the area entered under the homestead laws."[25] This revision in the regulations is an aid in checking the abuse of the homesteading laws.

Agriculture has been expanding since World War II. Table XII gives some indication of the size and character of the growth. The expanded markets, because of the increased civilian population and the military bases, have provided an incentive to expand agricultural production. The number of farmers producing crops for sale has increased by more than sixty percent and cropland has increased by more than ten percent between 1953 and 1954. (See Table X, page 116). Average investments in service buildings and equipment have also increased as shown on Table XII. Land clearing increased

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[24] Ibid., pp. 16-17.

[25] Personal communication with Mr. Irving W. Anderson, Manager, Land Office, Bureau of Land Management, U. S. Department of the Interior, Anchorage, Alaska. March 31, 1958.

from two hundred forty-four acres in 1953 to three hundred fifty acres in 1954.[26] Several years usually pass before cleared land becomes cropland. Most of the land is underlaid by permafrost and the soil must dry and warm before it can be used for crops.

TABLE NO. XII

Average Investments in
Equipment and Service Buildings

(Excluding the two large dairy farms)

Year	Equipment	Buildings
1950	$3,717	$2,180
1952	4,726	4,225
1953	5,099	3,390

Source: Richard A. Andrews and Hugh A. Johnson, Farming in Alaska, Alaska Agricultural Experiment Station, U. S. Department of Agriculture, Bulletin No. 20, (Palmer, Alaska: October 1956), p. 7. (Latest information available).

More capital is now available for agriculture through the Territorial Farm Loan Fund established by the Territorial Legislature

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[26] Richard A. Andrews et. al., Agricultural Production Alaska 1953, Alaska Agricultural Experiment Station and Alaska Department of Agriculture, preliminary, (Palmer, Alaska: 1954), p. 6. (mimeographed).

Richard A. Andrews and Hugh A. Johnson, Farming in Alaska, Alaska Agricultural Experiment Station, U. S. Department of Agriculture, Bulletin No. 20, (Palmer, Alaska: October 1956), p. 4.

in 1953.[27] The Alaska Agricultural Loan Act, 1953, amended in 1955, provided a maximum of one million dollars to "promote the more rapid development of agriculture as an industry throughout Alaska by means of long term low interest loans."[28] On March 6, 1958, a total of four hundred seventy-five thousand dollars had been placed in the loan fund by the Territory of Alaska.[29] Short term loans are granted for periods of less than one year and for amounts less than two thousand dollars with an interest rate not greater than six percent. Loans of this type are for seed, fertilizer, harvesting, planting and general farm operation.[30] Chattel loans are granted for the purchase of livestock and equipment. A maximum of ten thousand dollars per farm unit with an interest rate not greater than five percent for no longer than five years or the useful life of the chattel may be obtained from the loan board.[31] The third type of loan obtainable through the Alaska Agricultural Loan Board is the Farm Development Loan. Up to twenty thousand dollars may be borrowed for a maximum of twenty years with a maximum interest rate of four and one-half percent. The money is provided for long term loan developments including

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[27] Richard A. Andrews and Hugh A. Johnson, Farming in Alaska, Alaska Agricultural Experiment Station, U. S. Department of Agriculture, Bulletin No. 20, (Palmer, Alaska: October 1956), p. 6.

[28] Alaska Agricultural Loan Board, Loan Fund Information Sheet, (Palmer, Alaska: n. d.), mimeographed, p. 1.

[29] Personal Communication with Herbert C. Lang, Loan Agent, Alaska Agricultural Loan Board, Palmer, Alaska. March 6, 1958.

[30] Alaska Agricultural Loan Board, op. cit., p. 1.

[31] Ibid.

land purchase, land clearing and the construction of buildings.[32] Fifty Fairbanks area farmers were using the loans in the following ways and amounts as of March 1, 1958. (See Table XIII below). A grand total of seven hundred one thousand, five hundred nine dollars and eighty-five cents has been loaned under the act and an estimated two hundred fifty thousand dollars of this has been placed in the Fairbanks area.[33]

TABLE NO. XIII

Alaska Agricultural Loan Board Loans

Fairbanks, Alaska - March 1, 1958

Type of Loan	Number of Loans	Total Balance
Short Term	18	$16,152
Chattel	17	41,642
Farm Development	15	67,712
		$125,506

Source: Personal Communication with Herbert C. Lang, Loan Agent, Alaska Agricultural Loan Board, Palmer, Alaska. March 6, 1958.

Eligibility for loans requires evidence of experience in the type of operation for which the loan is granted, two to three years of that experience in the Territory, financial solvency, economic feasibility of the plan of operation and absence of other sources

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[32] Ibid.

[33] Lang, op. cit., March 17, 1958.

financing.[34] The inclusion of the qualifications for loans is made to demonstrate that responsible administrators feel agriculture is profitable in the area and there are a number of competent farmers seeking to develop and expand agriculture in this area. Stated in another way, this is positive evidence of permanence.

There is ample room for expanding agricultural production. A tripling of present cropland acreage probably would not over supply the market with products which can be grown economically in the Fairbanks area, provided that a major part of the land can be used for milk or meat production.[35] The range of crops which can be grown make up about one-half of the food bulk of the typical United States household and about one-half of the typical grocery expenditure.[36] Products include potatoes, milk, eggs, vegetables, meat, cereals and some fruits.[37] All of these have been produced commercially in the Fairbanks area at some time. Potential agricultural land in the Tanana Valley between Big Delta and Nenana is an estimated three hundred thousand acres as previously indicated. The loess soil of the south facing slopes and the alluvial soils of the bottom lands of

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[34] Ibid.

[35] Allan H. Mick, "Arctic and Subarctic Agriculture," From a typescript of the paper read on April 20, 1957 by Mr. Mick at the 1957 Biology Colloquium sponsored by Oregon State College, Corvallis, Oregon. To be published in the Proceedings of the colloquium. p. 4.

[36] Ibid.

[37] Ibid.

the Fairbanks area are desirable for subarctic agriculture. The long hours of daylight are a favorable factor. At latitude sixty-four degrees, the approximate latitude of Dawson, Yukon Territory and Big Delta, Alaska, slightly south of the Fairbanks area, nearly twelve hundred twenty hours of daylight are available for photosynthesis in the sixty-one days of June and July. Some plants can utilize the two hundred forty-four twilight hours of this period. In the equatorial areas one hundred two days are required to get the same amount of light. The example of cabbage supplied by Mick shows the importance of the long daylight hours:

> Insolation explains the phenomenal growth of adapted crops in the subarctic. Compare, for example, a cabbage growing in the fabled truck areas of California with its counterpart in a Fairbanks garden. During its peak growing season in California the cabbage is synthesizing for perhaps thirteen hours a day. At night it respires at a minimum rate for only one or two hours. New daily gains in synthesized products are therefore much greater in Fairbanks than in California. Marketable heads form rapidly and tissues are not physiologically aged as in southern climates by the time the product is consumed. Sugar levels are high in 'youthful' salad crops. The total effect of the subarctic environment is rapid growth of highly palatable plant tissues. [38]

In addition to having room for expansion and a desirable physical environment for agriculture the government agencies which have done most of the research and study of Alaska in that field indicate that the potential for agriculture is large. "Considering market opportunities, soil resources and the relatively low cost of clearing land, the Tanana Valley perhaps has a larger agricultural potential

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[38] Mick, op. cit.

than the Matanuska Valley."[39] This conclusion represented contributions to the appraisal of Alaskan agriculture by the Alaska Agricultural Experiment Station and Extension Service, the Alaska Department of Agriculture, the United States Bureau of Land Management, the United States Forest Service, the Soil Conservation Service, the Farmers Home Administration, the Agricultural Stabilization and Conservation Committee and the Alaska Rural Rehabilitation Corporation.

Significant changes have taken place in the composition of the farming population. In 1949 two-thirds of the farmers were more than fifty years old and the rest were under forty.[40] Of these, forty-one percent were single men.[41] Six years later in 1954, nearly two-thirds of the farmers were under forty years of age and the others were fifty and older.[42] Three-fourths of the farmers were married and most of these had children.[43]

Agriculture is adding permanence to the Fairbanks area. The increasing number of family farms is a favorable trend because of the

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[39] Lenore Helda, Agriculture in Alaska, Joint Publication: Agricultural Experiment Station, University of Alaska, Bulletin No. 22, September 1956, p. 9. Department of Agriculture, Territory of Alaska, Circular No. 1, revised.

[40] Clarence A. Moore, Alaska Farms Organization and Practices in 1949, Alaska Agricultural Experiment Station, U. S. Department of Agriculture, Circular No. 1 (Palmer, Alaska: March 1951), p. 6, mimeographed.

[41] Ibid., p. 6.

[42] Richard A. Andrews and Hugh A. Johnson, Farming in Alaska, Alaska Agricultural Experiment Station, U. S. Department of Agriculture, Bulletin No. 20, (Palmer, Alaska: October 1956), p. 6.

[43] Ibid.

reduced mobility of the operator. Turnover among farm families is not as great in the Fairbanks area as in other Alaskan agricultural area, including the Matanuska Valley, an indication of relative stability.[44] Steadily improving roads in the farming areas provide better access to the Fairbanks market.[45] (See Figure 8). Improved roads which are kept open throughout the year make it possible to expand the types of farming possible in areas to include dairying. A large market exists for this branch of agriculture within the local area. In 1952 only ten to fifteen percent of the milk used in the Fairbanks market came from local suppliers and no local milk was used at the military bases in the area.[46] The improved roads make it possible for children to commute daily to schools in Fairbanks. Expansion of electric lines in the farming areas has greatly improved living conditions which has reduced the high turnover in farm families.[47] The availability of electric power cheapens and simplified the mechanization of the farm. Improvement in the supply of capital for agriculture hastens development, increases the investment in buildings

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[44] Ibid.,p. 32.

[45] Alaska Road Commission, Annual Report of the Alaska Road Commission for the Fiscal Year Ended June 30, 1954, Office of Territories, U. S. Department of the Interior, (Juneau, Alaska: 1954), p. 34, mimeographed.

[46] Cooley, op. cit., p. 58

[47] Fairbanks Daily News Miner, Progress Edition, November 10, 1954, pp. 30-31. The Golden Valley Electric Association service the area around Fairbanks and had 2100 members and 250 miles of powerline in 1954.

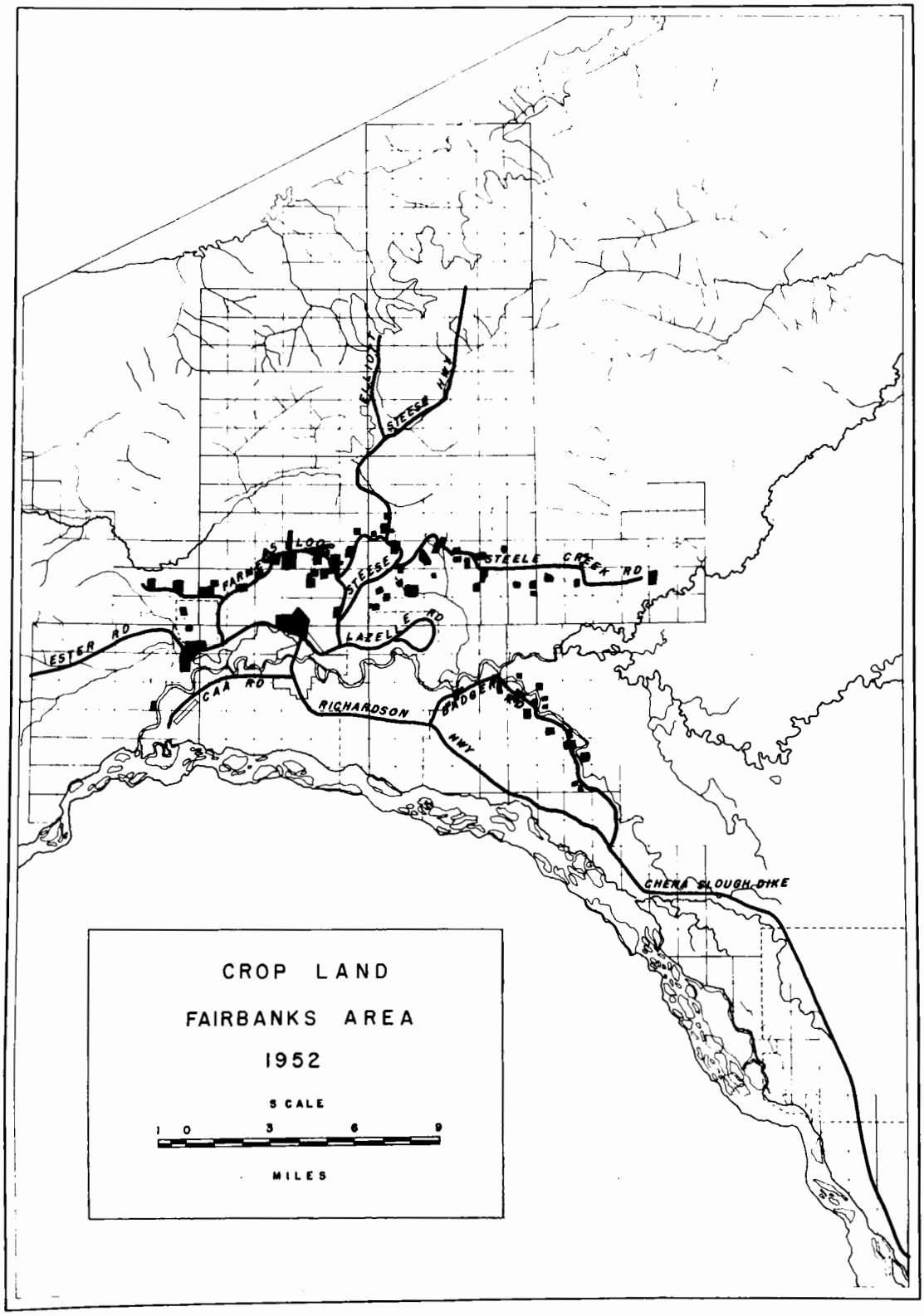
CROP LAND
FAIRBANKS AREA
1952
SCALE
1 0 3 6 9
MILES
ELLIOTT
STEESE HWY
FARMERS LOOP
STEESE
STEELE CREEK RD
LAZELLE RD
ESTER RD
CAA RD
RICHARDSON
BADGER RD
HWY
CHENA SLOUGH DIKE

FIGURE 8

land clearing and equipment which adds to the permanence of agriculture.

CHAPTER VI

THE ROLE OF THE MILITARY

The military has long been active in the Fairbanks area and has played a varying but important role in the permanence of settlement throughout the years. From the very early years of Fairbanks until 1940 the major activity of the military was the operation and maintenance of transportation routes and communications with the rest of the world, a significant and important contribution. After 1940 the contribution was more direct. The military provided a substantial economic support for many of the wage earners and made sizeable investments of a permanent nature. The larger and more important investments were Ladd and Eielson Air Force bases.

The army initiated improved overland transportation in Alaska with preliminary construction on a crude pack trail from Valdez to Eagle in 1901. Because of the rapid growth of Fairbanks, the work was directed towards the provision of a winter road connection between Fairbanks and Valdez. Reports of the Board of Road Commissioners for Alaska to the Secretary of War indicated that this was the most important route in the road system of Alaska in the period before World War II.[1] War Department appropriations were important in building and maintaining the Richardson Highway, the overland link between Fairbanks and the ice-free port of Valdez, and also the local

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[1] U. S. Army and Alaska Road Commission, Reports of the Alaska Road Commission to the Secretary of War 1905 - 1932.

roads of the Tanana Valley. Major (later General) Richardson who headed the Alaska Road Commission for many years strongly favored improvement of the route from Fairbanks to Valdez. Much of the appropriations and efforts of the Road Commission was concentrated on improvement and maintenance of this route in the pre-World War II period.

Under the supervision of the military the Richardson Highway was laid out as a winter trail and gradually improved to minimal automobile road standards. In addition, feeder roads in the Fairbanks area were built and the system was maintained in the best condition possible under the rather meager appropriations available.[2] The Alaska Road Commission was transferred from the jurisdiction of the War Department to the Department of the Interior in 1932.

In the field of communications the military has also played an important and vital role in the development and permanence of settlement in Fairbanks. Rapid and diverse forms of communication have been essential features of permanent settlement in Anglo-America for many years. The greater the number, range, and ease of contacts with other areas, the greater the permanence. This is an empirical observation, particularly true in North America. Any of the thriving, secure settlements of Anglo-America has a varied group of communication

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[2] Alaska Road Commission, Annual Report of the Alaska Road Commission for the fiscal year ended June 30, 1954, Office of Territories, U. S. Department of the Interior, (Juneau, Alaska: 1954), pp. 6-7, (mimeographed).

and transportation services which keep it in close contact with other parts of the world.

The Signal Corps of the United States Army had constructed a telegraph line into the Fairbanks area by 1903.[3] Rapid communication with the outside world was a great boon to Fairbanks in expediting the ordering of needed supplies, personal communication with friends, relatives, and business associates and keeping abreast of the news of the world. About 1908 the Signal Corps put a wireless station into operation which increased the speed and range of contacts with the rest of the world. Later the Alaska Communication System, a branch of the Signal Corps, United States Army, developed and operated long distance telephone service linking Alaskan towns with local telephone systems and with areas outside Alaska. The Alaska Communication System still provides the vital telegraph and telephone services. In addition it has added radio telephone and teletype circuits to its communication facilities which represent improvements in the communication services for Fairbanks through greater diversification.

The dike constructed by the Army Engineers across the entrance to Chena Slough added a greater degree of permanence to the community. The dike, extending some three miles from Moose Creek Butte to the

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[3] L. M. Prindle, The Gold Placers of the Fortymile, Birch Creek, and Fairbanks Regions, Alaska, Geological Survey, U. S. Department of the Interior, Bulletin No. 251, (Washington: Government Printing Office, 1905), map facing page 60.

Tanana River, was built to divert the flood waters of the Tanana River from Chena Slough which greatly reduced the flooding danger to Fairbanks. (See Figure 8, page 141). Some flooding danger still exists from the Chena and Little Chena Rivers, but crests are greatly lowered and the frequency of floods has been reduced by this diversion. The Richardson Highway in this area was relocated and placed on top of the dike, a minor improvement in the transportation system of the Fairbanks area which took place along with the dike construction in 1939.

The well developed transportation system, a community life rich in amenities by comparison with other interior cities and towns, a modern school system and a wide range of stores and services were strong factors in the selection of Fairbanks for the location of the Army Air Corps Cold Weather Test Station. A sum of four million dollars was appropriated in February of 1939 and B-17 bombers landed there on October 4, 1940.[4]

The choice of Fairbanks as the site of an Army Air Force Cold Weather Test Station was both an aid to permanence and an appreciation of the well established character of the community. Many towns and villages in interior Alaska equaled or surpassed the low winter temperatures of Fairbanks. However, none possessed the well developed transportation system. Rail and highway links with ice-free ports

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[4] Fairbanks Daily News Miner, February 23, 1939; October 4, 1940.

and an established group of air carriers highlighted the transportation facilities. Community services and amenities were the most varied and best developed of all interior Alaska. A good public school system, elementary, intermediate, and high school, clubs, lodges, and social organizations, movies, a radio station, and the University of Alaska contributed to the general atmosphere of culture, stability and permanence in the Fairbanks area. The sewage system, water distribution network, fire department, telephone service police department, electric utilities and other public services were better developed in Fairbanks than in any other part of the interior. In addition, a wider range of services, retail trade outlets, parts suppliers and other functions characteristic of urban locations were found in Fairbanks. The presence of these facilities lowered the cost of constructing the test station because less had to be provided for the personnel. Also, the existence in Fairbanks of many of the amenities of life in the United States meant fewer morale problems and more normal living conditions for the married personnel of the station. The four million dollar investment in buildings, hangers, runways and other fixtures was an asset of permanent character.[5] Furthermore, the test station added one thousand men to the basic support of Fairbanks.[6]

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[5] Fairbanks Daily News-Miner, February 23, 1939.

[6] Ibid.

Alexander, op. cit., p. 246.

The Japanese attack on Pearl Harbor, Territory of Hawaii, marked the beginning of a more significant role for the Fairbanks area in military circles and this added investment and employment of permanent character.

The Cold Weather Test Station was expanded to include an Air Transport Command operation by September 1942.[7] The arrival of this organization expanded the distribution function of the Fairbanks area and intensified the transportation activity centered on Fairbanks. The Air Transport Command was charged with moving men and materials to the widely scattered military bases in Alaska and also with ferrying aircraft to Fairbanks for transfer to the Soviet Union under Lend-Lease agreements between the two countries. Fairbanks was chosen as the transfer point for aircraft from United States to Soviet Union ownership and control. This choice led to the expansion of the facilities at Ladd Air Force Base. The anticipated air traffic connected with the ferrying operations and other military considerations made it desirable to establish a satellite field at Mile 26 from Fairbanks. The field was later called Eileson Air Force Base.

The ferry route to Russia was largely responsible for the Alaska Highway, a great transportation asset to Fairbanks and the Territory. The highway was used to supply the ferry route air fields and to transport military supplies for other bases in Alaska during

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[7] Edwin R. Carr, "Great Falls to Nome: The Inland Air Route to Alaska, 1940 - 1945," Unpublished Ph.D. dissertation, University of Minnesota, Minneapolis, 1947, p. 76.

World War II. Shortly after the end of the war the Highway was opened to civilian traffic, an important move with respect to permanence in Fairbanks. The route has been steadily improved up to the present time and is a vital transportation link between Alaska, Canada and the United States.[8]

Ferrying activity ceased in 1945, yet installations built primarily for this purpose continued to grow after the end of World War II. The continued growth provided support for many of the permanent public works, housing, businesses, and other investments. Before the outbreak of the Korean conflict in 1950, construction expenditures at Ladd Air Force Base totalled thirty-seven million, four hundred thirty-one thousand, nine hundred forty-six dollars.[9] At nearby Eileson Air Force Base construction costs through June 1950 totalled twenty-eight million, seven hundred fifty-one thousand, four hundred ninty dollars.[10] In a letter to E. L. Bartlett, Delegate from Alaska, Mr. W. J. McNeil, Assistant Secretary of Defense, stated that the construction expenditures for the fiscal years 1950 through 1955 totalled one hundred twenty-six million dollars for Ladd Air Force Base and one hundred twenty-two million dollars for Eileson

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[8] This was clearly shown by the serious transportation bottleneck caused by the collapse of the Peace River Bridge on the route on October 16, 1957.

[9] Personal correspondence with Francis McIlhargen, Chief, Technical Liaison Branch, Headquarters Alaska Air Command, APO 942, Seattle, Washington. August 16, 1955.

[10] Ibid.

Air Force Base.[11] Much of the money expended in construction activity was used to build permanent installations on these bases. Ladd and Eileson bases employed approximately one thousand full time civilians on a permanent basis.[12]

Federal aid in expanding the public utilities, schools and housing has been in large part due to the presence of the military in the area. The Alaska Public Works Division of the United States Department of the Interior has given important financial and engineering backing for many important public projects. (See Table XIV). The value of this assistance is difficult to over estimate because of the direct contribution to items of great importance in permanent mid-twentieth century, western industrial society settlement.

Public assistance to cities and towns which have experienced rapid growth due to a military establishment is an accepted practice in the United States. Small towns and cities throughout the country have received federal funds to help in providing schools, housing and other necessary utilities. Federal aid of this type has also been extended to the uranium mining centers on the Colorado Plateau,

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[11] The letter, dated August 1, 1955, was in response to a request made by the author to Delegate Bartlett.

[12] Personal correspondence with Technical Sergeant M. H. Dewees, NCOIC, Public Information Officer, Headquarters Alaska Air Command, APO 942, Seattle, Washington. August 16, 1955.

TABLE XIV

ALASKA PUBLIC WORKS PROJECTS, FAIRBANKS AREA 1950-1958

(Excluding those of the University of Alaska).

1950	School, Fairbanks	$470,872.77
1950	Sewer, Fairbanks	156,166.07
1951	Water Supply, Fairbanks	491,299.70
1952	School, Fairbanks	691,977.43
1952	Bentley Island, Streets and Sewers	577,425.53
1953	High School, Fairbanks	2,368,116.00
1953	Streets and Sidewalks, Fairbanks	397,600.00
1954	Grade School, Fairbanks	474,144.53
1954	Water Distribution System, Fairbanks . . .	1,564,800.00
1954	Weeks Field Sewer and Lift Station	272,535.35
1954	Coal Facilities Fairbanks	289,350.00
1955	Sewer System, Fairbanks	395,575.00
1957	Elementary School, Fairbanks	669,000.00
1957	High School Addition, Fairbanks	474,000.00

Source: Personal communication from Thomas G. Mooney, Director Public Works, Office of Territories, U. S. Department of the Interior, Juneau, Alaska. January 27, 1958.

where boom growth has been experienced due to military and strategic needs for this metal.[13]

Benefits from the addition of the military have accrued to communities other than Fairbanks. An outstanding example of the value of a military base and military construction in the life of a community is found at Whitehorse, Yukon Territory. Whitehorse was the transfer point between rail and water and in 1941 had a population of seven hundred fifty-four.[14] Following the entry of Japan into World War II in December 1941, a marked change took place in the economic structure of Whitehorse. An air base, the Alaska Highway and an oil refinery were added by the military. The Alaska Highway and the Royal Canadian Air Force base remain today and are of considerable importance in the economic life of the town. Population had increased five fold by 1951 with a civilian population of two thousand, five hundred ninety-four and fifteen hundred military personnel.[15]

Military developments in Whitehorse parallel those of Fairbanks. Superior transportation in comparison with other sites was important

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[13] Elbert E. Miller, "Some Aspects of the Uranium Boom," Utah Economic and Business Review, Vol. XVII, No. 2, Bureau of Economics and Business Research, University of Utah, Salt Lake City, Utah, February 1957, p. 3.

[14] Gerald F. Ridge, "General Principles for the Planning of Sub-Arctic Settlements," Unpublished Ph.D. dissertation, McGill University, Montreal, Quebec, 1953, p. 289.

[15] Ibid.

in the selection of Whitehorse and Fairbanks for military bases. Whitehorse was served by rail and river boat transportation and was used as a supply point for Alaska Highway construction in both northerly and southerly directions. The air field at Whitehorse was an important stop on the Northwest Staging Route between Great Falls, Montana and Fairbanks. A primary reason for this was the rail transportation linking this interior point with tidewater at Skagway, Alaska. Today, largely because of the population growth brought by military activity in the area, the territorial capital has been transferred to Whitehorse from Dawson. Whitehorse, because of the concentration of population and superior transportation, is better equipped to carry on the administrative function of the Territory.

Another example of the contribution of the military to subarctic settlement, growth, and permanence is found at Churchill, Manitoba. The construction of a large air field in 1942 followed by the Joint Services Arctic Testing and Experimental Station on the eastern fringe of the town in 1946 was largely responsible for the population increase from 1941 to 1951.[16]

In the Fairbanks area other military contributions are worthy of examination. The Arctic Aeromedical Laboratory on Ladd Air Force base was founded in 1947 and originally housed in quonset huts. The

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[16] Canada Dominion Bureau of Statistics, Ninth Census of Canada 1951, Vol. I, Dominion Bureau of Statistics, Department of Trade and Commerce, (Ottawa: Queen's Printer, 1953),pp. 6-58. Population in 1951 stated as 2,168; 1941 population obscured by inclusion in unorganized areas.

laboratory has been responsible for important research in the sub-arctic and arctic environments and has brought recognition, prestige and important scientific research men to Fairbanks. The research facilities are now housed in three permanent buildings valued at one million dollars.[17] A five floor, air conditioned, completely equipped hospital also has been added to the facilities of Ladd Air Force base.[18] These are assets of a permanent character.

The Permafrost Research Area of the Corps of Engineers, United States Army, is another military research establishment. The research program is under the direction of the Arctic Construction and Frost Effects Laboratory of the Corps of Engineers office in Boston.[19] The station occupies about ninety acres of ground, two and one-half miles north of Fairbanks on the Farmers Loop Road. (See Figure 8, page 141). There are nine permanent employees at the station with seasonal increases of temporary personnel.[20] Permanent investments in three buildings, utilities and roads total one hundred fifty thousand dollars.[21] Not included in this figure are eight temporary structures. Although the employment and total investment are small,

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17 Fairbanks Daily News-Miner, Progress Edition, November 20, 1957, p. 29.

18 Ibid., November 10, 1954, p. 8.

19 R. F. Leggett, "Permafrost Research," Arctic, Vol. VII, Nos. 3 and 4, 1954., p. 154.

20 Personal communication with H. J. Kropper, Acting Chief Engineering Division, Office of the Division Engineer, Corps of Engineers, U. S. Army, Boston, Mass. September 22, 1954.

21 Ibid.

the research facility is of importance. It is integrated into the permafrost research program of Canada and the United States and, due to the early date of establishment (1947), has value due to the length of observations which have been recorded.[22] The significant work of this research area attract attention and support in many quarters. The recognition, support, and visitors drawn to the area are assets in permanence. Conceivably, the support from scientific circles and scholars could "save" an establishment of this type for Fairbanks in the event of a cut in appropriations or a waning of military interest. A case in point is the Arctic Research Station at Point Barrow.[23]

Following the outbreak of the Korean conflict in 1950, Ladd Air Force Base was chosen as the hub of defense establishments north of the Alaska Range.[24] Recent military construction has included Nike sites to protect Ladd Air Force Base and other key defense installations. The six hundred twenty-five mile pipeline from the tidewater port of Haines to Fairbanks is another piece of military construction. This thirty million dollar installation could conceivably be diverted to civilian use if the military no longer required its services.

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[22] Leggett, op. cit., p. 154.

[23] Department of the Navy, Arctic Research Laboratory, Office of Naval Research, January 1955, p. 1.

[24] Fairbanks Daily News-Miner, Progress Edition, November 20, 1957, p. 112.

The military forms a variable and unpredictable addition to the economic life of Fairbanks. Evidence of this is seen in the nineteen percent drop in employment between December 1, 1956 and December 1, 1957.[25] The drop was due in large part to the curtailment of construction activity by the armed services due to the economy move and the reassignment of appropriations within the Defense Department.

The military has made a number of contributions to the betterment and permanence of Fairbanks both directly and indirectly. Improved transportation, more housing, better public utilities, expanded and diversified economic activity including various types of contractors. services, and entertainment have been added. The number of permanent civilian jobs and the additions to the economy through the spending of military personnel stationed in the area are important but variable factors.

The military has been important in expanding the economic base and the permanence of Fairbanks and other subarctic settlements. Places chosen for military bases usually have superior transportation facilities to alternative sites and are better equipped with the amenities of everyday life. The benefits accruing to settlements chosen for military bases have been discussed above and have been of great importance to Fairbanks.

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[25] Alaska Territorial Employment Service, "Fairbanks Area," Alaska Labor Market Report, Alaska Employment Security Commission, Vol. I, No. 4, (Juneau, Alaska: December 1, 1957), p. 4.

CHAPTER VII

HISTORICAL DEVELOPMENT OF OTHER CONTRIBUTORS TO PERMANENCE

The grouping in this chapter is one of convenience in which a number of diverse factors can be analyzed without excessive fragmentation into separate chapter headings. It is not intended to belittle the contribution of each towards the permanence of the settlement.

Several businesses and services located in the Fairbanks area have made important contributions to its growth and stability. This has been achieved through the character of the enterprises, permanent investments in the area, and expansion of the scope of activity beyond the geographical limits of the Fairbanks area.

The Northern Commercial Company established a store in Fairbanks the year following the discovery of gold. The winter of 1903-1904 the company constructed an electric power plant to serve the youthful community.[1] Its capacity was trebled in 1905 and increased again in 1906. In addition, electric power plants were in operation at Chena and on the Chatanika Flats supplying power to the creeks. The early establishment of power plants was an indication of confidence in the area by the Northern Commercial Company which was echoed by other companies. The enthusiasm and confidence of the Northern Commercial Company in the future of the Fairbanks

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[1] Brand, op. cit., p. 21.

area brought the power and amenities of electricity to an isolated community less than two years old. Thirty years later, in 1935, less than eleven percent of the farms of the United States, in areas considerably less isolated than Fairbanks, were served by electricity.[2]

The Northern Commercial Company also provided water and steam heat to the central business district of Fairbanks from 1906 until 1949 at which time heat and power facilities were purchased by the publicly owned Municipal Utilities System.[3] The Northern Commercial Company has contributed to the permanence of Fairbanks by providing the important growth and amenity services of electricity and running water for the urban section. These undertakings were for profit, but the confidence shown in the continuing growth and prosperity of the settlement undoubtedly have impressed other businesses and individuals with the permanence of Fairbanks.

Austin Lathrop and the Lathrop Enterprises which he developed represent a one-man contribution to the growth and stability of Fairbanks. "Cap" Lathrop, as he was generally known, was one of the few millionaires of Alaska who remained in the Territory after amassing his wealth. Much of his money was invested in Fairbanks, where he made his home, and the surrounding area. In addition to

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[2] U. S. Department of Agriculture, The Rural Electrification Program, Rural Electrification Agency, 1958, p. 1.

[3] Cooley, op. cit., pp. 31-32.

financing a number of local businesses, he built the four story concrete Lathrop Building in the 1930's which was one of the first modern substantial business and apartment buildings in Fairbanks. Other Lathrop business undertakings which have been contributions to permanence include the ten thousand watt radio station KFRB and the amenities of two theaters.

The University of Alaska is also an important contributor to the permanence of the Fairbanks area. As the center of higher education and scientific research in Alaska, the University adds prestige to the area. The institution employs a faculty of eighty, plus, administrators, office staff, power plant workers and maintenance crews.[4] The salaries and wages paid by the University bring approximately one million dollars a year to the Fairbanks area, a basic support for the economy.[5] The student body of five hundred eighty-seven in the fall of 1957 represented an increase of approximately one hundred percent over that of 1952.[6]

An increasing investment in buildings was accompanied the growth of faculty and student body as factors of a permanent character at the University. The Geophysical Institute building was

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[4] University of Alaska Catalog 1958-1959, Second Series, No. 24, College, Alaska, pp. 109-113.

[5] John W. Alexander, "The Basic-Nonbasic Concept of Urban Economic Functions," Economic Geography, Vol. XXX, No. 3, July 1954, p. 249.

[6] Fairbanks News-Miner, Progress Edition, November 20, 1957, p. 34.

completed in 1950 at a cost of nearly one million dollars. It is a three story concrete building housing laboratories and facilities for research in Arctic phenomena. The Geophysical Institute is an outstanding research establishment with a world wide reputation. It attracts distinguished scientists and visitors to the Fairbanks area from all over the world. The Institute is an important contributor to the scientific prestige of the University and the Fairbanks area.

The United States Coast and Geodetic Survey maintains an important scientific station on the campus of the University. A continuous record of magnetic elements is maintained and two sensitive seismographs are housed in a special seismograph vault. The installation is an asset of a permanent character and a valuable scientific addition to the area.

The Brooks Memorial Building, which houses the School of Mines and the Alaskan Geology branch of the United States Geological Survey, is a four story concrete structure completed in 1952. Because of the mineral wealth of Alaska and the location of the University in close proximity to various types of mining and mineral resources, the School of Mines attracts people interested in the mineral resources of Alaska. These include University students, mining engineers, investors, promoters and prospectors who avail themselves of the facilities. The Alaskan Geology branch office maintains a complete set of topographic and geologic maps of Alaska as well as a full collection of geological reports. Free

testing of radioactive ore samples is done by the Alaskan Geology branch office. Also functioning in close cooperation with the School of Mines on campus is the Territorial Department of Mines Field Office and Assay Office. The functions of this organization increase the attraction of the Fairbanks area as the mining center of Alaska.

The Eielson Building is a three story concrete building housing the museum, administrative offices and several departments of the University. Construction was begun in the depression year of 1934, supported largely by the Fairbanks post of the American Legion as a memorial to Ben Eielson, an important man in the development of aviation in the area. It was the first substantial building on the campus of this young University. The museum is a cultural asset of the Fairbanks area with a collection of over one hundred thousand catalogued artifacts, many rare and interesting items of Alaska flora and fauna and a collection of historical material. Only a limited amount of this collection is on public display due to the space limitations. Expansion of this valuable scientific and cultural part of the University will be possible when the library and gymnasium, which are now housed in an adjoining building, are moved to new quarters. The beginning of substantial permanent building construction on the campus through the efforts of the local citizens is characteristic of the Fairbanks area.

The library represents another contribution to permanence. In 1956 it had some thirty-five thousand bound volumes, approximately twenty-five thousand bulletins and pamphlets and subscribed to four

hundred fifty periodicals and received most of the newspapers published in Alaska.[7] The library collection increases the cultural attraction of Fairbanks and enhances the pride and prestige of the area for the residents.

The investment in modern concrete dormitories also encourages permanence. Nerland, McIntosh and Hess Halls house men, Wickersham Hall houses women and Stuart Hall is a modern apartment unit for married students. Housing is critical in the Fairbanks area and the availability of desirable low cost dormitory space is important in competing with institutions of higher learning in the continental United States.

Another permanent type building is the student union building named Constitution Hall in recognition of the drafting of the Alaskan Constitution in the campus area in the fall of 1954.

A combined classroom and office building is scheduled for construction to replace the Main Building, the frame classroom building which was the first structure on the campus. It will be a valuable addition to the physical plant of the University.

A summary of construction activity since 1950 is presented in Table XV. This includes most of the major additions to the campus with the exception of the Mines Building. The building program of the school has been greatly aided by the Alaska Public Works Agency of the United States Department of the Interior.

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[7] University of Alaska Catalog 1956-1957, Second Series, No. 22, p. 6.

TABLE XV

ALASKA PUBLIC WORKS CONSTRUCTION

UNIVERSITY OF ALASKA 1950-1958

1950	Eileson Building	$276,973.97
1951	Campus Utilities	202,274.51
1952	Dormitory	548,243,90
1953	Married Students Dormitory	270,000.00
1954	Food Services Building	587,620.00
1954	100 man Dormitory	601,300.00
1955	Utilities	660,800.00
1957	Womens Dormitory	735,000.00
1958	Combined Building	2,696,000.00

Source: Personal communication from Thomas G. Mooney, Director, Alaska Public Works, Office of Territories, U. S. Department of the Interior, Box 1181, Juneau, Alaska. January 27, 1958.

The University of Alaska is an important asset in the permanence of settlement in the Fairbanks area. The cultural contribution is significant and the Alaskan interest in higher education focuses on the University and Fairbanks. The sizeable and growing investment in permanent buildings and equipment increases the attachment of the University to the Fairbanks area. The growing faculty and staff coupled with the relative stability of government supported institutions of higher learning contribute to the permanence of settlement. The student body brings money earned outside the area and contributes to the basic support.

Housing has long been a critical factor in the settlement of the Northern Lands. The rigors of the environment place added requirements and costs on housing construction to make it comparable in function and comfort to that of middle latitude locations in Canada and the United States. The higher costs of labor and materials also makes it more difficult to provide housing deemed adequate and acceptable. A serious shortage of housing of any kind prevailed in the Fairbanks area until the fall of 1957 when the combined forces of continued housing construction and reduced military construction brought the supply and demands for housing into balance.[8] Serious effort to improve the quantity and quality of housing has been apparent since 1950. This applies to permanent and transient housing, the

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[8] Alaska Employment Security Commission, Alaska Labor Market Report, Vol. I, No. 6, (Juneau, Alaska: February 1, 1958), p. 4.

latter important because of the central function of Fairbanks for outlying construction and mining projects in interior Alaska and the significant tourist trade.

Some of the more important efforts to relieve the housing shortage have taken place since 1950. The net effect of this expansion of housing has been a greater attachment to the Fairbanks area in the form of permanent immovable investments. The Queens Court apartments with seventy-three units was occupied in 1951. The same year saw the occupance of Fairview Manor with two hundred and seventy-two apartments and the Dixon Apartments with sixty-eight rental units. Fairview Manor is the largest apartment undertaking and was the first major construction project in the new development on the site of vacated Weeks Field, the former Fairbanks airport.

The completion of the Northward Building and the Polaris Building in 1952 marked an important change in the Fairbanks skyline and an important addition to permanent housing. The Northward Building is an eight story concrete and aluminum panel building housing businesses and offices on the first floor and two hundred ten apartments on the remaining floors. The Polaris Building is an eleven story concrete structure with businesses and offices on the first floor and one hundred forty-four apartments on the remaining levels. Both of these modern buildings give Fairbanks the appearance of permanence and activity.

The Arctic Park duplex housing is located in the Weeks Field area and contains seventy-five buildings providing housing for a

total of one hundred and fifty families.

The Alaska Housing Authority in cooperation with the city of Fairbanks built and opened the seventy-five apartment Birch Park development in 1952 to provide adequate housing for low income families. The concern of the city of Fairbanks regarding the welfare of low income families is one more expression of civic responsibility, an attitude which has contributed to permanence.

The Island Homes development consists of one hundred fifty, two and three bedroom homes located on Bentley Island east of the Fairbanks city limits. The homes sold for nineteen thousand, five hundred dollars to twenty-four thousand dollars when the development opened in late 1952. Houses in this subdivision met Federal Housing Authority Standards and were eligible for low cost financing guaranteed by the government.

In addition to the more outstanding housing developments listed above, much home construction has taken place in the various subdivisions of the Fairbanks area and within the city itself. Many of these homes have been constructed by the owners. A high percentage of home construction by individual owners is a multiple factor phenomena. Probably the most important reason has been the shortage of housing of any kind. The shortage of long term financing at interest rates of six percent and below has limited construction by contractors. The shortage of loan funds has resulted in the construction of cramped, substandard housing with improvements and enlargement of homes being made as money from current income permits. Some subdivisions

have been poorly planned and little attention has been given to the provision of sewers, water supply, street lighting, street surfacing, parks, recreation areas and adequate open areas. Developments of this type tend to detract from the permanence of the area. The unsightly appearance of partially finished houses, the lack of amenities, and the frequent crowding of homes due to small lot size are handicaps in some of the subdivisions. Fortunately, not all subdivisions have these problems and the seriousness of the various problems varies from one to another of the subdivisions. Another favorable indication is the announcement by the city of Fairbanks that the building code will be enforced.[9] Enforcement will not cure all the ills that exist within the city, but it will make residences and other buildings safer and more attractive.

Positive interest in permanence is shown by the urban renewal project undertaken by the City of Fairbanks. The area being renewed is made up of substandard dwellings and commercial structures. Many of these are a health menace as well as being unattractive. Overcrowding, poor sewage disposal, lack of running water and delapidation are some of the conditions encountered.[10] The project includes the area bounded by Third Avenue on the north, Cushman Street on the east,

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[9] Alaska Employment Security Commission, Alaska Labor Market Report, Vol. I, No. 11, (Juneau, Alaska: July 1, 1958), p. 3.

[10] Alaska Housing Authority, Questions and Answers About Urban Renewal, (Anchorage, Alaska: n. d.), p. 3, (mimeographed).

Seventh Avenue on the south and Barnette Street on the west. Within this area is "the line" where ladies of questionable virtue once entertained their gentlemen callers. Although this economic activity was abolished some time ago, the substandard buildings which housed it still remain.

The redevelopment will include an expansion of the commercial section of Fairbanks, an increase in the area devoted to public and semipublic uses, residential in the southern part and a curtailment of traffic to improve general traffic flow in the downtown area. Cost of the project is estimated at sixteen million dollars and will be spread over ten years.[11] When completed, the project will represent an improvement in the functional aspect of the city as well as contributing to a generally improved appearance.

Fairbanks has been a family settlement since the early days of the gold rush on the nearby creeks. An outgrowth of this has been a long standing concern of public education. Of value in permanence are the buildings which house this vital phase of community life; the more recent additions listed on Table No. XIV, page 151. The school district had a property tax of ten mills and a sales tax of two percent for school purposes in 1957.[12] The Fairbanks area spent

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[11] Alaska Territorial Employment Service, Alaska Employment Security Commission Labor Market Newsletter, Fairbanks Area, (Juneau, Alaska: January 1, 1959), p. 2.

[12] Alaska Resource Development Board, Financial Data Regarding the Incorporated Towns and Cities of Alaska 1957, Table VIII, (Juneau, Alaska: October 1958).

four hundred fifty thousand dollars each on the education of an average daily enrollment of three thousand, two hundred three pupils.[13]

The school buildings and the other civic improvements, sewers, the water supply system, sidewalks, streets and coal facilities listed on Table No. XIV (page 151) are built with equal distribution of costs between the city and the federal government. In order to acquire these desirable additions, the citizens of Fairbanks have sold bonds totalling eight million, two hundred eighty-three thousand dollars or eighteen and two-tenths percent of the assessed valuation of forty-five million, four hundred fifty thousand, one hundred forty-nine dollars in 1957.[14]

The municipal utilities system includes the water, electricity, telephone and steam heat facilities of the city and is municipally owned. The entrance of the city government into the public utilities dates from January 1, 1948. On that date Fairbanks leased, with an option to purchase, the telephone system from the privately owned Fairbanks Telephone Company.[15] The initial move into public utilities, as well as subsequent ones, was precipitated by the inadequacies of the service and the inability of private owners to keep pace with the rapid expansion of population which started with World

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[13] Ibid.

[14] Ibid., Table II.

[15] Cooley, op. cit., p. 32.

War II.[16]

The water system was completely inadequate for the city when taken over by the Fairbanks Municipal Utilities System. Mains were small, old, subject to seasonal freezing and served only the business district of the city.[17]

A number of improvements have been made since the system was purchased from the Northern Commercial Company in 1949. The number of wells have been increased to expand the available water supplies. A treatment plant, a loop network of water mains and a general expansion of the distribution system built with the aid of federal funds have been major achievements of the municipal operation.[18] The loop network of mains permits continuous circulation of water through the system and reduces the danger of freezing. The improvement and expansion of the system is vital because of the health danger resulting from individual residence wells and cesspools located in very close proximity to one another. The system listed eleven hundred sixty-five customers in February 1959.[19] Another important contribution of the expanded water system is the increase in the number of fire hydrants. This is reported to be one hundred

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[16] Ibid., p. 29.

[17] Ibid., p. 31.

[18] Alaska Territorial Employment Service, Alaska Employment Security Labor Market Newsletter, Fairbanks Area, Vol. I, No. 2, October 1957, p. 4.

[19] Personal Correspondence with Frank Mapleton, General Manager, Municipal Utilities System, Fairbanks, Alaska. February 16, 1959.

twenty and is to reduce fire insurance rates by as much as twenty-five percent while giving greater property protection.[20]

The electricity production and distribution system of Fairbanks was purchased from the Northern Commercial Company by the city on July 30, 1950.[21] This included the steam distribution system which heats some of the buildings in the downtown area. The steam is a by-product of the thermoelectric coal fired, electrical generating installation. The distribution lines have been expanded and increased in size to accommodate the increased number of users which now number four thousand ninety-nine.[22] Power production facilities have been expanded until the system now has a name plate rating of eighty-five hundred kilowatts which is adequate for the needs of the immediate future.[23] Another power supplier in the Fairbanks area is the Golden Valley Electrical Association. The association serves the rural area around Fairbanks with the exception of some of the subdivisions which adjoin Fairbanks. With the aid of Rural Electrification Authority financing, the Golden Valley Electrical Association has purchased the ten thousand kilowatt power plant of the United

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[20] Cooley, op. cit., p. 31.

[21] Ibid., p. 29.

[22] Mapleton, op. cit.

[23] Fairbanks Daily News-Miner, Progress Edition, November 1954, p. 130.

States Smelting and Refining Company for one million, five hundred twenty-five thousand dollars.[24] In 1954 this organization had twenty-one hundred members served by some two hundred fifty miles of power line.[25] The expansion of electric power to the area surrounding Fairbanks is an asset favoring permanence because of the amenities that it offers and the increase in mechanical equipment which electricity makes possible for the farmer and home owner. The association has also awarded a contract for studies of a coal mine mouth plant in the Healy area south of Nenana.[26] The goal of the project is lower power production costs and an increase of power supplies in the Fairbanks area. Cheaper power will facilitate an expansion of the amenities of the residents and will create more favorable conditions for industrial growth and expansion. Table No. XVI compares current high rates in Fairbanks with those of Bellingham, Washington, a city with average Pacific Northwest rates for privately owned power supplies.

The telephone system of Fairbanks has been expanded and improved since it was acquired by the Municipal Utilities System. The system had added a new concrete building to house the dial equipment that was purchased. The number of telephones has been increased so that the demands for service within Fairbanks and the immediate

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[24] Ibid., p. 31.

[25] Ibid.

[26] Fairbanks Daily News-Miner, All Alaska Edition, November 20, 1957, p. 15.

TABLE NO. XVI

ALL ELECTRIC RATES - FAIRBANKS, ALASKA AND BELLINGHAM, WASHINGTON

(Lighting, hot water heating and cooking done by electricity).

	Fairbanks	Bellingham
Minimum Charge	$17.50 (up to 250 KWH)	$4.50 (up to 270 KWH)
	.04 per KWH for next 500 KWH	.007 per KWH for next 730 KWH
	.05 per KWH over 750 KWH	.01 per KWH over 1000 KWH

Sources: Fairbanks Municipal Utilities System, Fairbanks Telephone Department, City of Fairbanks and Vicinity Telephone Directory, October 1957, p. 4.

Telephone Conversation, Service Representative, Puget Sound Power and Light Company, Bellingham, Washington, November 1958. (Bellingham rates have been stable for a number of years).

environs can be met. Customers now served total forty-three hundred.[27] Telephone service is adequate for the more closely settled areas of the Fairbanks area. The expansion of this important form of communication will depend in part on an increase in potential customers which will make the extension of lines into new service areas economic. The system is linked with the rest of the United States, Canada, Alaska and other parts of the world by the Alaska Communication System, a part of the Signal Corps, United States Army.

Tourism is another contributor to the economic life and to the permanence of settlement in the Fairbanks area. The colorful gold rush past of Fairbanks, its northern location, the good highway system and the central location are contributing factors. The variety of transportation forms, rail, air, highway and even river boat tours, broaden the attraction of the area. Fairbanks is a center for highway trips to Circle City on the Yukon, Livengood and the extension of the Elliott Highway to Rampart, and the newly finished road link with Nenana.[28] With the addition of suitable tourist housing in the form of facilities like the modern sixty-four unit Traveler's Inn, the Fairbanks area can better serve and be served by the summer visitors.[29]

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27 Mapleton, op. cit.

28 Alaska Territorial Employment Service, Alaska Employment Security Commission Labor Market Newsletter, Fairbanks Area, November 1, 1958, p. 2.

29 Fairbanks Daily News-Miner, Progress Edition, November 20, 1957.

The active advertising and promotion campaigns of the Fairbanks Chamber of Commerce, the Alaska Visitors Association, travel agencies and transportation companies aid in maintaining and expanding the tourist business of Alaska.

Offices of civilian government agencies located in the area bring diversity in the economic support. In addition to the direct support of the people employed by the agencies, the government offices attract people requiring or seeking their services. The United States District Court serving the Fourth Judicial Division serves to illustrate the point. Nine full time employees[30] operate the important judicial function which attracts people from the two hundred forty-seven thousand, five hundred eight square miles of the Fourth Judicial Division for court justice.[31]

The Bureau of Land Management of the United States Department of the Interior maintains district offices in Fairbanks serving a major part of interior Alaska. Services include fire protection and forestry management for the millions of acres of interior forests. The Bureau of Land Management also maintains an office for the recording of land and mineral claims located on the public domain. In all, the bureau employs fifty-three people throughout the year with several

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[30] Personal communication with Mrs. Doris Wilkin, Secretary to Judge Forbe, U. S. District Court, Division No. 4, Fairbanks, Alaska, March 12, 1959.

[31] U. S. Congress, Alaska, House Document 197, 82d. Congress, 1st Session, (Washington: Government Printing Office, January 1952), p. 33.

times that number on the payroll during the summer fire season.[32] The location of the recording office for land and mineral claims focuses the attention of the residents of the Fourth and Second Judicial Divisions on Fairbanks for these services.

The United States Department of Agriculture has some fourteen year-around employees at the Agricultural Experiment Station with additional seasonal workers in the summer season. The economic support and the research carried out are valuable assets to the area.

The Bureau of Public Roads, successor to the Alaska Road Commission, employs a force of one hundred twenty-five full time employees and an additional one hundred twenty-five workmen during the construction season to maintain the road system which converges on Fairbanks.[33] The maintenance of the vital transportation network further extends the economic base.

The United States Department of the Treasury employs from seventy-five to one hundred in the Bureau of Internal Revenue, Bureau of Customs, Veterans Administration, Selective Service System, Federal Communications Commission, Veterans Administration and Post Office. The greatest number are employed by the post office.[34]

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[32] Personal correspondence with Richard L. Quintus, Operations Supervisor, Bureau of Land Management, U. S. Department of the Interior, Fairbanks, Alaska. March 9, 1959.

[33] Personal correspondence with H. W. Johansen, Division Engineer, Bureau of Public Roads, Region 10, Fairbanks, Alaska, March 11, 1959.

[34] Personal correspondence with D. E. Royer, Superintendent of Mails, Fairbanks, Alaska. March 12, 1959.

The Department of Commerce employs about twenty in the Weather Bureau and Coast and Geodetic Survey Division.[35] The organizations provide valuable services for the area and collect scientific data with a wide range of uses. In addition, the Federal Aviation Agency requires one hundred forty-two salaried individuals for the operations conducted in the area.[36]

The Geological Survey of the United States Department of the Interior maintains the Alaska Geology Branch, Map Distribution Office and Topographic Division offices in Fairbanks and on the campus of the University of Alaska. The activities and services of the agency attract people interested in mineral resources from much of Alaska and the United States. The regular staff of twelve is greatly expanded during the summer field season.

Various territorial agencies, excluding the University of Alaska have an employment of approximately one hundred. Of major importance from the standpoint of permanence is the Agricultural Extension Service and the Geophysical Institute with fourteen and eighteen employees respectively.[37] The service and research functions which are performed by the agencies bring prestige to the area and also permanence.

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[35] Personal correspondence with William C. Duggin, Meteorologist in Charge, Weather Bureau, Fairbanks, Alaska. March 3, 1959, and Clyde J. Beers, Observer in Charge, College Magnetic Observatory, College, Alaska, March 20, 1959.

[36] Personal Correspondence with Frank I. Richter, Personnel Officer, Federal Aviation Agency, Anchorage, Alaska. March 12, 1959.

[37] Cooley, op. cit. pp. 11-12.

The "other contributors" taken *in toto* are important for supplying a variety of support for the Fairbanks area. The contribution of the amenities of everyday living is important in this northern area where modern living standards may not be taken for granted. In the economic, cultural and social face of life in the Fairbanks area the "other contributors" make significant additions to permanence.

CHAPTER VIII

CONCLUSIONS

Diversification of the Economic Base

When planning any new settlement which will be permanent, every attempt should be made to make the economic base as diverse in character as possible. In the initial stages of settlement, the variety of economic support may, of necessity, be quite limited. Continual efforts should be directed towards expansion of the variety of economic functions. In the Fairbanks area illustration, mining served as the initial activity. Subsequently, agriculture, higher education, military activity and tourist business have also been added, actively encouraged, and sought after by the residents of the area. Due to a sustained effort by the people of the area, the transportation facilities have constantly improved enabling the area to expand as a supply center for the interior. The addition of the military is in large part due to the superior development of transportation and urban services in comparison with other interior Alaskan locations. Thus, analysis of the successful Fairbanks area indicates that effective transportation is an essential ingredient for permanent land settlement. For normal growth and development, air and highway connections appear most essential. Rail and water transportation service is highly desirable. In the cases of island settlement, water movement may be a substitute for highway links to the major settled

area of North America. Because of the importance of transportation in modern day life, settlements should expend every effort to enlarge, diversify, modernize and cheapen transportation. If the site and situation of the settlement permits, an active campaign should be conducted to attain the role of a transportation and distribution center.

If the physical environment of the area is suitable for agriculture,the following points should be kept in mind. Agricultural development cannot be successful unless adequate markets are present or can be developed. The Matanuska Valley development is a good illustration of this point.[1] Capital in sufficient amounts to establish mechanized agricultural units of an economical size is an absolute necessity. Interest rates must be similar or perhaps lower than those found in functioning agricultural areas of Canada and the United States. The floundering small scale, slow growth of agriculture in the Fairbanks area strongly supports this contention. Adequate data on climatic conditions, precipitation, both as to amounts and distribution, length of growing season, average snow depth, frequency of storms which are a peril to agricultural production and transportation as well, are essential to determine whether or not an untried area has agricultural potential. In addition, settlement planning

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[1] Kirk H. Stone, The Matanuska Valley Colony, Bureau of Land Management, U. S. Department of the Interior, (Washington, Government Printing Office, 1950), p. 82 (mimeographed).

and estimates of capital needed cannot be made without information on permafrost occurrence and type, domestic water supplies, including quantity, quality, availability and cost of acquiring the water. Soil surveys which indicate land capability, fertilizer requirements and cultivation practices suitable for the area are also essential. The rural areas must have roads usable throughout the year. This will permit the maintenance of the vital services of school busses, mail and the flow of agricultural supplies and products. Electric power for the operation of agricultural machinery, household appliances, lighting and radios is an important factor in permanent agricultural settlement.

Permanent settlement requires a well developed set of amenities and cultural associations. An adequate and safe water supply, provision for safe disposal of sewage, and sufficient amounts of electricity are prime requirements. Public schools through the high school level must be available within daily commuting distance. Social health facilities including a hospital and dental care are virtual necessities.

Obviously many of these necessary services must be performed and financed by local government. This realization brings to bear two important considerations. First, there must be an appraisal made of the taxable assets which will be available and the cost of the services which must be provided. Second, the power and legal authority of the local government to tax these assets for the purpose of financing the required services must be ascertained. This is of

particular concern in Alaska today since it has become the 49th State. Since the power and authority of local government is for the most part delegated by the state legislature by statute, subject of course to constitutional limitations, it would behoove future area settlement planners to communicate the salient considerations relating to the characteristic of permanency to those who will be shaping the laws in the future.

Churches, theaters and other entertainment facilities, fraternal organizations, television and local radio stations give a semblance of cultural equality with the older settled areas of Anglo-America and add stability to the settlement. Trade and service facilities in variety contribute to permanence. The availability of food, clothing, appliances, home furnishings, hardware sundries and other goods reduce dependence and the tendency to orient consumer economics on outside areas. Locally available services should include the personal services of hair dressers, barbers, cleaners, repair facilities for machinery, autos, shoes and appliances.

The Fairbanks area settlement is well established on a broad economic base assuring a continued existence. The mining activity, which was responsible for the original settlement over fifty years ago, is still producing income and jobs for this area and there are indications that it will continue to do so for some years to come. After the exhaustion of the local mineral deposits, important corollary activities performed by the University of Alaska and its School of Mines and the United States Geological Survey branch offices will

continue.

Transportation. Fairbanks has developed into a transportation focal point for interior Alaska. This gives the area an economic asset which is destined to grow and expand as the interior is opened and developed. Fairbanks is not only the hub of a highway system which is continually expanding, but it also enjoys the role of a central base of operations for airlines serving interior and northern Alaska. The development of this area into the transportation hub of the interior was facilitated by the Alaska Railroad more than any other single factor.

The Alaska Railroad in conjunction with the Alaska Steamship Company has long been the major carrier of bulk goods coming from the United States. Since the Alaska Railroad terminated at Fairbanks in 1923, Fairbanks became the logical break in bulk point and distribution center for these goods. These were undoubtedly important factors contributing to the emergence of the Fairbanks area as the hub of the highway and air transportation systems.

It must be recalled that the extension of the Alaska Railroad to Fairbanks was in large part due to the vigorous efforts of the citizens of Fairbanks.

The Fairbanks example illustrates the importance of location in relation to a rail terminus, the drive and vigor of the local inhabitants to improve their status and economic significance, and the interrelation of the two upon the likelihood of permanent settlement.

Agriculture. The following basic factors contribute favorably to the growing importance of agriculture to the Fairbanks area; the increase of cleared land, the acquisition of additional farm machinery, the expanding distribution of electricity, the spreading telephone services, the building of all-weather roads, the improvement in facilities for storing, grading, and marketing agricultural produce, the leveling off of military construction, and an improved credit structure. Although the agricultural resources of the area have been utilized with varying intensity since the early days, today there is well founded growth in agricultural production. There seems to be two primary reasons for this growth. First, environmental and marketing conditions suitable for successful agriculture have been firmly established, and second, more capital for agricultural development is available due chiefly to the enactment of the Territorial Agricultural Loan Act. The revision of the land laws and tax laws is likely to add additional inertia to the agricultural growth.

The history of agricultural development in the Fairbanks area teaches a valuable lesson; the physical aspects of the location such as soil type and climate are not necessarily controlling. The market potential and marketing facilities and the availability of credit are especially pertinent considerations when evaluating agriculture as a potential segment of the economic base.

Permanent northern settlement need not be based on agriculture. This thesis has already been advanced by Stone and the findings of

the Fairbanks area study serve to reinforce his observation.[2] Nevertheless, unfortunately for northern settlement, agriculture has been considered of prime importance in much of the planning for new permanent settlement.[3]

Military. Economic support of the Fairbanks area derived from Military spending is presently most important and at the same time most perplexing. The choice of Fairbanks as the focus of military activity, encompassing two strategic air bases, the terminus of a six hundred mile pipeline and a supply and labor center for military construction and installations extending throughout interior and northern Alaska, has encouraged rapid economic and population growth. This growth in turn has accelerated improvement of transportation facilities, communications, public utilities and commercial establishments. The net result has been the development of a variety of facilities vastly superior to those of any other area in the interior and northern sections. The only parallel has been at Anchorage on the shores of Cook Inlet in south central Alaska.

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[2] Kirk H. Stone, "Populating Alaska: United States Phase," Geographical Review, Vol. XLII, July 1952, p. 402.

[3] H. H. Barrows, "Statement," Seminars on Alaska, Bureau of Land Management, U. S. Department of the Interior, (Washington: Government Printing Office, 1950), pp. 19-21.

Harold T. Jorgenson, "Factors to be Considered and Action Required to Carry Out Settlement Program for Alaska," Seminars on Alaska, Bureau of Land Management, U. S. Department of the Interior, (Washington: Government Printing Office, 1950), p. 5-18.

Ironically, because of the great number of unpredictable variables influencing military operations, this most influential contributor to the economy of the area is also the most tenuous. Development of new weapons, a perpetual process, could conceivably render the Fairbanks area worthless as a military concentration. Easing of tensions in Communist and Western relations might also lead to great reductions in military expenditures. However, the individual smaller but diverse economic functions in the area give assurance that the economy will not collapse even if the military is withdrawn. The activities of the University of Alaska and federal agencies other than the military and the variety of commercial establishments including the tourist trade are examples of the important diversification of the economy.

Though the duration of military economic support is always tenuous, it may, nevertheless, give a settlement a needed economic stimulus. The effect of military support upon the probability of permanency will ultimately depend upon the potentials of the other economic supports. In other words, the boost of military expenditures may very well stimulate development of the other more permanent segments of the total economic base. An example of this is the market provided for the agriculture of the Matanuska Valley by nearby military bases.[4]

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[4] Kirk H. Stone, The Matanuska Valley Colony, Bureau of Land Management, U. S. Department of the Interior, (Washington: Government Printing Office, 1950), p. 82 (mimeographed).

Amenities

The quality and diversity of the amenities of everyday living continue to play an important role in the growth of the settlement. Within five years of the discovery of gold in the area, Fairbanks was equipped with electric lights, telephones, and running water. By this time it had also acquired the reputation of a family man's gold camp, due in part to the presence of facilities comparable to those existing in communities of similar size in the United States. These amenities received particular attention in the period following World War II because of the rapid population growth during the war and the inadequacies of the existing facilities. Because of the inability of the private owners of public utilities to keep pace with the expanding population, the public utilities were purchased by the local government. Since that time the local and federal government agencies have cooperated in improvement and expansion programs. The Fairbanks area, with a population of approximately twenty-seven thousand in 1957, has two television stations, while few communities of this size in North America enjoy more than one.

Personalities

There is one pervading influence on the success of any settlement that escapes measurement; that intangible quality of loyalty and identification of the settlers with their own area. These qualities coupled with aggressive leadership may mean the difference between stagnation followed by attrition of population and steady growth,

expansion, and diversity of economic and cultural activities. The Fairbanks example is an admirable one. James Wickersham, Judge and Delegate to Congress, took a paternal interest in the affairs of Fairbanks. In the first year of the community he moved the important judicial and mineral claim recording activities of the government to Fairbanks. Later he championed the cause of the railroad in his work as Delegate from Alaska in the halls of Congress. Although he was never a permanent resident of the area, his interest and support in the growth and development aided Fairbanks immeasurably.

Austin Lathrop, the Alaskan millionaire, who lived in Fairbanks, also exhibited great faith and pride in the community. He built the first radio station in part as the contribution of a public spirited citizen. He also provided capital for various other types of businesses in the area such as permanent concrete buildings, theaters, and coal mines which provided the area with part of its fuel requirements. Indeed, Mr. Lathrop is a unique example of a public spirited man who amassed a fortune in Alaska, lived in Fairbanks, Alaska and invested his money in Alaskan ventures.

The two men described above illustrate the disproportional influence that individual leaders can have on all the other factors conducive to lasting settlement.

Less forceful people with the same strong identification with an area may have an equally valuable influence on these other factors through organized group action. The people of Fairbanks have shown this characteristic on numerous occasions. They petitioned for the

establishment of the Agricultural Experiment Station and it was a public subscription drive that financed the pilot mill for crushing lode gold ore. The Fairbanks Commercial Club, a more formal organization, collected approximately five thousand dollars to improve the roads tributary to the area in a period of contracting settlement.

Organizations promoting the welfare and interests of the area should be actively encouraged. They stimulate pride, association and identification with the local area. Community planners would do well to consider the significance of the character and personality of the settler upon the probability of engineering a permanent settlement.

Though the technique of selecting this type of individual and attracting him to northern localities is beyond the scope of this study, the possibility should not be neglected.

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