ALASKA: AMERICA’S CONTINENTAL FRONTIER OUTPOST

By

ERNEST P. WALKER

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ALASKA: AMERICA'S CONTINENTAL FRONTIER OUTPOST

BY ERNEST P. WALKER

Assistant Director, National Zoological Park
Smithsonian Institution

(With 21 Plates)

STRATEGIC IMPORTANCE

Alaska's location at the extreme northwest of the American continent and its close proximity to Asia make it of prime importance in the second world war, just as it has been an important step in migrations between Asia and North America for ages past.

While Alaska and Asia are now separated by Bering Strait and Bering Sea, they are not in the eyes of geologists separated at all, as those water areas are merely part of a large continental shelf or land body only slightly submerged at the present time. At the narrowest point the strait is only 56 miles wide, with two islands, Big and Little Diomede, near the middle of the channel. Bering Sea is deep in its southern portion, but much of the narrower northern portion is less than 180 feet deep. At its southern end the Alaska Peninsula and the Aleutian Islands extend far to the west toward the Asiatic coast.

Attu, the most westerly of the Aleutian Islands, is only 180 miles from the Commander Islands, 380 miles from Kamchatka, 696 miles from Chishimo Netto, the most northerly of the Japanese Kurile Islands, and 716 miles from Paramushiro Island, a Japanese island on which is situated a great naval base. While the islands of the Aleutian chain are of little importance from the standpoint of food production, minerals, or manufacturing, and have only a sparse human population, they have great potential significance as bases for military movements, as stepping stones eastward to the mainland, and as bases for submarines to operate in the north Pacific Ocean. The Aleutians are on the shortest route from Seattle to Japan and other important points on the east coast of Asia.

In the entire 1,000 miles of the Aleutian Islands, there are only four harbors for fair-sized vessels. These are at Akun Island, immediately west of Unimak Pass in the easterly end of the chain; Dutch Harbor, at Unalaska Island; at Adak Island; and at Kiska Island. An enemy holding

Plate 1

Mount McKinley, elevation 20,300 feet, as viewed across Wonder Lake. Photograph by Sackman, Courtesy U. S. Department of the Interior.
all these harbors could effectively close Bering Sea to us and dominate the northern portion of the Pacific Ocean, the southern coast line of Alaska, and the western coast of British Columbia, and be a constant menace to such cities as Seattle, Vancouver, Portland, and even as far south as San Francisco. The Japanese seizure of Attu and Kiska, and the subsequent retaking of Attu by our forces, indicate the great importance of these island outposts. The shore line of most of the remainder of the chain is abrupt and forbidding, without good harbors, in a region of much fog.

While the Alaska Peninsula is rugged, there are several harbors along its southern shore, as well as in the Shumagin Island group a short way south of the Peninsula, that are fairly well suited for naval activities, either offensive or defensive. If the Alaska Peninsula or Bristol Bay region were to fall into the hands of the enemy, he would have an excellent point from which to strike eastward at other still more important points in Alaska. The Kodiak-Afognak Island group has been recognized by our fighting forces as being of great importance. Should an enemy gain a foothold at Kodiak, or any other place along this southwestern Alaska region, not only could he prevent us from utilizing the important food resources of the salmon, halibut, and codfish, but he would be in an excellent position to strike eastward and to paralyze shipping from western, central, and interior Alaska to the States and to British Columbia, which would cut us off from all the resources of the Territory other than those that might be transported over the new Alaska highway, or through the inside passage along the coast of British Columbia. All three ocean termini of the Alaska Railroad, Seward, Anchorage, and Whittier, would be menaced from an enemy base at Kodiak, and an invasion of the Territory by way of the Alaska Railroad or the Richardson Highway from Valdez would be comparatively easy. With these points under control, a conquest of interior Alaska would be entirely feasible, and northern Canada would be threatened. Land-based planes at Kodiak could menace the entire Archipelago region, comprising Southeastern Alaska and British Columbia, and the cities of our Pacific coast as far south as Portland, Oreg. On the other hand, this coast line offers great advantages for defense if we should ever be so unfortunate as to be compelled to defend the area against direct attack, for the innumerable bays and channels, with many excellent harbors and relatively narrow entrances to the channels, permit of surprise attacks on enemy vessels that might approach the coast. Indeed, large vessels need not be used to defend the region, for small vessels and seaplanes or land-based planes could hold it against much greater forces.

A few years back an Alaska base was recognized as one essential point of a triangle controlling the eastern Pacific, the other two points being a
Fig. 1.—Map of Alaska. Copyright National Geographic Society. Reproduced by permission.
base on the Pacific coast of the United States and a base at the Hawaiian Islands. The Honorable Anthony J. Dimond, Delegate to Congress from Alaska, has clearly shown in his article, "The Strategic Value of Alaska," that the Territory is probably of greater value as a base for the protection of the Pacific coast of the United States than is Hawaii, and fleets based in Alaska could give better protection to the Hawaiian Islands than fleets operating from our bases on the west coast of the United States.

The interest of the Japanese in Alaska is not of recent origin and has been well known to Alaskans for many years. During the writer's 12½ years in the Territory he found that one of the regular subjects of conversation, particularly in southwestern Alaska, was the report of Alaskans having found evidence of Japanese landings on uninhabited islands. Sometimes camps were found littered with empty Japanese food cans, or strange ships, obviously Japanese, were sighted at a distance. On one occasion, the writer, when on fisheries patrol work for the United States Bureau of Fisheries, traveling on a small vessel owned and operated by the Bureau, observed that the Japanese cook was exceptionally studious and intelligent, and upon engaging him in conversation found that he was a member of the Japanese Naval Reserve.

From 1936 to 1940, Alaska fishermen were voicing vigorous protests that Japanese fishing vessels in Bering Sea and Bristol Bay were actually encroaching on territorial waters, taking halibut, cod, salmon, and crabs. By such activities, they were not only taking some fish that spawned in Alaska streams, and crabs, but they were becoming thoroughly familiar with our coast line, facilities, and improvements. Incidentally, a large portion of the canned crab meat that came to us from the Japanese had been caught very close to our coast, perhaps even within our territorial waters.

The immediate hazard of attack and landings farther north along the Bering Sea and Arctic coast from Siberia is of course remote but has been in the minds of Alaskans for many years, particularly with the development of aviation, for an enemy in Siberia would have a comparatively short jump to great expanses of relatively level terrain of northwestern and interior Alaska. Landings could be made along the Bering Sea coast from surface vessels, and planes would have no difficulty in landing on the innumerable lakes and waterways of the interior region. In winter the snow surface would provide excellent landing fields in many places for planes equipped with skis. Indeed, during recent years there has been extensive travel over practically all the interior region by means of ski-equipped planes.

Forthcoming weather conditions in the United States and Canada in many instances can be forecast rather accurately if the conditions in
Alaska are known. Therefore, the United States Government has established weather observation and reporting stations in the Territory. These are of great value to the remainder of North America for both commercial and military purposes, and if Alaska were in the hands of an enemy, he would withhold valuable weather data and could plan his attacks on us for periods of weather unfavorable to us.

Without disclosing information that would be useful to the enemy, it can safely be said that Alaska’s proximity to Asia makes it an invaluable base from which to conduct our own offensive operations.

GEOGRAPHY, TOPOGRAPHY, AND CLIMATE

GENERAL DISCUSSION

The best way to visualize the size and vast extent of Alaska is to superimpose a map of the Territory on a map of the United States of the same scale (fig. 2). It is as far from the southern portion of Southeastern Alaska to the tip of the Aleutian Islands as it is from Charleston, S. C., to Los Angeles, Calif. From Point Barrow, the most northern portion of the Territory, to Prince William Sound on the south, is as far as from the United States-Canadian border to Oklahoma. The area of Alaska is about one-fifth that of the United States. In this vast region there are wide differences in topography and climate, and conditions are so varied that no simple description of the Territory is adequate. Generalities are almost certain to be incorrect or meaningless.

Cape Prince of Wales, the most westerly point of the mainland of North America, projects westward beyond the 168th meridian. It is therefore more than 400 miles west of Honolulu. Attu Island, the most westerly of the Aleutians, is almost due north of New Zealand and the Gilbert and Marshall Islands groups of the South Pacific.

According to recent calculations by the United States Coast and Geodetic Survey, the coast line of Alaska is 33,904 miles in length, of which about 60 percent is in the Alexander Archipelago region, known generally as Southeastern Alaska. The entire tidewater coast line of the United States is 53,413 miles. Distances between points in Alaska are shown in Table 1.

The mountains of Alaska are in general northward extensions of the mountain ranges farther south in North America. The Brooks Range, including the Endicott Mountains, is considered by some geologists to be a continuation of the Rocky Mountains, while others think it may form part of an Arctic series. These mountains divide the interior from the Arctic slope. The Alaska Range with the St. Elias Range, somewhat out of line, form a continuation of the Cascade chain, which is best known
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1 Via Summer Strait and Cape Ommaney.
2 Via Peril Strait.
3 Via Cape Hinchinbrook.

Notes—Distances from ports in southeast Alaska (except Sitka) to ports in western Alaska are via inside route to Cape Hinchinbrook. Distances from ports east of the Alaska Peninsula to Unalaska are via Akutan Pass; to other ports north of the Peninsula they are via Unimak Pass. Distances to Seattle (inside) are via inside route to Cape Hinchinbrook. Distances to Latouche ports from eastward are via Cape Hinchinbrook.
Fig. 2.—Map of Alaska superimposed on map of the United States of the same scale. This shows that it is farther from southeastern Alaska to the tip of the Aleutian Chain than from Charleston, S. C., to Los Angeles, Calif.
through northern California, Oregon, and Washington. These mountains swing westward and southwestward in Alaska, and, according to some geologists, continue as the Alaska Peninsula and the Aleutian Islands, and far to the west reappear as the Japanese Islands off the Asiatic coast. Other geologists consider that the mountains of the Alaska Peninsula and the Aleutians constitute a distinct series. The coast range of Alaska, which provides so much of the beauty of the country as seen from salt water, swings westward along the coast and dips beneath the ocean.

As one goes northward along the coast, the mountains gradually become higher and are closer to the water. The timber line gradually becomes lower and the vegetation slightly less luxuriant and dense, with some species dropping out entirely. But Southeastern and South-central Alaska are in general similar to the Puget Sound region of the State of Washington.

As a rule, when rugged mountains are adjacent to the sea, the ocean bottom is equally rugged, with deep submarine valleys and abrupt peaks, some of which appear as islands or rocks, while others may not be quite exposed, and thus constitute a menace to navigation. Where the seacoast is very level and rises only gently from the ocean, the adjoining ocean bed is generally shallow. These general rules hold along the Alaska coast. For example, there is a great submarine valley known as the Aleutian Deep from 60 to 70 miles south of the Aleutian Islands, and roughly parallel to this chain, in which there are depths of as much as 24,000 feet.

The climate of the Alaska coast, like that of other regions, is modified by the adjoining oceans and prevailing air currents. Bering Sea, immediately north of the Alaska Peninsula and the narrow Aleutian chain, is a cold body of water with extensive ice floes in the winter and much fog, rain, wind, and violent storms at all seasons. The climate of those portions of Alaska adjoining this and the Arctic Ocean is thus very different from that of the southern coast. The relatively warm waters of the Pacific Ocean adjacent to the Pacific coast of the United States, British Columbia, and Alaska, and the warm, moisture-laden subtropic mass of air that drifts northwesterly onto these lands, together produce the peculiar climate characteristic of the regions. The low-lying light fogs that prevail in the Aleutians during the spring and summer result from the chilling of the warm air of the Pacific by the mountains of the Aleutians and the cold water of the Bering Sea region. These contrasting conditions also cause many of the gales. The southern portion of the mainland coast of Alaska receives its heavy precipitation through the chilling of the warm, moisture-laden air by the high mountains near the coast.
There is a widespread popular belief that the so-called Japan or Kuroshio current is an important factor in modifying the climate of Alaska. This is an error, as investigations have disclosed the fact that there is no definite current as far eastward in the North Pacific as Alaska, and that the waters that move easterly in rather irregular shallow bands are not of sufficient volume or high enough in temperature to be of much importance in modifying the climate of the Pacific coast of North America. The idea that there is a definite Japan current along the Alaska coast can probably be traced to the wind-driven eastward surface movement, which deposits on certain parts of the Alaska coast drift material that originates in the Asiatic region.

The Kodiak region is sufficiently separated from the mainland and the Bering Sea that its climate is not so seriously chilled by the cold waters and ice of the north. On the other hand, it is definitely warmed by the Pacific waters, and the temperatures are maintained within a fairly moderate range. On the mainland back from the coast these effects are less noticeable, but the heavy precipitation continues to the summits of the high mountains. This produces the glaciers and the abundance of streams.

Table 2 gives the temperature and rainfall conditions at important points in the various regions of the Territory.

Tides vary greatly along the Alaska coast. In Turn-again-arm, near Anchorage, occur tides with extremes of rise and fall of 42 feet, second only to those in the Bay of Fundy. The water comes and goes so rapidly that there is sometimes a "bore" or wall of water in the "Arm." At the heads of some of the long inlets in Southeastern Alaska there are extremes between high and low tide of as much as 23 feet. Along most of the outer coast of this region and the outer southern coast, the extremes of the tides are about 15 feet; in the Aleutians they are only about 6 feet, are very irregular, and often occur only once a day. Along the Bering Sea coast tides are of very irregular occurrence and range, the maximum being about 9 feet, except at the heads of some of the bays, where they may be greater. The Arctic Ocean is at times without tides; at other times it has a rise and fall of only a few inches, but over a period of months undergoes changes of levels caused mainly by winds.

In the rugged regions with narrow, tortuous channels, rocks and reefs, navigators must know their exact position at all times. To aid them the United States Government has placed a few lighthouses and many small lights commonly known as blinkers on prominent points. These blinkers operate both day and night, and though the flame is so small—only about the size of a match—that they can scarcely be detected in the daytime, at night they are visible for many miles. There are various other aids to
Upper: Norris Glacier on the left, which does not reach salt water, and Taku Glacier on the right, which discharges into salt water, and a portion of the mountainous region easterly from Juneau in which these glaciers head and flow down valleys like streams of water. Courtesy U. S. Forest Service.

Lower: A small portion of Columbia Glacier forms a background for the passenger steamer New Aleutian. Photograph by Robert F. Griggs, courtesy National Geographic Society.
Plate 4

Upper: Midnight view of Cordova and adjacent mountains in June.
Lower: Street scene, Anchorage.

Courtesy Division of Territories and Island Possessions, U. S. Department of the Interior.
Plate 5

Upper: The village of Kiska on Kiska Island, Aleutian Island group.

Lower: Baseball game between crew of United States Coast Guard vessel and cadets from Japanese Naval Training Ship at Unalaska, July 1937.

Courtesy U. S. Department of the Interior.
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Note: Length of growing season is the average length of last killing frost in spring and first fall in fall.

ALASKA—WALKER
navigation, and the Coast and Geodetic Survey is constantly working on
the surveying of the navigable waters of the region, so that eventually
accurate charts will be available for all coastal areas of the Territory.

In the interior, Arctic, and Alaska Peninsula regions, the large treeless
areas are known as "tundra." They are level or rolling plains, often
rocky, carpeted with low-growing vegetation, but the plants making up
the carpet may vary widely in the various regions. In some sections it
is composed of small shrubs, perennials, and annual plants, including
grasses that grow almost knee-high. In other sections it consists mainly
of grasses and grasslike plants and other small herbaceous vegetation, but
the small shrubs are lacking. "Reindeer moss" (lichen) is included in
varying quantities in almost all types of vegetation. In some areas it is
the principal plant, or at least occupies a considerable portion of the
area, with other small plants interspersed with it. The large river flats,
particularly the Yukon and Kuskokwim, have extensive growths of coarse
glass and grasslike plants and small willows. Strictly speaking, these
areas are not tundra, but are frequently so called. Another type of tree-
less region fairly common on the Alaska Peninsula and elsewhere, known
as "niggerhead," is composed of tussocks of grass, the main solid mass of
which may stand a foot or even 18 inches above the surrounding barren
ground. The effect when viewed from a distance is of a slightly rough
plain carpeted with grass, but it is exceedingly difficult to walk over.

All portions of Alaska are sufficiently far north that the long days in
summer with short nights, and the long nights and short days in winter,
are definitely noticeable and constitute one of the attractions of the region.
Even along the southern coastal region the nights do not become really
dark in midsummer, and bird calls are heard all night long. In winter the
reverse is true: the hours of daylight are few, and the nights are long.
The farther north one goes, of course, the longer are the hours of daylight
in summer and the shorter the hours of sunlight in winter.

South of the Arctic Circle in summer the sun is not continuously in
view, but appears to rise well to the north of east, circle across the sky
in an arc little short of a circle, and set well to the north of west. In
winter, when the earth is tilted in the opposite direction the sun rises far
to the south of east, and after a short appearance sets far to the south
of west, making a very low arc in the sky, and within the Arctic Circle it
is, of course, not to be seen at all for a short period, varying with the
latitude.

The midnight Fourth of July baseball game at Fairbanks has become an
important event, and the novelty of a game outdoors at midnight without
artificial light draws many visitors.
Standard time in Southeastern Alaska, except near Ketchikan, is of the 135th meridian, or 1 hour behind that of Seattle, and 4 hours behind that of Eastern Standard time. The main body of Alaska is another hour later, or 5 hours behind Eastern Standard time. The Aleutian Islands are another hour later, or 6 hours behind Eastern Standard time. The west end of the chain, which projects beyond the 180th meridian, would be 1 day ahead of the remainder of the Western Hemisphere were it not for the fact that the international date line was drawn around the end of the chain in order not to cut through the island group.

Summertime is a period of great activity on the part of both animals and plants. Man employs the daylight hours to the utmost to accomplish whatever he may be engaged upon, and the animals multiply and fatten in preparation for the winter to come. Plant life grows with extreme rapidity during the long days and generally warm climate of summer. In winter many of the activities conducted by man are necessarily greatly reduced, giving time for relaxation and the enjoyment of social contacts. Some of the animals hibernate and thus pass the long winter without effort. Others greatly reduce their activities and take shelter when possible during bad weather.

In the interior, mosquitoes are a serious pest during the summer months. The person who originated the saying that "the only way to have more mosquitoes in Alaska would be to grow smaller ones," pointed out one of the most objectionable features of the Territory. Fortunately, however, their season is short, and by the use of nets and gloves it is possible to prevent much discomfort.

**SOUTHEASTERN REGION**

Southeastern Alaska comprises a strip of mainland approximately 30 miles wide and about 350 miles long, with a few large islands and a great many small islands, rocks, and reefs adjacent to the southern two-thirds of the area. It is the continuance of the coast range of British Columbia and the Olympic Mountains of the State of Washington. The partial submergence of this portion of the coast range accounts for the maze of islands, channels, long inlets, and fjords that give the region its many protected harbors as well as much of its beauty. The coast line of this entire region, including the mainland, islands, and fjords, measures more than 18,000 miles in length.

Southeastern Alaska boasts a very equable climate. Along the outer coast the temperature rarely, and in some portions never, reaches zero, and for considerable periods in the winter remains above freezing. The summers are relatively cool, a temperature of 90° being extremely rare. It is a
region of excessive precipitation, the remark being made that February is the month of least rainfall because there are only 28 days on which it can rain. Even in winter snow is lacking at sea level over much of the area. Rain will fall at the lower levels simultaneously with snow at the higher elevations. Despite the heavy rainfall it is a delightful region in which to live, for the atmosphere is washed clean and the foliage has a brilliance not found in many regions. The vegetation here is abundant, culminating in the giant Sitka spruce that towers to a height of more than 200 feet and sometimes exceeds 14 feet in diameter. Timber line varies from about 3,500 feet on some of the outer coastal islands to less than 1,000 feet at Skagway, and majestic snow-clad mountain peaks are visible from almost any location in the region. Peaks on the islands range from 3,000 to 5,000 feet, and many on the adjacent mainland reach 5,000 to 7,000 feet, with a few even higher. The myriad islands and maze of channels in this region provide many harbors and protected channels for boats both large and small. In normal times it is an ideal recreational region, particularly from the middle of May until the middle of July, when there is relatively little rain and periods of several days are frequently enjoyed without rain.

In the northerly portion of Southeastern Alaska are encountered the first glaciers that reach salt water. These rivers of ice originate in the snow fields among the mountain peaks and flow down to the ocean. Where they discharge into salt water they often terminate in abrupt cliff faces sometimes more than 200 feet in height above water and extend even farther below water; the width of the faces ranges from half a mile to 3 or 4 miles.

A scenic feature of this region is the Fairweather Range, which rises practically from salt water to elevations of as much as 15,900 feet. Peaks of less than 10,000 feet are so numerous as not to be conspicuous. This range extends along the northeasterly portion of the Gulf of Alaska from Glacier Bay to Yakutat.

Besides the towns of Ketchikan, Wrangell, Petersburg, Juneau, Haines, Skagway, Sitka, and Craig, Southeastern Alaska has many sizable native villages and numerous fishing and fish-packing communities that are populous at certain seasons. The principal activities of the region are the salmon, herring, halibut, and shrimp fisheries, logging, mining of gold and other minerals, quarrying, and fur farming.

**SOUTH-CENTRAL REGION**

The region from Yakutat to Cook Inlet and inland to the summit of the Alaska Range, usually designated South-central Alaska, is not very different from the Southeastern region.
Westerly from Yakutat the coast line is relatively regular, and a short way inland rises the St. Elias Range, a jumbled mountain mass culminating in the 19,850-foot peak, Mount Logan, in Canada. The front of the Malaspina Glacier, one of the largest remnants of the ice cap of the glacial period, extends for 80 miles along the coast. This glacier now barely reaches salt water at Icy Bay and Sitkagi Bluffs, but only a few years ago it actively discharged icebergs. Sitkagi Bluffs is a cliff of ice 4 miles long at the ocean beach. Small vegetation is luxuriant, but the timber is greatly reduced in area and size, as the close proximity of the St. Elias Range and the extent of the ice-covered area make conditions unfavorable for large trees. Farther westward the most conspicuous portion of the shore line is Cape St. Elias, with Mount St. Elias towering upward 18,008 feet a short distance inland. Westerly from there is the Controller Bay region, and the village of Katalla. This area, the general locale of Rex Beach's "The Iron Trail," contains coal deposits and formerly had some small oil wells. Farther west lie the Copper River Flats, about 40 miles wide, through which the Copper River drains. Up this river run untold numbers of salmon, including the highly prized red salmon. Immediately west of the Copper River Flats is Prince William Sound surrounded by majestic mountains and glaciers. On the shores of the Sound are the towns of Cordova and Valdez, and a new town, Whittier, is developing on the west side as a new terminus of the Alaska Railroad. In this region spruce and hemlock grow up to timber line, which ranges from about 1,200 to 1,500 feet. Several large, active glaciers discharge icebergs into salt water.

Westward from Prince William Sound the Kenai Peninsula juts into the Gulf of Alaska. The peninsula is a rugged, mountainous region, well timbered in the lower altitudes, with considerable rainfall but less than farther eastward. Seward and Anchorage are both ocean termini of the Alaska Railroad, which north of Anchorage starts its climb of the Alaska Range into the interior, crossing the Range at Broad Pass at the surprisingly low elevation of 2,200 feet.

Not far from Anchorage, near the head of Cook Inlet, lies the much publicized Matanuska Valley, where a few years ago families from Michigan, Wisconsin, and Minnesota were settled. Here many crops including wheat, oats, barley, potatoes, turnips, carrots, rutabagas, cabbage, cauliflower, celery, parsnips, beets, and hay do fairly well, and some of these produce exceptionally good yields. Cattle, hogs, sheep, chickens, and turkeys are also raised in the region.

In the Alaska and St. Elias Ranges many peaks attain an elevation of more than 14,000 feet. Chief among them is famous Mount McKinley,
which towers to 20,300 feet, the highest mountain in North America. Some of the mountains in this region are mildly active volcanoes.

The principal towns of this area include Cordova, Valdez, Seward, Seldovia, Anchorage, Colonists, and Chitina, and there are many smaller settlements and native villages. Salmon, crab, and clam packing, mining, logging, fur farming, and to a lesser extent agriculture are the outstanding activities of this region.

**SOUTHWESTERN REGION**

As commonly used in the Territory, the term "Southwestern Alaska" includes the Alaska Peninsula, the Kodiak-Afognak Island group, and the Aleutian Islands, but to give greater emphasis to the Aleutians in this paper they are treated separately.

On the Alaska Peninsula, are a number of rather recently active volcanoes, including Mount Katmai, which erupted with great force in 1912. The clouds that frequently hang over Katmai and other volcanoes, as well as over the Valley of Ten Thousand Smokes, when illuminated at night by the red glow from the volcanoes, produce weird and beautiful effects visible for many miles. Some of the clouds are composed of steam escaping from the volcanoes.

At its eastern end the Alaska Peninsula has a few scattered areas of moderate-sized trees, but in traversing the 500 miles westward to the tip of the Peninsula one soon passes the smallest of the trees and encounters nothing larger than alders growing in the more protected ravines. A luxuriant growth of grass and small shrubs covers the slopes. As the Peninsula progresses westward, it becomes narrower, the land is less jagged in outline, and the volcanoes stand out clearly. The Peninsula is subject to heavy gales, cold from the Bering Sea to the north and warmer from the Pacific Ocean on the south.

To the south of the Peninsula is the Kodiak-Afognak Island group, about 160 miles in length. The highest of the mountains on these islands rises 4,463 feet above the sea. Afognak is fairly well timbered with spruce, and the northeasterly end of Kodiak as far as the village of Kodiak has a growth of young trees. Westward from Kodiak the only trees are a few deciduous ones in the more protected locations in the stream valleys. The town of Kodiak was one of the important Russian headquarters, and since its establishment in about 1792 has been prominent in the history of western Alaska. The 1940 census of Kodiak disclosed a population of 855 natives and whites.

Kodiak has a pleasant climate, the temperature rarely dropping below zero in winter and ranging from 40° to 80° F. in summer. The soil is
good, and crops can be successfully raised. On the north side of the island is the Karluk River, one of the famous red-salmon streams from which untold quantities of salmon have been taken, even to the point of threatening at one time the existence of the salmon run.

Besides the towns of Kodiak and Afognak there are smaller native villages and fish-packing localities. Old Kodiak, first Russian settlement in Alaska, was established in 1784, at Three Saints Bay not far from the present town of Kodiak, but has been abandoned for many years.

THE ALEUTIAN ISLANDS

The Aleutian Islands, which have been so much in the news since the beginning of the war, are a partially submerged extension of the chain of volcanic mountains that form the Alaska Peninsula and extend westward beyond the tip of the Peninsula for 1,000 miles to Attu Island, the most westerly bit of land of the North American group. These islands vary in size from Unimak, the most easterly, which is about 70 miles in length by 20 miles in width, to mere rocks and reefs. Attu, only 35 by 20 miles, has mountains 3,000 feet high.

Many of these rugged islands rise from the water as sheer cliffs and rear upward to peaks, the highest reaching an elevation of 9,387 feet. Landing on many of these islands is next to impossible, and only four harbors in the entire chain can accommodate fairly large vessels. A few other bays will furnish shelter for small vessels in bad weather, but cannot be called good harbors. Very strong currents run through the Aleutian passes, but the rise and fall of the tides is slight, averaging only about 3.6 feet.

The climate of the Aleutians differs considerably from that of any other part of Alaska. Fog or low-hanging clouds almost constantly shroud the islands, and strong winds and gales blow out of Bering Sea in winter. Sudden and violent storms occur frequently. The temperature is rather uniformly low with a small daily and annual range, the lowest recorded temperature being 5° F., the highest 70°. The January mean is 31.6°, the August mean 51.4°.

No trees grow naturally on the Aleutians, but a clump of 13 spruces planted at Dutch Harbor in 1805 are now about 25 feet high. Wherever there is enough soil to afford a foothold a good growth of grasses and grasslike plants has become established. The beach rye that grows on the westerly islands of the chain is used by the Aleut natives in making their very fine baskets.

The Aleutians do not offer a promising field for commercial development. There are no indications that it would be profitable to try to
carry on fishing operations with these islands as bases, and no important minerals are known to occur on the chain, except for one sulfur deposit which was worked to a small degree a number of years ago. At Akutan Island a whaling company established headquarters and hunted whales in the adjacent North Pacific and Bering Sea waters, but this closed some years ago owing to unprofitable operations. Sheep introduced on some of the islands are doing well, and sheep raising is perhaps the most promising potential industry for the region, in addition to the raising of blue foxes, which thrive on the majority of the islands on which they have been introduced. Sea otters, which formerly abounded along this coast but were almost exterminated through excessive hunting, are now increasing and should eventually become a source of revenue.

Myriads of sea birds frequent the islands, making it one of the great rookeries of the world. The most abundant species are murres, auklets, puffins, cormorants, gulls, kittiwakes, and guillemots. In addition to the birds that nest on the islands, great flocks of shearwaters that nest on South Pacific islands come to the Aleutians during the South Pacific winter.

Native Aleut villages exist on Akutan, Atka, Attu, Umnak, Unimak, and on Unalaska and nearby islands. It is doubtful that any of the natives on Attu have survived the Japanese occupation. Because of the favorable location Dutch Harbor and the village of Unalaska were developed and utilized by the Russians and have since been further developed by the United States. From the days of the Russians Unalaska has been the metropolis of the Aleutians.

About 60 miles westerly from Unalaska is an island now known as Bogoslof, but referred to in the early historical accounts of southern Bering Sea as Sail Rock or Ship Rock, because the shape of the rock then projecting above water suggested a ship's sail. Bogoslof is a volcanic peak that has been active a number of times since white men first observed it. Eruptions known to have occurred in 1796, 1883, 1906, 1910, and 1923-27 have wrought many changes on the island. Sometimes a large rock mass would be pushed up to a height of 500 feet, only to disappear later and be succeeded by other rock formations thrust up in the immediate vicinity. This is one place where the processes of vulcanology can be witnessed in actual operation. Despite the disturbances that accompany such changes, colonies of sea lions frequent the rocks, and sea birds nest there.

BERING SEA REGION

The coastal area from Bristol Bay to the Arctic Circle is known as the Bering Sea region. The important islands included in this geographical
Plate 6

View across Bering Strait looking west. End of Cape Mountain and village creek in foreground. On the horizon at center are the two Diomede Islands, merged, and to the right, East Cape, Siberia. August 13, 1936. Photograph by Henry B. Collins, Jr., Smithsonian Institution; courtesy National Geographic Society.
PLATE 7


Lower: Potato field in interior near Fairbanks, with a forest in the background. Photograph by Ray B. Dame, courtesy U. S. Department of the Interior.
Upper: Southeastern Alaska native making miniature totem pole for tourist trade. Photograph by Amos Burg, courtesy National Geographic Society.

Plate 9

Upper: Aleut women at entrance to their barabara.

Lower: Eskimo children on Nunivak Island. Photograph by Henry B. Collins, Jr., Smithsonian Institution.
area are St. Lawrence, St. Matthew, Nunivak, and the volcanic peaks St. Paul and St. George, known as the Pribilofs, the sole breeding ground for the seals of the great Alaska fur seal herd.

The land along the Bering Sea coast, with the exception of a short stretch north of Bristol Bay, is low, only scattered hills appearing several miles back from the shore. Further inland the land rises to a low, rolling plateau of moderate relief on the north side of the Alaska Range and south of the Brooks Range. The coast line of Bering Sea has comparatively few indentations and lacks deep-water harbors. The sea off this coast is so shallow that vessels of moderate draught sometimes go around out of sight of land. Farther northward toward Nome, the Seward Peninsula, and Bering Strait, rugged hills and low mountains occur, but the sea continues shallow. The two great rivers that drain interior Alaska, the Yukon, with a delta 80 miles wide, and the Kuskokwim, with a smaller but extensive delta, together with a few lesser rivers, flow into Bering Sea along this coast. The low coastal region is a maze of channels, sloughs, ponds, and lakes, making an ideal nesting ground for ducks, geese, and shore birds.

Although there is no sharp line of demarcation between the Bering Sea coastal region and the interior, the latter is rather more elevated, has some timber, and its climate is not so directly affected by Bering Sea. No timber occurs for some distance back from the Bering Sea coast except in Norton Sound, but there is an abundant low growth of willows, alders, and other shrubs and herbaceous vegetation. The Eskimos inhabit this coast line as far south as Bristol Bay.

Nome, on the north shore of Norton Sound, was founded as a result of the discovery of gold in Anvil Creek in 1898, and gold, platinum, and other minerals have been found elsewhere along this coast. Furs, mainly fox, mink, beaver, and muskrat, form the other principal product of this region.

Bristol Bay, a large, shallow extension of Bering Sea into the coast line immediately north of the Alaska Peninsula, is world-famous as a red-salmon producing region. Numerous salmon canneries operate here each season during the main salmon run from June 25 to July 25, and hundreds of thousands of cases of canned salmon are packed annually. These constitute a considerable portion of the canned red salmon that the Americans have been enjoying for many years, and such a source of food supply is, of course, a great temptation to Japan. Salmon migrate up the Yukon and Kuskokwim, but no extensive fishery industries have been established on these streams. The fish farther up the streams are utilized chiefly for dog food and to a lesser extent for local human consumption.
The main settlements of the Bering Sea region are Nushagak and Dillingham on Bristol Bay, Bethel on the Kuskokwim, St. Michael on Norton Sound, and Nome and Teller on Seward Peninsula.

ARCTIC REGION

The Brooks Range, rising to elevations of more than 10,000 feet, forms the watershed between the interior-Yukon drainage system and the Arctic slope. Most of the Arctic coast is low, rolling tundra with ranges of hills a comparatively short distance inland. The numerous lakes and streams of the region teem with fish. The largest vegetation consists of willows 5 or 6 feet high at low elevations in protected ravines. In the less protected locations and along the coast vegetation is limited to much smaller plants, including willows only an inch or two high, mosses, lichens (reindeer moss), and a profusion of flowering plants that make the Arctic tundras fields of beauty during the short Arctic summer.

Much fog and rain occurs in summer, and snow may fall at any time. Snowbanks and ice exist throughout the summer in protected locations, but the soil thaws from 3 to 4 inches on north slopes and to a depth of 24 inches on sunny slopes. Below this depth the ground is perpetually frozen. The temperature of the frozen ground at a depth of 13 feet was in one instance found to be 12° F.

The winter climate need not be described, as it is all that it is generally supposed to be—a constantly low temperature, with many severe storms and without sight of the sun for months at a time, depending on the latitude. However, the Alaskan Arctic climate is less severe than that of Siberia.

No large white settlements exist on the Arctic coast. The larger native villages, at some of which there are trading posts, missionary stations, and hospitals, are Barrow, Wainwright, Point Hope, and Kotzebue. The native inhabitants are Eskimos, who live close to the coast.

The long periods of low temperatures and very short periods of only moderate temperatures in the Arctic together with the scant precipitation so far restrict bacterial growth that materials and articles that would decay rapidly in warmer climates last indefinitely in northern Alaska. This condition has been largely responsible for the fine state of preservation of the many large collections of Eskimo articles brought out of the Arctic. In 1937 an Eskimo found at Beechey Point a sealed can containing written records. The can had been attached to a small balloon 82 years earlier by the English exploration vessel Enterprise in the eastern Arctic, had drifted through the Northwest Passage, and the Arctic cold had preserved it until found on the beach.
The Arctic winter nights are not totally dark, for the moon continuously takes the place of the sun for 2 weeks of each month and provides considerable useful illumination. When the moon is not visible, there is some light from the stars, and of course the snow reflects much of whatever light is available.

Igloos, known to most of us through pictures in geographies and conventionalized as dome-shaped houses built of blocks of snow, with a low snow tunnel for an entrance, are not used in Alaska as dwellings. The regular use of this type of dwelling is confined to the Eskimos of northern Canada and northwest Greenland. The word "igloo" means "house" or "home," and this term is used by the Eskimos of the Arctic and northern Bering Sea coast for their permanent dwellings, which are partially excavated in the ground and built of sod, driftwood, and bones of whales. A tunnellike entrance is usually provided. Along the Arctic coast temporary shelters made of snow blocks are used by travelers who are unable to find a regular igloo or village. When thus "caught out" they dig into a snowbank and cut out blocks of snow with which they build up the top of the bank and arch over the excavated portion, thus forming a crude type of snow igloo. It may either be of the lean-to type, open on one side, or completely walled in and a tunnel entrance provided.

Coal seams crop out at places along the coast but have not been developed except for local use. At one locality coal deposits at the surface of the ground became ignited and have burned for several years. Seepages of oil have formed pools or lakes in some places and suggest greater deposits in the ground. Certain areas have been set aside as naval oil reserves.

Any consideration of the Arctic necessarily must give heed to the conditions of the Arctic Ocean, for the activities in the Arctic are as intimately associated with the sea as with the land. Ice conditions near the coast vary greatly from year to year. The ice pack along the Arctic coast may begin to show leads of open water where the main pack is breaking away from the shore ice as early as the middle of May. However, this condition is dependent very largely upon the winds. In general, Bering Strait is free of ice by July 1, and vessels can ordinarily get to Point Hope as early as July 10 to 15. Kotzebue Sound is usually open by July 15, but some years vessels cannot get in before the last of July. Point Barrow can usually be reached by August 1, but occasionally vessels cannot get through until the end of August. At any time during the so-called navigation season in the Arctic, the strong, shifting winds or currents may drift the ice pack in to shore, and unless great care is exercised to avoid such situations, vessels may be crushed. Eastward of Point Barrow,
toward Herschel Island, leads open from time to time through which vessels can pass, but ice conditions are too uncertain and hazardous to insure regular navigation. The end of the navigation season is almost as irregular as the beginning. At Point Barrow new ice begins to form late in September in the bays, and the polar ice pack usually drifts toward land. In Kotzebue Sound new ice forms about September 15.

Pack ice, which drifts on the Arctic Sea, sometimes moves as rapidly as 3 miles or more an hour. This region does not have icebergs such as are found in the North Atlantic, which are discharged from the Greenland glaciers. The enormous pressure built up by the motion of ice floes before currents and winds forces the ice to pile up when one end of it becomes anchored securely, resulting in pressure ridges and formations as much as 100 feet in height. Sometimes when the wind and currents drive toward the shore, they force the ice pack up over the shore ice and onto bluffs as much as 75 feet in height. Occasionally a village will be overridden by this irresistible force in a matter of only a few minutes.

INTERIOR REGION

The great interior region of Alaska extends from the summit of the Brooks Range on the north to the summit of the Alaska Range on the south, and from the Canadian border on the east to the vaguely defined Bering Sea coastal region on the west. It is almost all within the drainage basin of the Yukon and the Kuskokwim Rivers and is sometimes referred to as a plateau. A traveler in this region does not gain the impression, however, of being on a plateau; rather of being in a very large valley with a moderately rolling terrain, even including some small mountain ranges. Elevations are from about 800 to 6,500 feet, with large areas at levels of around 2,000 feet. In general, for some distance on either side of the rivers there are forests of moderate-size trees, composed of white spruce, black spruce, larch, poplar, aspen, and birch. Away from the rivers the trees are small and often so scattered as not to be worthy of the designation forest.

Throughout interior Alaska precipitation is scant; the summers are warm and the winters very cold. The climate resembles that of the northern portion of our northern States, New York, Minnesota, North Dakota, Montana, and Idaho. In the region of Fairbanks killing frosts are usually absent from May 29 to August 26. The ground throughout the interior region is in general frozen to bedrock, but thaws during the summer to a maximum depth of about 18 to 20 inches unless the covering of vegetation is removed during farming operations, in which event the
ground thaws to about 30 inches. In a shaft sunk to a depth of 300 feet it was found that the ground was frozen at the bottom. However, at places in the interior, well-drained southern exposures are not perpetually frozen, each summer thawing the previous winter’s freeze. There is no evidence that this region was glaciated at the time the great ice sheet covered so much of North America farther south.

The Yukon River heads within 25 miles of salt water not far from Skagway but traverses 2,300 miles before it reaches salt water at its 80-mile-wide delta at Bering Sea. About 800 miles of it flows in Canadian territory and 1,500 miles in Alaska, and its total drainage basin is about 330,000 square miles. The Yukon is navigable from its mouth to Whitehorse in Canadian territory, and many of its tributaries are large streams, navigable for considerable distances for boats of moderate draught.

Each spring the Yukon offers the interesting phenomenon of being frozen near its source and near its mouth, with some of its middle length navigable for a short period before the ice moves in the upper and lower reaches. In its lower portion the fall is so slight that the tide is appreciable almost 100 miles up the river.

Mining has been the conspicuous activity of the interior region. In the early days the picturesque placer miners worked with pick, shovel, and pan, or with sluice box, on the numerous creeks. When these methods were no longer profitable, large-scale mining by power dredges and the thawing of frozen earth by forcing cold water into the ground through driven pipes was inaugurated, with a revival of activity in the Fairbanks region. In some sections hydraulic placering has been carried on, as it is in the Canadian Klondike.

A less conspicuous activity that has sustained the region when the more spectacular mining failed is the trapping of fur-bearing animals such as foxes, mink, marten, lynx, otters, ermine, muskrats, beavers, wolves, coyotes, wolverines, black bears, hares, marmots, and squirrels. The raising of some of these in captivity has become a thriving industry. General farming continues on an increasing scale in the Tanana Valley, mainly near Fairbanks. Many excellent crops have been raised and the possibilities of certain agricultural work well demonstrated.

For a number of years Fairbanks has been the principal metropolis of this region, but its population fluctuates widely in response to the conditions of mining and other activities in the region. Perhaps its future will be more stable now that it is connected with Canada and the States by the new highway, in addition to its connections with the southern Alaska coast by the Richardson Highway at Valdez and by the Alaska Railroad to Anchorage, Whittier, and Seward. Fairbanks also has two con-
nections with the Yukon River system, one in a northeasterly direction by the Steese Highway to Circle, and the other by the Alaska Railroad to the station of Nenana, on the Tanana River, a distance of 56 miles.

Tanana is at the junction of the Tanana River with the Yukon River and, like various other small settlements throughout interior Alaska, is important as a provisioning and outfitting point for parties going into the more remote sections to prospect for minerals, to trap, or to hunt.

NATIVE PEOPLES

ORIGIN

The efforts of the Japanese to gain a foothold by way of Alaska during the present war are a reenactment of previous migrations of people from Asia into North America going far back of recorded history. Alaska is part of the most natural route from Asia to the Americas. The 56-mile-wide Bering Strait between Alaska and Siberia, in the middle of which are two islands, Big and Little Diomede, one belonging to Russia and the other to the United States, is not a barrier to Eskimos in their skin boats, for they regularly go back and forth.

Furthermore, even this partial barrier has not long existed, as nature measures time. When the ice sheets of the last glacial period still covered the northern parts of North America and Eurasia some 15 to 20 thousand years ago, ocean levels all over the word were several hundred feet lower than at present because of the enormous quantities of sea water withdrawn to form the ice caps. The eastern parts of Bering Sea, Bering Strait, and the adjacent portion of the Arctic Ocean are so shallow that if the sea level had been lowered only 180 feet or the land raised by that amount, Siberia and Alaska would have been connected by a land isthmus over 500 miles wide at its narrowest point. Such an isthmus would form a highway far wider than the Isthmus of Panama and many other land links between larger areas across which animal life has moved. As rapidly as land is uncovered by the ocean it is occupied by plants and animals, so that even before the lowest land emerged, animals of the two areas would approach each other and probably swim the ever narrowing and shoaling channel connecting the two continents.

The elevation and sinking of this area may have occurred several times, so that successive waves of animals, both from Asia and from North America, traversed the route. According to all indications it was along this route that the early ancestors of the American Indians entered this continent from northeastern Asia. When most of Canada and the northern portion of the United States were covered by the ice cap of the glacial
period, the interior and the western and northwestern parts of Alaska were free of ice and therefore provided a haven for plants and animals, including man.

In addition to the human population that came to America by this route, we received the ancestors of the present-day wapiti (erroneously known as the elk), mountain sheep, bison, mammoths, mastodons, bears, cats, including one very much like the African lion of the present day, and other animals. By the same route ancestors of the horses, camels, and dogs, which apparently originated in the Americas, reached the Old World. We know that these animals actually lived in northern, central, and western Alaska during the Pleistocene, or glacial period, for their bones are frequently recovered from the frozen muck in gold-mining operations. No skeletal remains of man contemporaneous with the extinct mammals have yet been discovered, but the presence of an occasional flint implement in the frozen muck, and the fact that the same species of mammals were hunted by early man in Colorado, New Mexico, and elsewhere in the Plains area, suggests that early human remains will eventually be found in Alaska.

There are now in Alaska four basic types of natives: The Eskimos, who frequent the Arctic and Bering Sea coast; the Athapascan Indians of the interior; the Aleuts, who inhabit the Aleutian Chain and part of the Alaska Peninsula; and the Tlingit-Haida Indians, who dwell in the southern coastal region from Yakutat east and south to the Queen Charlotte Islands. When the Russians discovered Alaska the natives of the Kodiak-Afognak region, the base of the Alaska Peninsula, Kenai Peninsula, and the Prince William Sound region were of Eskimo stock, but they are now a mixture of many strains.

Ethnological studies on the Alaskan natives have been made by the Smithsonian Institution, Yale University, the American Museum of Natural History, the University of Pennsylvania, and other institutions. In recent years archeological excavations by Hrdlička, Collins, Jenness, De Laguna, Rainey, and Geist have provided new and interesting information on early stages of Eskimo and Aleutian culture.

INDIANS OF SOUTHEASTERN ALASKA

The Indians of Southeastern Alaska are the best known, for they live in the region in which there has been the greatest concentration of white residents. They are short and stocky, and in many the features have an Oriental appearance. The two principal tribes in Southeastern Alaska are the Tlingit and Haida. Small local groups of the Tlingit are known under
other names, such as Sitka, Stikine, Taku, Auk, and Hoonah. The Metlakatlans, now living on Annette Island near Ketchikan, were Tsimshian natives of British Columbia who migrated to Annette Island in 1887.

These people are primarily fishermen and are thoroughly at home on the turbulent streams and tempestuous coastal waters of the region, as well as in the forests. They formerly made excellent dug-out canoes from large logs and in recent years have acquired remarkable proficiency in building and operating boats propelled by internal-combustion engines. Prior to the arrival of the whites they wore skin clothing and made their living largely by fishing, hunting, and the taking of clams, crabs, and other forms of life from the beaches. When a market became available for furs, they trapped and sold or bartered skins of sea otter, fur seal, beaver, marten, mink, otter, ermine, fox, and muskrat.

The natives of this region have become widely known through their totem poles. These decorated poles were in general histories or records of the outstanding events in the life of a family or clan. The clans usually took their names from some of the well-known animals of the region—for example, the raven, eagle, wolf, frog, and others, and these are among the animals represented on the totem poles. In short, the totem poles were a sort of coat of arms which carried a definite historical record. Unfortunately, some missionaries and teachers, under the mistaken impression that the totem poles represented idols to be worshiped, induced the natives in some communities to destroy these real works of art. Most of the natives, however, were too strong of mind to be thus regulated, and many finely carved specimens are still standing. The larger totem poles are no longer manufactured, except when an old native can be induced by a white man to make a crude one for advertising purposes. Small totem poles, however, patterned after the designs of the larger originals, are still whittled out by native wood carvers and are commonly available for sale to tourists.

In addition, the Southeastern natives carved and painted the fronts of their houses with elaborate designs, and made wooden bowls and other beautiful carvings in bone, horn, or wood. They made many baskets, mainly from spruce root and grass fibers, nearly all of which were ornamented. The remarkable Chilkat blankets were made of mountain goat wool and plant fibers.

The Southeastern Alaska natives have now become surprisingly well assimilated and integrated into the domestic and political economy of the region. Many of them own boats and equipment, and fish as independent operators during the fishing season. Others man boats working for canneries and other industries. They work in the canneries, mines, small
PLATE 10


Right: Point Hope Eskimo woman.
Plate 11

Upper: Three of five umiaks towing a dead whale. The edges of the walrus hides covering the wood frame of the boat, together with the skin thongs that hold them taut, show plainly along the gunwales. Photograph by Henry B. Collins, Jr., Smithsonian Institution; courtesy National Geographic Society.

Plate 12

Upper: "Brailing," or removing salmon from a fish trap into a scow preparatory to taking them to the cannery. Courtesy Forest Service, U. S. Department of Agriculture.

Upper: King crabs are the foundation for a promising new industry of crab canning.

boatyards, machine shops, and indeed work for or with the white man in practically all his activities including hunting and trapping. Many of them have found that they can make a substantial income by weaving baskets and making other curios for sale to tourists.

**ALEUTS**

The Aleuts inhabit the Aleutian Islands, the Shumagin Islands, and the north coast of the Alaska Peninsula east to Ugashik River. In most of their territory only a few kinds of land animals were available, but the sea provided an abundance of food. They hunted whales and sea otters in their light, skin-covered boats. Fish and birds were plentiful, and another source of food even more easily obtained was sea urchins, which were found in the shallow water close to shore. The houses of the Aleuts were half excavated in the ground and half built up with sod or driftwood, so that they required a minimum of fuel to keep them comfortable. Such houses were generally known by the Russian name "barabara."

Two colonies of Aleuts that had been established on the Pribilof Islands by the Russians to provide labor for sealing operations have been well cared for by the United States Government, for whom they work in handling the seal herd. They have good homes, clothing well suited to the region, and many of them are fairly prosperous. However, owing to the threat of Japanese landing on the Pribilofs, they were removed from the islands in the winter of 1941-42, and have been temporarily quartered in Southeastern Alaska. Their reaction to this extreme change would be an interesting psychological study. Other Aleuts work in canneries in the Bristol Bay region, or on fox farms, engage in cod fishing or the operation of boats, and in general have an important place in the white man's activities in the region. The Aleuts are now so thoroughly blended with the Russians and other Caucasians that pure-blood natives are rare.

The finest basketry produced in Alaska, if not in the world, was formerly made by the native women of Attu Island. They were particularly skillful and painstaking, and fortunate, too, in having a type of grass on Attu Island better adapted for basket weaving than the grass that grows farther eastward in the chain. Unfortunately, the interest in keeping up the production of this type of artistry was not fostered, and for a number of years only four of the oldest women of the village did basket work; so it is doubtful if any of them are surviving at this time. The younger generation has not carried on the fine basket weaving of their ancestors, although some baskets are still made in the Aleutian Islands.
ESKIMOS

The Eskimos are inhabitants of the Bering Sea and Arctic coastal region, rarely being found far from the seacoast. These people are well built, short and stocky, and before the advent of white men they made their homes in semisubterranean houses built of sod, driftwood, and bones of whales.

The absence of timber along the Bering Sea and Arctic coast makes residents dependent for warmth on driftwood, stone or pottery lamps burning animal oils, coal mined locally, or on fuel shipped to the region. Until recent years many Eskimos still lived in their semidugout houses and used whale-oil lamps for heating, cooking, and illumination.

Whales, walruses, and seals are sought at every opportunity, as almost every portion of these animals is used in some manner by practically all who live in the Arctic. Fish are caught in open water of the streams, lakes, and ocean in summer, and through holes cut in the ice in winter. Caribou are hunted for their meat and for their skins, which are used for clothing. Arctic (or white) and blue foxes, ermine, lynx, and muskrats in the Kotzebue Sound region provide negotiable products for barter and sale. Eider ducks, geese, and sea birds that nest on rocky cliffs are important for food and clothing. Berries and other plants from the tundra supplement the diet to a slight extent. The herds of reindeer introduced by the Government for the use of the Eskimos have greatly improved their condition.

Eskimo clothing is made entirely of skins, those most often used being reindeer, ground squirrel, eider duck, cormorant, or murre. The parka, or outer garment, is made like a large shirt without buttoned opening in front, and has an attached hood which may be worn over the head or thrown back on the shoulders. The Eskimos are skillful ivory carvers, utilizing the tusks of walrus and mammoth. Indeed, this ivory was used in making many of their everyday implements and utensils before the advent of the white man.

They are adept in the handling of their skin-covered boats. These are the kayak, or one-hole skin canoe, used mostly for seal hunting, and the umiak, a large open skin boat used for summer travel and for hunting whales and walruses.

The Eskimos did not follow uniform burial practices. Sometimes the dead were placed on the open tundra not far from the village, together with some of the belongings of the deceased; in other places graves were made among the loose rocks, or the body was covered with a pile of driftwood. Along the Bering Sea coast the dead were placed in boxes made of heavy driftwood timbers.
INTERIOR ATHAPASCANS

In general appearance and habits the Indians of the interior are more like those of the Great Plains, Rocky Mountain region, and central Canada, than are the natives of any other portion of the Territory. They lead much the same lives that the Indians farther south formerly lived, and that some still live. They maintain themselves by hunting, trapping, and fishing, and lead a seminomadic life. They do their own tanning and produce many attractive hand-made articles such as birchbark basketry ornamented with porcupine quills, and excellent moccasins, beaded and otherwise ornamented. Game and fish constitute much of their food, supplemented by berries from the profusion that grow in that region. Their welfare is fairly assured if there is an ample supply of fish and game for food, and fur-bearing animals to trap and sell or barter to obtain articles introduced by the white man, which they now use regularly.

HISTORY

The history of Alaska falls naturally into definite periods. We might consider that Alaska’s ancient history ended and her medieval history began in July 1741, when men from Bering’s expedition landed on Kyak and Wingham Islands near the mouth of the Copper River, and in the Alexander Archipelago of Southeastern Alaska. Unlike the history of most countries, scientific work started simultaneously with discovery, for a well-qualified naturalist, Georg Wilhelm Steller, accompanied Bering and was one of the party that landed on Kyak Island. This expedition was the culmination of a project that was inaugurated by Peter the Great of Russia. Only 4 days before his death on January 28, 1725, he drew up with his own hand and signed an order directing extensive exploration and scientific research in then almost unknown Siberia and the lands that were suspected of being adjacent. This started a long series of explorations conducted jointly by the Russian Navy and the Russian Academy of Sciences—the most comprehensive explorations that had been attempted by any nation up to that time.

In 1728 Bering passed through the strait that now bears his name. He discovered and named the Diomede Islands at the middle of the strait, but visibility was so poor he did not see the Alaska mainland, although he was probably less than 40 miles from it. He was told by natives that land lay a short distance away, but he did not believe them.

The Second Kamchatka Expedition built its own vessels in the harbor of Okhotsk. These were each 80 feet long, with a beam of 22 feet and a draught of 9 ½ feet. Their construction, like every other phase of the ex-
pedition, was carried out under the most difficult conditions, for it involved the overland transportation of men and materials from St. Petersburg and other Russian inland towns to the seacoast, through unexplored land inhabited only by natives.

After numerous delays the voyage that was to result in discovering the southern coast of Alaska started from Petropavlovsk on the Kamchatka Peninsula June 4, 1741. The Dane Vitus J. Bering headed the expedition on the vessel *St. Peter*, while the *St. Paul* was commanded by his chief assistant, Alekseij Ilitch Tchirikov. They sailed on a southeasterly course that took them around the west end of the Aleutian Islands and then eastward parallel with, but out of sight of, the Aleutian chain. In this vicinity the vessels were separated by a storm and did not again come together, although both reached the shores of Alaska. Bering, in the *St. Peter*, worked easterly and northerly until he sighted land, probably Mount St. Elias, on July 16 (Old Style calendar).

He did not make a landing until July 20, Old Style calendar (July 31, New Style calendar), 1741, when two small boats took parties ashore, one to Wingham Island above the upper end of Kyak Island to obtain fresh water, and the other put Steller and a helper on the west coast of Kyak near the south end of the island. Steller had several hours ashore, but it was only after insistent demands sent by messengers in small boats that Bering was able to induce Steller to give up his collecting of specimens and data and come aboard for the return voyage. There had been much friction between the two men during the voyage, and Steller was greatly irritated that he was permitted to remain ashore only a portion of 1 day, when he had anticipated, or at least hoped, that the expedition would spend the winter in the vicinity.

The other party from the same vessel landed at a native camp on Wingham Island to fill their water casks, and picked up various articles including a stone that was obviously used as a whetstone. On this they found particles of copper, the first evidence of the occurrence of that metal in Alaska.

Bering started the return voyage July 21, 1741, after allowing only the one day ashore, because he felt that he had accomplished his mission of finding the land for which he had searched. Returning, they landed on one of a group of low islands to take on water. Steller urged that they collect plants to be used to prevent scurvy. However, he was given no encouragement or assistance in the matter, so, in addition to collecting botanical material, he collected antiscorbutic material only for himself, which he perhaps shared with the captain. Many members of the party,
including Bering, died from scurvy before completing the voyage, but
Steller escaped the disease.

Nagai Shumagin, a seaman sick with scurvy, was taken ashore and
promptly died. He was the first of the expedition to die, and his surname
was applied to the island group, and his given name to the island in this
group on which he was buried.

Numerous misfortunes occurred on this voyage that cannot be related
here, but which can be found in full detail in Dr. Stejneger’s excellent
work on Steller listed in the bibliography.

After having become separated from Bering’s vessel, the St. Peter,
during the storm of June 20, 1741, Tchirikov, in the St. Paul, held a more
southerly and easterly course, until early in the morning of July 15 he
sighted mountains and land with trees. The exact location is not definitely
known, but it is probably a point now known as Cape Addington, off the
west coast of Prince of Wales Island, only about 50 miles north of the
southern end of Southeastern Alaska. He did not land at this point, but
held a northwesterly course roughly paralleling the outer coasts of the
islands we now know as Baranof and Chichagof. On July 17 he sent a
boat ashore with 10 armed men commanded by Master Avraam Mikhailo-
vitch Dementiev. The point at which they landed is not definitely known;
some persons believe it was in Sitka Sound, while others think it was
Lisianski Strait. The boatload of men failed to return, and finally, on the
23d, Tchirikov sent another boat, his last, ashore under the command
of Sidor Savelev. These men likewise failed to return. On the 24th two
canoeloads of Indians paddled out toward the ship, which had been
standing offshore. Obviously these were the first Alaska natives to be seen
by white explorers. They approached within hailing distance, shouted
“Agai, agai,” and returned to shore. The St. Paul continued in the vicinity
until July 27 without trace of their shore parties. Having sent their last
boat ashore, they felt helpless as far as landing there was concerned, and
as their water supply was running low, they decided to abandon the search
and put about at once. On the return voyage they sighted land at various
points along the southern coast but made no landings. They finally
arrived at the Kamchatka base of the several exploring expeditions on
October 9, 1741. On the return voyage they suffered seriously from scurvy
and lost several men. Unfortunately for them, they did not realize that
they could have run their vessel into any one of numerous inlets along
this coast and tied up along steep bluffs with perfect safety, obtaining
water even without a boat.

Both vessels suffered numerous vicissitudes and losses, but enough of
the party returned to Siberia to tell of the finding of the new land.
Bering's discoveries led to a series of private commercial expeditions by Russian fur traders to the Aleutian region and southern Alaska. In 1784 Shelikof established the first permanent Russian settlement in Alaska at Three Saints Bay on the southeastern side of Kodiak Island. There followed exploration and establishment of other trading posts, and finally the establishment of Sitka in 1805 as headquarters for the Russian American Company, which held a concession from the Russian Government for the entire Territory. This location was an ideal choice, for it has good harbors, an abundance of natural resources, and it is only a few miles from the open ocean and the northward migration route of the seals. Sitka shortly became a cultural and commercial metropolis and continued as such until Alaska was purchased by the United States and transfer of jurisdiction effected on October 18, 1867.

The proposal to sell Alaska to the United States originated with the Russians, who were in need of funds and perhaps had some fear that such a valuable region so far from their usual base of operations might be taken from them by an enemy. The region was popularly called "Seward's folly" and "Seward's icebox" by those people in the United States who could not see the great wisdom and foresight of Secretary of State Seward when he negotiated the purchase of the Territory for $7,200,000. There were at that time other large, sparsely populated areas with an abundance of natural resources, so that the American public in general had little interest in exploring or planning for the development and protection of the resources of Alaska.

Information that had been assembled by the Smithsonian Institution and made available to Secretary of State Seward and Senator Sumner of Massachusetts, Chairman of the Foreign Relations Committee, was an important factor, if not the principal one, in obtaining ratification of the treaty purchasing Alaska from Russia. Briefly, the events began about 1853, when an enthusiastic, brilliant young biologist, Robert Kennecott, made contact with Spencer Fullerton Baird, then Assistant Secretary of the Smithsonian. In 1859 Kennecott went on a 3-year expedition into northwestern North America to explore and collect specimens for the Smithsonian Institution and the Audubon Club of Chicago. Kennecott's work brought to the Smithsonian Institution and to the attention of the scientific world much important material and valuable information relating to Alaska.

While on this trip, Kennecott became fascinated with the region and its resources, and we can safely assume that his materials, information, and enthusiasm went far toward promoting the establishment of a scientific exploration section of the overland telegraph exploring expedition
that was to lay out a route for a telegraph line from the Puget Sound region through British Columbia, Canada's Northwest Territories, Alaska, across Bering Strait to Russia. This expedition was financed by the North American Telegraphic Association companies, and was advised and assisted by the Smithsonian Institution. Upon the recommendation of the Institution, Kennecott was chosen to head the scientific party, and he selected to accompany him well-qualified young naturalists who had the endorsement of the Institution. Among these were G. T. Rothrock, botanist; William H. Dall, H. W. Elliott, Charles Pease, H. M. Bannister, and Ferdinand Bischoff, geologists and zoologists; and G. W. Maynard.

The party sailed from New York on March 21, 1865, crossed the Isthmus of Nicaragua and sailed up the west coast of North America. The members of this party covered many different portions of the Northwest, including Sitka, St. Michael, Nulato, Unalakleet, and Fort Yukon. Kennecott died at Nulato of heart failure before the work was completed, but he had kept notes and had left plans for the conduct of the work which were carried out by Dall, who succeeded to command.

The successful completion of the trans-Atlantic cable caused work to stop on the overland telegraph line, and Bannister arrived in the eastern United States in January 1867 with the findings of the scientific party in Russian America. Baird, Assistant Secretary of the Smithsonian, used Bannister's material, together with Kennecott's notes and perhaps some information from other members of the party, in supplying Secretary of State Seward and Senator Sumner with data on northwestern North America. Baird pointed out the wealth of furs, fish, and timber, and showed that gold and copper had been found in the Territory and that agricultural crops could be raised there. Apparently practically all the specific information regarding the value of the Territory, including the usefulness of Sitka Harbor as a base for naval vessels, was supplied either by the Smithsonian Institution or by men who had worked in Alaska under its auspices.

The earliest scientific explorations of Alaska and adjacent regions following the purchase by the United States were initiated by the Smithsonian Institution through the interest of Professor Baird, then Secretary of the Institution. Baird obtained military appointments for such men as E. W. Nelson and L. M. Turner, enthusiastic, promising young naturalists, to go to the Territory in the United States Army Signal Corps as weather observers, with instructions and equipment furnished by the Smithsonian for the collection of natural history material and information of general scientific interest. In the case of Nelson, this led to a lifetime of keen
interest in the welfare of Alaska, during which he obtained the enactment of the Alaska Game and Fur Law of January 13, 1925, now in effect, which gave those resources their first real protection.

Beginning with the late Dr. Leonhard Stejneger, who represented the United States Government in the fur-seal investigations, numerous members of the Smithsonian staff, biologists, geologists, and anthropologists, have for half a century worked in Alaska or on Alaska material, and have directly or indirectly helped in the exploration, development, or making of policies regarding the Territory and its resources.

The region was known as Russian America prior to our acquisition of it. From that time on it has been called Alaska, a name derived from a native word meaning "the great land."

Those who went to the Territory soon after its purchase were unrestricted in their exploitation, and as a result the immense herds of fur seals were further depleted and the sea otters almost exterminated. Salmon canneries and salteries were established at particularly choice locations, and avaricious canners and fisherman erected permanent barriers across the streams to prevent the fish from going up, in order that they might catch them the more readily below the barriers. Thus began the utilization and destruction of one of the greatest natural food resources that has ever existed in the world. "The Silver Horde," by Rex Beach, gives a vivid and not much overdrawn picture of the salmon industry of the early days.

That period from the time of the purchase of Alaska until about 1900 might be characterized as Alaska's "dark age," for while the region was nominally under the administration of the United States Army, it was in fact a forgotten country with little supervision, law, or order. Finally conditions became so bad during the days of the gold rush in 1898-99 that upon the request of people in the region the British Government sent a gunboat to bring about order. This action, together with accounts of the lawlessness, finally awakened the administrative officials and Congress to the need for action. As a result, civil and criminal codes were enacted by Congress in 1899 and 1900, and a start toward a government was made. The capital was continued at Sitka until 1912, when it was moved to Juneau.

The finding of gold at Juneau in 1880 and in the Klondike in 1898 brought such publicity to the Territory and such a great influx of people that the turn of the century might be looked upon as the beginning of Alaska's modern history. The Klondike is not, of course, in Alaska, but in Yukon Territory, a Canadian province. However, the boundary lines were so poorly known and the urge to search for gold so strong that it
Plate 14

Upper: Harems of fur seals on St. Paul Island, Pribilof group. The small, dark seals are the pups, the silvery seals are the mothers, and the large, dark individuals are the bulls, each in approximately the center of its harem. Courtesy Fish and Wildlife Service, U. S. Department of the Interior.

Lower: Murres on Walrus Island. They have somewhat the appearance of penguins, but can fly. Photograph by Lavoy.
Plate 13


Plate 16


Right: Blue foxes come to the kitchen door of an island blue fox farm. Courtesy U. S. Department of the Interior.
Plate 17

Upper: Musk oxen in the feed lot enclosure at the Biological Survey Experiment Station near Fairbanks, prior to being taken to Nunivak Island, where they were released. This picture shows the characteristic defense formation employed by these animals. Courtesy U. S. Department of the Interior.

Lower: Big brown bear fishing for salmon. Photograph by Amos Burg, courtesy National Geographic Society.
It was not long until prospectors were roaming far and wide over both Alaska and northern Canada. As a result, not only gold but other minerals were found, which further stimulated settlement of the Territory. The finding of gold on the beach of Seward Peninsula led to the establishment of a settlement that came to be known as Nome, located in a very different type of country from the Klondike region. Other gold fields, such as those on many of the streams in interior Alaska, saw the establishment of other small settlements, thus paving the way for further developments.

Since prospectors frequently did not find gold or other minerals, many of them took to trapping to enable them to eke out an existence, and of course they lived largely off the game of the country. Copper deposits were found and developed as the Kennecott and Latouche mines, which have recently exhausted the ore bodies and are now abandoned. Treadwell and other gold mines were developed. Oil was discovered and small wells developed. In 1915 the United States Government took over a short length of old railroad and started construction of the Alaska Railroad, to extend from Seward to Anchorage and on to Nenana and Fairbanks in the interior, to tap the coal fields and connect with the great inland waterway of the Yukon River system. It was completed in 1923. Salmon salting and canning, herring packing, halibut fishing, clam canning, and crab and shrimp fishing and packing increased until the supply was jeopardized in some regions. Spruce, hemlock, and yellow cedar were cut for local use in building and for the construction of large fish traps and docks, and some lumber has been exported. The raising of fur-bearing animals in pens and on islands has developed into an important industry.

Where considerable deposits of minerals were found and active mines developed, boom towns were inevitable. These, like most others of their kind, have an uncertain life span, depending for their existence upon the continuance of mining operations. A more stable although sparse settlement of the Territory has now developed, however, so that there is a scattering population throughout the entire Territory. This population is augmented in the summertime along the southeastern, southern, and Bristol Bay coasts by the large crews brought to Alaska from the States by the salmon packers, who have need for a large number of workers for the short period of the salmon run.

Alaska's geographic and family names bring to mind the romance and tragedy of her history. Many of the foreign names are those of Russian, Spanish, and French explorers, officials, or other prominent personages such as Bering, Chirikof (Tchirikov), Quadra, La Perouse, Pribilof, Lisianski, Kotzebue, Zarembo, Tebenkof, Woronkofski, Baranof, Chichagof, Caamano, Etolin, and Malaspina. Other names less strange to the
English ear commemorate British and American explorers such as Cook, Vancouver, Dixon, Beardslee, Abercrombie, Brooks, Prince of Wales, and Dall. Admiralty Island is named in honor of the British Navy. Rocks or other dangers to navigation were sometimes named for the ships that were wrecked on them, as in the case of Mariposa Rock and Tahoma Reef. The names of ships more fortunate have been commemorated in many places, such as Dora Bay, and Orca Bay and Inlet.

Some of the geographic names are descriptive, as, for example, Demarcation Point, indicating the boundary line between Canada and Alaska on the Arctic Ocean; Icy Straits, so named because of the icebergs frequently found there; and Skookum Inlet, which means "strong" in the language of the natives and refers to the strong tides through the inlet. Success and failure in the search for gold have been recorded in the names Nugget Creek and Poor Man's Creek. Turn-again-arm records one of the many disappointments encountered by the great English navigator, Captain Cook, who found that he had to turn back again when he had reached the head of the inlet now bearing his name and found that it was not the Northwest Passage for which he had been searching. Ford's Terror and Disenchantment Bay reveal the frame of mind of other explorers.

Saints' names applied to geographical locations usually commemorate the Saint's day on which they were discovered. The origin of "Nome" is somewhat uncertain. One version is that a draftsman wrote the word "name" on a map opposite the nameless village that was established on the shores of Seward Peninsula, as a suggestion that someone name the town. Later, through a mistake in copying, it became "Nome." Another explanation is that Nome is a contraction of a native expression.

**NATURAL RESOURCES**

Gold is prominently associated with the history of Alaska but is only one of its many valuable products. The Territory is a veritable treasure house of natural resources—minerals, water power, timber, and wildlife, including fur and game mammals, birds, fish and shellfish.

**ANIMAL LIFE**

**Fish and Shellfish**

Along most of the coastal region the expression "the table is set when the tide is out" refers to the abundance of marine life that inhabits the tidal portion of the beaches, almost any of which can be eaten raw, roasted, or steamed. In addition to those that are in plain sight, many can be
obtained by digging a few inches beneath the beach surface, and many, including small fish, can be found by turning over stones on the beach. The natives who inhabited the coastal region obtained a large portion of their food from the beaches before they took up the white man's mode of life. People stranded on the beach need not suffer for want of food, for the clams, mussels, snails, fish, and other small marine creatures can either be eaten raw or cooked on the beach.

Even in the interior, Bering Sea coastal section, and Arctic region it is theoretically possible to obtain fish for food in the winter by digging them out of the ice and muck in which they are frozen, for certain small fish inhabiting those regions are frozen during the winter and thaw out the following spring to resume their normal activity.

The salmon fisheries harvest five different species of salmon, known as the king or chinook, the red or sockeye, the coho or medium red, the humpback or pink, and the chum or dog salmon. The catch of king salmon, the largest species, has usually been treated by a mild salting process, after which it was smoked and sold as kippered salmon. Some king salmon have pink flesh, others white. The fish are indistinguishable externally, and the quality is the same, but the pink variety usually sells for a higher price merely because of its more attractive appearance.

The red or sockeye salmon is usually canned and is well known in the American markets. It is the salmon that was the object of the bitter strife in the Bristol Bay region so graphically described by Rex Beach in his novel, "The Silver Horde." Red salmon run up numerous streams, mainly the larger ones or those on which there are lakes, but through excessive fishing the run is not so large as formerly.

The humpback or pink salmon is the most abundant fish along the southeastern and southern coast line. It derives its name from the great hump that develops on the back of the male immediately after it enters fresh water. It is of excellent quality and is extensively canned and sold under the name "pink salmon."

The coho, medium red, or silver salmon runs extensively in streams throughout the Pacific coast, usually coming in late in the season and often enabling packers to fill their cans with it when they have not been able to obtain enough of the higher-priced salmon from the earlier runs.

The chum or dog salmon has uniformly light-colored meat and derives one of its names from the extreme development of teeth that resemble the canine teeth of a dog. The greatly developed, hooked upper jaw, together with the high hump and blotches on the sides which appear immediately after the fish enter fresh water are characteristics of this species.
There is not much difference in the quality of the five different species of salmon when canned, but because of the rather more attractive appearance of the so-called red salmon, housewives have become accustomed to demanding it and accordingly are now required to pay higher prices for it than for other species. Some years ago one enterprising salmon packer who had a considerable pack of one of the lighter-colored salmon, such as the humpback or chum, placed labels on his cans which bore the wording, "This fish is guaranteed not to turn red in the can." Actually, of course, there is no material change in the color of any salmon after it is canned.

The 1941 pack of Alaska canned fish totaled 6,932,040 cases with a value of $56,217,601. In addition to the great industry of canning salmon, there is a lesser one of mild salting and hard salting these fish.

The life history of the salmon is one of nature's most interesting phenomena. The parent fish deposit their eggs in the gravel of streams during the summer or fall and die soon after. Some of the eggs hatch that fall, others the next spring. At ages varying from 1 to 4 years, according to the species, the young fish go down the streams to salt water, and from that time until they return as adult fish no one knows where they spend their time. When they are 2 to 8 years of age they approach the mouth of the stream in which they began life. They sometimes arrive suddenly in large schools and usually stay in salt water near the mouth of the stream for a few days. At this time they are trim, symmetrical silver beauties, but immediately after entering brackish or fresh water their habits and appearance undergo radical changes. They cease to eat, a prominent hump develops on the backs of the males, the upper jaw elongates and develops a pronounced downward hook, and long, hooked teeth develop. The coloration undergoes an equally great change. In most species the head becomes greenish, while the body becomes a deep maroon in some, almost black above and white below in others, or grayish with large vertical blotches on the sides. The females change slightly in form and assume colors almost like those of the males. The fish gradually work upstream to the spawning grounds, where they lay their eggs. These grounds may be barely above salt water, or more than 2,000 miles up large rivers such as the Yukon. Every obstacle in the path is overcome, or the fish die trying.

Even before they have finished spawning the fish become emaciated, develop large discolored spots like sores on the body, and would not be recognized as the same fish of a few weeks earlier. Within a few days, or at most weeks, after spawning, every salmon dies.

Salmon are captured in salt water within a few miles of shore as they are returning to the streams in which they began life. The important
methods of taking them include salmon traps, purse and beach seining, gill netting, and trolling. A salmon trap consists of a line of piles hung with nets extending from the shore sometimes as much as a mile or more toward deep water and ending in a maze of piles also hung with nets. Salmon swimming near shore, stopped by the net, follow the "lead" toward deep water and enter the maze, or trap proper, from which they are unable to escape.

In purse seining, a school of fish away from the shore, usually near the mouth of a stream, is encircled by laying a net around them, bringing the ends together and pursing or drawing it closed, so that the fish can be dipped into a boat. Beach seining follows the same procedure except that it is done from the shore, and the fish encircled in the seine are dragged to the beach for actual capture.

Gill netting consists of suspending in the water a net made of small thread woven into a relatively large mesh; the top of the net is kept at the surface of the water by floats, and the lower edge is held down by lead weights. These nets are operated in muddy waters day or night and in clear waters mainly at night. The salmon attempt to swim through the mesh and become entangled.

Near the outer coast both hand and power trolling are employed in capturing king salmon, and occasionally cohos, the only kinds of salmon that will take bait. The king salmon is gamy and puts up a good fight.

Herring constitute another of the important fish resources of the region. They are utilized extensively as bait in halibut fishing and for the manufacturing of fish meals and oils; they are also salted and smoked. Halibut occur both in the inshore waters and on banks off the southern coast, and halibut fishing is an important industry that yields many millions of pounds of fresh or frozen fish each year. While cod fishing has never reached extensive proportions in or adjacent to Alaskan waters, it has been carried on in a small way for many years, producing about 3,000,000 pounds a year, and there is a sufficient supply of fish to maintain a much larger catch. The various forms of rockfish, trout, and other fish are less utilized but will undoubtedly be taken more extensively in the future. Trout of several species are abundant in many of the lakes and streams, and since some of them prey on the young of the salmon, their taking is encouraged, except in a few streams that are particularly favored by local sportsmen.

The canning of razor clams in the Prince William Sound region and on the southern side of the base of the Alaska Peninsula has developed into a thriving small industry that produces an exceptionally choice product for the market. Shrimp and crabs occur in practically all the coastal waters,
and an industry has developed in Southeastern Alaska in trawling for shrimp, which are shipped either canned or iced. Alaskans have long enjoyed two types of large, delicious crabs, but it is only in recent years that the taking of these has developed into an industry.

The so-called Dungeness crab grows as large as $8\frac{1}{2}$ inches across the shell and weighs as much as 3 pounds. These crabs live in relatively shallow water along most of the southern coast and are fairly easily caught with inexpensive devices. They are canned or shipped iced, much as lobsters are shipped.

The king crab, a gigantic spiderlike creature that reaches a width of $5\frac{1}{2}$ to 6 feet including the legs, and weighs over 20 pounds, lives along the entire southeastern and southern coast line. Recent reconnaissance work by the Fish and Wildlife Service has disclosed that these crabs occur in sufficient quantities in some locations to justify the development of an industry for harvesting them. Until the beginning of World War II, practically all the crab meat of this type on the United States market had been packed by Japanese operating in Japanese vessels, which made most of their catch immediately outside of Alaska territorial waters in Bering Sea and along the southern coast, if they did not actually take some of their crabs within our waters. With the exploratory work that has been done, this delicacy should become available for the American table far more generally than it has been heretofore.

The total Alaskan catch of food fish and shellfish in 1941 was 383,332,387 pounds, with a value of $\$61,076,073$. This probably represents the maximum that should be taken of species now generally utilized, but others that could supply large quantities are as yet untouched. In addition, meals and oils totaling 47,793,133 pounds, with a value of $\$2,401,222$ were produced from offal and fish not utilized for food. Salmon oil, when properly prepared, is rich in vitamins A and D.

**Aquatic Mammals**

The fur seals that provide the beautiful sealskin garments are very different from the hair seals and sea lions common along many seacoasts. Fur seals occur in only a few regions in the world, the largest colony being the Alaskan, which inhabits the Pribilof Islands in Bering Sea about 200 miles northwesterly from Dutch Harbor.

The seals live on and about these islands from May to August and spend the remainder of the year on a leisurely trip through the Aleutian passes southward into the Pacific Ocean, almost to the Equator, then eastward until they are from 300 to 500 miles off the California coast, and
then northward on the return trip, roughly following the western coast of North America but gradually approaching it until in the vicinity of Sitka they are only 30 to 150 miles off shore. From above Sitka or slightly north of that point, they swing westward across the Gulf of Alaska, until they are again at the Aleutian passes through which they go northward to the Pribilof Islands for their summer assemblage.

Fur seals are highly polygamous. The most powerful males arrive at the islands before the females, take up locations on the beach and keep rival males at a distance. When the females arrive, they come out of the water and are added to one of the harems. Their young are born here, and a few days later the adult seals mate. The mothers nurse their young, then go to sea to feed, returning at intervals of several days to care for their young, which devote their time to playing with other pups and sleeping. When old enough, they go to the beach and learn to swim in shallow water near the shore.

Before pelagic sealing was restricted, this seal herd provided the principal cause of activity in Bering Sea and the North Pacific Ocean for many years. Ships of many nations, particularly those of the United States, Great Britain, Russia, and Japan, vied with each other in efforts to capture their share of the seals. As a result the herd was threatened with extermination and diplomatic relations were strained, until by international treaty between the United States, Great Britain, Russia, and Japan in 1911, pelagic sealing was stopped, and the administration of the herd was placed in the hands of the United States. Killing of seals was permitted only on the Pribilofs. This has resulted in the gradual upbuilding of the herd in a highly satisfactory manner. The 1940 census found a population of 2,185,136 seals, an increase over the previous year of 164,362. Under the provisions of the international treaty, all four of the nations that are parties to the treaty are to participate in the proceeds from the islands. Unfortunately the treaty is no longer in full force, as the Japanese signified their intention of withdrawing from the pact in October 1941. To Americans, the herd has been of value principally because of the beautiful furs obtained from the seals, but to a nation like Japan, which is so in need of food resources and fats, it would be of even greater importance because the seals furnish both meat and fat.

A total of 69,263 sealskins were taken on the Pribilofs in 1940, and 95,013 in 1941. The handling of the Alaska fur seal herd on the Pribilofs has probably been the world’s most successful experiment in wildlife administration.

Sea otters formerly abounded along the southern coast and about the Aleutian Islands, as well as in the vicinity of the Commander Islands,
where Bering's shipwrecked crew wintered following their discovery of Alaska in 1741. When they returned to Russia, they took with them some sea otter skins and it was this fur that stimulated Russian activity in the exploration of Alaska and the establishment of trading posts there, for the sea otter fur was at once recognized as being far superior to any other with which the Russians were acquainted. Therefore, the immediate object of further trips to the new-found shores was to obtain skins of sea otters, which at once became a favorite with royalty and commanded high prices. This led to intensive search for sea otters, with the result that they were greatly depleted by the time the United States took over the Territory. In the succeeding years of neglect of the region they were still further reduced, until it was feared that they might become extinct.

During the Russian regime a sea otter skin sold for as much as $2,000. The price has declined since about 1880 because the skins became so very rare that they were no longer in style. The treaty of 1911 between the United States, Great Britain, Russia, and Japan for the protection of the seals also included the sea otters, and under the absolute protection that has since been given them, they have gradually increased from a few widely scattered individuals that remained at that time. If rigid protection is continued, there are excellent prospects of reestablishing these valuable animals along the entire coast.

Sea otters are larger than land or river otters, have less guard hair and an exceedingly dense, soft, plushlike underfur, surpassing in softness and density any other known fur except possibly chinchilla. The coloration is very dark brown or sooty, with a sprinkling of silvery hairs. The animals spend almost their entire time in salt water, only occasionally coming out onto rocks to rest. They feed on a variety of invertebrate marine life, but mainly sea urchins which they obtain from the bottom of the ocean. The sea otter's method of eating these is unique. The animal lies on its back, holds the sea urchin in its hands and breaks it on its chest; sometimes a stone is placed on the breast and the sea urchin is pounded against it. It is also claimed that a sea otter sometimes holds a sea urchin in one hand, and another urchin or a stone in the other hand, and pounds them together, but some able zoologists doubt that sea otters can hold such objects in a single front paw. The chest is a table on which the fragments are handled. Baby sea otters spend much time on their mother's chest while she floats about on her back.

Walruses frequent the ice off the Arctic and northern Bering Sea coasts as well as the remainder of the circumpolar region. They are gigantic seals that are highly specialized in their habits, feeding mainly on clams and other slow-moving aquatic life that they obtain from the
Plate 18

Upper: Scene in forest composed mainly of spruce, in Southeastern Alaska. Photograph by E. S. Shipp.

Lower: Sawmill at Ketchikan, showing the slip up which logs are hauled into the mill. Deer Mountain shows in the background. Photograph by W. A. Langille.

Courtesy Forest Service, U. S. Department of Agriculture.
Plate 19

Upper: Trout fishing in a typical salmon stream of Southeastern Alaska.

Lower: An aerial view of Kootznahoo Inlet, Admiralty Island, Southeastern Alaska, showing a densely timbered area and a small portion of the very irregular coast line.

Courtesy Forest Service, U. S. Department of Agriculture.
PLATE 20


Right: Clearing right-of-way for Alaska highway through spruce and birch forest of northern Canada. Courtesy Public Roads Administration, Federal Works Agency.
Plate 21


Lower: Hydraulic placer gold mining near Fairbanks. The man directing the nozzle provides a scale for the picture. Photograph by Henry B. Collins, Jr., Smithsonian Institution; courtesy National Geographic Society.
ocean bottom. They clamber out of the water onto the ice floes and commonly associate in considerable numbers. Under their extremely thick, rough skin is a thick layer of fat called blubber, which is a reservoir of energy and assists in insulating the body against the rigors of the northern climate. The long tusks of the males and the smaller, shorter tusks of the females are so highly prized for ivory that intensive hunting at one time threatened these animals with extermination. Walruses are an important resource to the Eskimos, for they provide meat, fat for both food and fuel, skin, sinews, bones, and ivory for numerous domestic uses. A large proportion of the cribbage boards and other carved ivory articles made and sold by the Eskimos are from walrus tusks. Walruses are now classed as game animals and can be hunted only under certain restrictions.

The sea lions and hair seals that frequent the rocks along portions of the Alaskan coast are important sources of food for the natives but are of little economic importance otherwise. They are commonly accused of destroying large quantities of food fish, but careful, unbiased studies have generally failed to substantiate the charges. However, at some places and under certain conditions they do kill many salmon.

Several species of whales and porpoises inhabit the North Pacific, Bering Sea, and the Arctic Ocean, and from about 1848 to 1900 were of great economic importance. Indeed, when baleen or whalebone corset stays and buggy whips with baleen cores were in vogue, and whale oil was used in lamps, in the manufacture of soap and for other purposes, the hunting of whales was a thriving industry. Hundreds of whaling vessels frequently were in the Arctic Ocean off the Alaska coast in a single season. With the substitution of steel stays in corsets, the coming of the automobile, and the use of other oils, whaling suffered a sharp decline in the Arctic, where whales had become seriously depleted. It was, however, carried on to some extent in that region and farther south for some years longer. Whaling stations, both ashore and afloat, were operated at various points along the coast for the capture of whales and processing of the oil, meat, and baleen. Whaling practically ceased along the Alaska coast by 1925, and some of the vessels and equipment were moved from Alaska to the Antarctic.

Land Fur Bearers

Seventeen different kinds of land fur-bearing animals yield annually more than 376,000 skins with a total value of more than $2,300,000. The animals that furnish this crop are mink, foxes—red, cross, silver, blue, and white—beaver, muskrat, lynx, marten, land otter, ermine, wolf, wolverine, coyote, polar and black bears, hares, marmots, and squirrels.
All the species are rather widely distributed, and the fur industry affords an important source of income directly or indirectly to nearly all the inhabitants of the Territory.

The raising of fur-bearing animals, particularly blue foxes, marten, and mink, has developed into a thriving industry and is one that can be indefinitely expanded, for, in the words of one of the early promoters of stock-selling schemes for fur farming, "Fur wearers are breeding faster than fur bearers." Fur farming probably offers better opportunities of expansion than any other industry in the Territory, for Alaska possesses the necessary elements of climate and food supply, and the world market for furs is practically unlimited. Furs have a very high value per pound, so that their transportation is a minor problem; also, they keep well and so can be held until the market is favorable.

On the Pribilof Islands the Federal Government is operating a highly successful blue fox farm in addition to its primary duties of administering the seal herd and caring for the natives. In 1941, 834 fox skins were taken on these islands. The Territorial Government, with aid from the Federal Government, operates an experimental fur farm at Petersburg to study problems of raising fur bearers, just as livestock experiment stations have been operated in the States for many years.

**Game Mammals**

The game mammals of the Territory, such as the caribou; mountain sheep; moose; deer; mountain goat; big brown, grizzly, and black bear, are among the leading attractions to the nonresident, whether he be big-game hunter or tourist.

Caribou occur in large bands that range over much of the Territory and follow rather definite migration routes. During these migrations they congregate in such numbers that many thousands may be seen in a single day from a given point. They are the North American counterpart of the Old World reindeer. However, they are finer, larger animals than the reindeer and have not been domesticated, although a few individuals have been mixed with the reindeer herds in an effort to improve the reindeer strain. Both sexes of the caribou have horns which they shed once a year during late winter; new antlers begin to grow early in the spring. Contrary to the popular belief that they eat only reindeer moss, caribou, like deer, actually eat a wide variety of grass and herbaceous plants and shrubs. These animals are of great importance to persons living in remote regions where domestic supplies of fresh meat cannot be obtained; the skins are invaluable to the natives and are also used to some extent by whites.
Reindeer, the Old World relatives of our caribou and very similar to them, were brought into the Territory from 1891 to 1902, primarily to provide herds for the benefit of the natives of the coastal regions where caribou are not regularly found. These introductions were very successful, and over a period of years herds were developed and maintained by the natives, at first under the supervision of the Bureau of Education, now by the Indian Service. The animals were slaughtered as needed to provide food and skins for the natives, and later the herds increased to such an extent that their meat could be sold for shipment away from the immediate vicinity of the native settlement where it was produced. Several progressive white men obtained reindeer and bred up large herds, but they encountered so many difficulties in marketing the animals that they finally sold the stock to the Government, which turned the herds over to the natives. One herd of 1,500 animals was sold to the Canadian Government and was driven across country from the Kobuk region to the Mackenzie Delta, the drive requiring 4 years to complete. Reindeer meat from the Alaska herds has at times been available in markets in the States.

Moose occur over much of the Territory, and many winter on the west side of Kenai Peninsula. Bulls attain a weight of more than 1,400 pounds and an antler spread of more than 6 feet.

The beautiful white Dall mountain sheep occur on the Alaska Range, the Brooks Range, the Kenai Peninsula, and the St. Elias Range, with a few in the vicinity of the Upper Yukon.

Mountain goats inhabit the coastal region from Southeastern Alaska to Kenai Peninsula.

Big brown and grizzly bears together inhabit practically the entire Territory, with the exception of the islands of the southern portion of Southeastern Alaska and the Aleutian Chain beyond Unimak Pass. The best known are the big brown bears, which occur on the Kodiak-Afognak Island group, Unimak Island, the Alaska Peninsula, islands in the Prince William Sound region, and Chichagof, Baranof, and Admiralty Islands in Southeastern Alaska. Very similar forms occur on much of the adjacent mainland. These are the largest carnivorous animals. When salmon are in the streams, the bears feed largely on them. At other times they live on ground squirrels and other small animal life, berries, roots, and grasses. These bears do not generally seek trouble, but they have acquired a reputation for ferocity because men have occasionally been killed by them, either when a female bear thought the man meant harm to her young, or when man and bear met unexpectedly on a narrow trail.
Polar bears inhabit the Arctic coast and the Arctic ice pack, as well as parts of Bering Sea, including St. Matthew Island, being found far from land. They feed on seals, fish, and any other flesh they can find.

Black bears inhabit most of the Territory except the extreme north, the Alaska Peninsula, and the Aleutian Islands, Kodiak-Afognak Island group, and Admiralty, Baranof, and Chichagof Islands. They are classed as fur-bearing animals.

Sitkan black-tailed deer, close relatives of the Columbian black-tail, inhabit most of Southeastern Alaska and have been introduced onto islands in the Prince William Sound region and on Kodiak.

Musk oxen were native to Alaska but were exterminated early in the white man’s occupancy of the Territory. Thirty-four individuals obtained in Greenland were placed on Nunivak Island in Bering Sea in 1930 and by 1942 the herd had increased to more than 90 animals.

Remains of the American bison, commonly called buffalo, have been found in Alaska, but none are known to have existed there since the country came under the observation of white man, although there is a legend among the Indians that many of them were killed in a big snow. In 1928 a herd of 23 bison from the National Bison Range in Montana were introduced into the big Delta region southeast of Fairbanks. By 1942 this herd had increased to nearly 300, and the animals had demonstrated their ability to stand the climatic conditions and thrive on the food. It probably did not require much adaptation on their part, for the climate of the region in which they were placed is little if any more rigorous than the climate of the range inhabited by most of the northern bison, and the vegetation is more luxuriant than that on much of their native range.

Wapiti, commonly called elk, were not native to Alaska, but a herd of eight Roosevelt elk from the Olympic Peninsula, Washington, liberated on Afognak Island in 1927 had increased by 1942 to about 200 animals.

**Birds**

Immense numbers of ducks, geese, and swans of several species breed abundantly throughout practically the entire Territory. The ducks include pintail, mallard, widgeon, green-winged teal, greater and lesser scaups, shovelers, canvasback, harlequin, oldsquaw; American, surf, and white-winged scoters; American and Barrows goldeneyes; Pacific, king, spectacled, and Steller’s eiders. Among the geese are three subspecies of the Canada group, and lesser snow, white-fronted, emperor, and brant. Whistling swans also occur.
These birds are hunted locally in season, and many of them migrate to the States. Many shore birds that occur in the States likewise have their summer homes and breeding ground in Alaska. One, the Pacific golden plover, nests in Alaska and winters from the Hawaiian Islands southward in the islands of Polynesia, making a nonstop flight between the North America mainland and the Hawaiian Islands. Various species of grouse and ptarmigan, the latter a grouse that turns white in winter, are found throughout much of the Territory, and in some sections add materially to the local food supply. The rugged seacoasts adjacent to waters teeming with a wide variety of fish and other aquatic life form an almost continuous rookery for numerous sea birds of many types, including auklets, murrels, guillemots, puffins, cormorants, shearwaters, gulls, and kittiwakes. Among the birds of prey the bald eagle, emblem of the United States, is very abundant, particularly along the coast, where it feeds mainly on fish. Other birds of prey are a few golden eagles in the interior mountain ranges, gyrfalcons, snowy owls, great gray owls, great horned owls, hawk owls, pygmy owls, and screech owls, goshawks, red-tailed hawks, duck hawks, rough-legged hawks, sparrow hawks, sharp-shinned hawks, pigeon hawks, and marsh hawks.

Song and insectivorous birds of many different kinds breed in Alaska and migrate south, some as far as the States, where they serve a useful function as consumers of weed seeds and insects.

The fisheries and wildlife resources of Alaska are of such vital importance to the residents and of such great value that they are now given careful and vigorous protection under laws enacted by Congress and administered through the United States Fish and Wildlife Service and the Alaska Game Commission. Local sentiment is so strong for the protection necessary to insure perpetuation of adequate supplies that vigorous enforcement is carried out and heavy penalties are assessed for violations.

TIMBER

Practically all the commercial timber in the Territory occurs in the Tongass and the Chugach National Forests. The former comprises almost all of Southeastern Alaska, and the latter is in the Prince William Sound region. The total area of these forests is 20,880,000 acres, or slightly less than 6 percent of the total area of the Territory. Timber occurs elsewhere but not in such sizes as to be of great commercial importance, although it is extensively used locally for fuel, the building of log cabins, and in mines, and some of it is sawed into lumber. The dominant tree of the commercial timber type in the two forests is western hemlock, with
Sitka spruce a close second. Western red cedar and Alaska yellow cedar are restricted to small areas but are abundant locally and make choice woods for certain purposes. At present most of the commercial cutting of timber is consumed locally for building purposes, the construction of docks, making of salmon-packing cases, and other miscellaneous uses. During the present war, just as in the last war, certain types of Sitka spruce are used for airplane and other specialized construction. Careful studies made by the Forest Service indicate that several large pulp mills could operate continuously in the harvesting of the natural products of the forests. This is a future development that can be anticipated when economic conditions call for the utilization of these products.

**AGRICULTURAL POSSIBILITIES**

When lands close to the large consuming markets of the States are no longer able to supply the demand, Alaska will probably be able to enter an era of extensive agricultural development. However, until she can deliver her products to these markets at prices that will compete with those of crops raised in the States, the agricultural development will probably be limited to that sufficient for local consumption. Since people no longer plan to live almost entirely upon products of their own farms, it is scarcely likely that a large agricultural population will settle in Alaska with the idea of living solely off their own farms. If many widely scattered mines are developed, there will undoubtedly be an increase in agriculture in tributary regions, and perhaps farming and fur farming can be combined.

It has been amply demonstrated on numerous occasions and in many different localities that Alaska can produce a considerable variety of agricultural crops. Those best adapted are hardy vegetables, grains, and some fruits, particularly strawberries. Both quality and yields are generally good, and as further agricultural work is carried on, no doubt additional strains will be developed that will be even better adapted to the local conditions. Considerable progress has already been made along this line. The crops that have been demonstrated as successful producers in the Territory are potatoes, radishes, lettuce, mustard, cabbage, turnips, rutabagas, kale, brussels sprouts, broccoli, cauliflower, carrots, beets, peas, wheat, rye, oats, barley, and hay. Bush fruits, such as currants, raspberries, and gooseberries, do well. Livestock possibilities have been demonstrated. Dairy cattle will supply local needs; pigs, sheep, chickens, turkeys, and ducks have been raised. Sheep raising is one of the most promising potential industries for large areas of the Territory.
The United States Government for several years maintained agricultural experiment stations at Fairbanks, Sitka, Kodiak, and Matanuska. At present the Territorial Government with aid from the Federal Government operates stations at Fairbanks and Matanuska. These have made studies to develop varieties of plants best adapted to the conditions in the locality, and when there is sufficient demand for such agricultural crops as can be raised in this region, there are promising opportunities for growing them.

Alaska’s fish, fur, and game crops will yield, or can be made to yield, financial returns per acre comparable to yields of agricultural crops from lands generally considered to be more favorably located, and there is an unlimited market for these Alaska products, too, for many of them cannot be produced in any other part of the world.

If a skin from a fox that ranges over a given area of land will sell for as much as, or more than, the cultivated crops that would be raised on the same area, and the fox skin can be produced, harvested, and marketed at no greater cost than the other types of crops, it is as legitimate a crop as those that require cultivation. In many portions of the Territory the fish, fur bearers, game, and waterfowl are actually of far greater value than any other crops that might be produced on the lands. If there is a better demand for fur-bearing animals, game, and fish than there is for cultivated crops, the former should be raised in preference to the latter. It is therefore almost inevitable that the wildlife will for a long time remain the dominant crop.

MINERALS, OIL, WATER POWER

The quest for gold brought Alaska to the attention of the people of the United States and the world at large and really led to the opening up of the Territory. There are, however, numerous other minerals, as well as coal and oil; these include copper, silver occurring with the copper, platinum, tin, lead, antimony, tungsten, palladium, zinc, quicksilver, iron, graphite, asbestos, chromite, manganese, mica, molybdenite, sulfur, barite, gypsum, limestone, and peat. Many of these minerals are known to exist in fair quantities.

The gold deposits are of two types: the placer deposits, wherein the gold is scattered through sand or gravel, and the lodes, in which the gold is imbedded in more or less solid rock.

The placer deposits were first worked by individuals or small groups, mainly along streams, where they “panned” or sluiced gold, and shafts were sunk to bedrock and the gold deposits garnered. As better facilities
became available for the mining of the placer gold, powerful hydraulic streams were employed to wash down hillsides or to wash gold-bearing gravels in the stream beds.

The older fields, where the remaining gold was too scant for profitable mining by the old methods, were later worked by dredges that handled large quantities of earth economically. They dug their own lakes in which to float, excavating ahead of them and depositing their refuse earth behind or to one side of them. The frozen earth was thawed by driving pipes to bedrock at intervals and pumping water into the ground. This method led to large operations in the interior and elsewhere.

Large gold lode mines such as the Treadwell, Mexican, Ready Bullion, Alaska Gastineau, and Alaska Juneau were developed in the Juneau-region. The first three are now closed owing to exhaustion of the ore body. The lower levels of the Treadwell mine were 3,000 feet below sea level. Numerous other gold lode mines were developed at various localities in the Territory.

The Kennecott copper mine in the Copper River drainage basin and the Latouche copper mine on Latouche Island in Prince William Sound were very important producers for many years until the ore bodies were worked out. The mining of the other minerals has been carried on to a greater or lesser degree throughout the Territory wherever deposits have been found, so that in the aggregate there are many small mines and prospects. Some have been worked out, and others have been closed down from time to time because of economic conditions.

The picturesque prospector, so prominent in the literature and lore of the Territory, still exists in practically all regions and from time to time discovers new mineral deposits. If a find appears to be exceptionally promising or rich, it frequently serves as a stimulus to induce more active prospecting in adjacent and more distant portions of the Territory, so that there is a more or less recurrent series of waves of prospecting and finding of minerals. To predict how many more important deposits will be found, of course, would be pure conjecture.

Bituminous, anthracite, and lignite coals all occur, some in thick veins of considerable extent. Mines have been opened to supply the local needs.

Marble that compares favorably with the world's best has been extensively quarried and widely exported. Petroleum seepages are known to occur in widely scattered areas and perhaps indicate deposits that may eventually be utilized. A few small wells were operated near Katalla from 1913 to 1933. At places in the Arctic there are on the surface of the ground pools of viscous oil or tar similar to the tar pools that at one
time existed near Los Angeles, in which the animal life of ancient times was mired and preserved. Alaska animals also sometimes die in these pools.

Mineral and hot springs, some of them apparently of therapeutic value, occur at various places in the Territory. The natives utilized many of these long before the white man came to Alaska.

In practically all the mountainous region water power can readily be developed, for there is probably sufficient precipitation even in the driest portion of the mountains, and reservoir sites are plentiful. In South-eastern Alaska and in the Prince William Sound region, extensive studies have been carried on to ascertain the water power that might be developed for use in mine mills and in paper-pulp mills for the manufacture of paper from the timber of the surrounding regions. Some of the mines have developed water power, and the coastal towns of Ketchikan, Juneau, and adjacent small communities have adequate electric power at rates that compare favorably with the lowest of those available in the States.

DEVELOPMENT

GOVERNMENT

Like other territorial possessions of the United States, Alaska has a type of government that is partially local and partially Federal, and is definitely different from the government of the States. The Governor is appointed by the President with the approval of the Senate and functions through the Department of the Interior of the Federal Government. He is thus a Federal officer and largely represents the Department of the Interior. Federal agencies having work in Alaska, such as the Alaska Railroad, Forest Service, Fish and Wildlife Service, Geological Survey, Office of Education, and others, generally maintain headquarters at Juneau, the capital of the Territory, and some have main offices or sub-offices elsewhere in the Territory. Alaska elects a delegate to the United States Congress every 2 years; he represents the Territory, but has no vote.

The Territorial Legislature comprises a Senate and a House of Representatives. The Senate consists of 8 members—2 Senators elected every 4 years by the people from each of the 4 Judicial Divisions of the Territory. The House of Representatives consists of 16 members—4 Representatives elected every 2 years by the people from each of the 4 Judicial Divisions. The authority of the Legislature is limited, but it constitutes a preliminary step toward self-government. Offices and agencies that have been authorized by the Territorial Legislature and for which it levies taxes and appropriates maintenance funds are: Auditor, Treasurer, At-
torney General, Highway Engineer and Superintendent of Public Works, Departments of Education, Mines, Labor, Health, Public Welfare, the University of Alaska, and various boards and commissions.

The Courts are all Federal, except for the Municipal Courts maintained by the incorporated towns. The Territory is divided into four Judicial Divisions. Southeastern Alaska as far west as Yakutat constitutes the First Judicial Division; the southern coast region from Yakutat westward to the end of the Aleutian Islands and roughly northward to the summit of the Alaska Range, and the Bristol Bay region, the Third Judicial Division; the interior and eastern Arctic region, the Fourth Judicial Division; and the remaining portion, consisting of the Bering Sea coastal region north of Bristol Bay and the western Arctic coast, the Second Judicial Division. Headquarters of these Courts are, respectively, at Juneau, Valdez, Fairbanks, and Nome, although as the areas of jurisdiction are very extensive, the Court frequently, and in some cases regularly, sits at other places.

In addition, in most communities there are United States Commissioners, whose functions are roughly similar to those of Justices of the Peace. United States Marshals and their deputies function in direct connection with the Courts and the United States Commissioners. There are no Territorial Courts.

EDUCATION AND SOCIAL LIFE

Churches of many denominations are scattered throughout the Territory. Wherever the Russian influence was strong, the principal church of the natives is the Russian Greek Catholic Church. Thriving missions, schools, and hospitals exist for the natives, or natives and whites. The two general school systems in the Territory are the native schools, operated by the Federal Government through the United States Indian Service, and the Territorial schools, operated by the Territorial Government in conjunction with the incorporated towns. The Territorial school system compares favorably with that of the States and has the customary 8-year grade schools and 4-year high schools. The native schools generally go only to the eighth grade. The Territory also maintains the University of Alaska at Fairbanks, which is striving to train students along lines that will be most helpful to future citizens of the Territory, although a general liberal education course is also included.

Many communities have hospitals, operated by the Catholic Church, the Episcopal Church, the United States Public Health Service, or by private enterprise.
Community spirit and patriotism are exceptionally high in Alaska. The people provide their own entertainment, care for their unfortunates, and want neither charity nor paternalism.

TRANSPORTATION AND COMMUNICATION

Alaska is no longer the remote, inaccessible place it was a generation ago. In the early days traffic to and from the Territory was by sailing vessels, from ports of the west coast of California, Oregon, Washington, and British Columbia. Steamers later came into common use, although sailing vessels still continued to be used to some extent. With the development of the internal combustion engine, "gas boats" became common and greatly increased transportation facilities along the coast and on the streams. The development of the Diesel engine provided somewhat more reliable and larger power plants for larger and sturdier vessels, and of course steamers continued to ply the coastal waters and a few still traverse the Yukon system.

Travel to the Territory during recent years has been by passenger steamer or small boats usually departing from Seattle, Washington, or Vancouver, British Columbia, or other ports along this coast. San Francisco is still a point of departure for some sailings.

The White Pass and Yukon Railroad, the first to provide local transportation, extends from Skagway on the coast to Whitehorse, Yukon Territory, on the Yukon drainage, a distance of 111 miles. The Alaska Railroad has about 500 miles of track from its three salt-water termini, Whittier, Seward, and Anchorage, on the southern coast, to Fairbanks in the interior. The Copper River and Northwestern Railroad formerly operated from Cordova to the Kennecott copper mine.

Prior to the building of the new highway to Alaska, the road system consisted of the 372-mile Richardson Highway from Valdez on the coast to Fairbanks; an extension of 165 miles from Fairbanks to Circle; and various short lengths of road from settlements to local points of interest.

Away from these few roads in the interior, the transportation has been almost entirely by dog teams in winter and by small river boats in summer, except for the few river steamers that have plied between the principal points on the Yukon drainage system. Because of the slowness of these means of transportation, it was inevitable that the airplane would find strong favor in the region, for in a few hours at most, a plane can make trips that would take weeks or even months by dog team or small boat. Fortunately, the interior climate is well adapted to the general use
of planes, and the development of aviation in Alaska therefore kept pace with development in the States and elsewhere; indeed, the airplane is relied on by Alaskans to a far greater extent than in the States. Air transportation between Alaska and the States has been an actuality for some time, and now, with the great development in air fields and aviation in general, even the most remote portion of Alaska is only a few hours from the States.

For a long time the need for a highway to connect Alaska with the highway and railroad systems of the United States and Canada has been recognized. Various routes were discussed, but no real progress was made toward the selection of a route or the construction of a road until the strategic importance of Alaska came to the front so forcibly that it seemed imperative to build a roadway that would permit the transportation of defense materials to the Territory if naval warfare should interfere with shipping along the southern coast. This situation brought about the order for the construction of the highway to Alaska which connects at Dawson Creek in east-central British Columbia, Canada, with the railway and highway facilities of Canada and the States, and extends northward and westward to connect with the Alaskan highways and railways. The route lies east of the exceedingly rugged coastal mountains, thereby obviating many construction problems. The building of the road along this route proceeded so rapidly that we had a roadway through to Alaska almost before the people of the United States realized it, and the work will go down in history as a remarkable feat of engineering and organization. Of course, the road is not a boulevard, but it serves the military needs and can be developed into an entirely satisfactory highway. After the war it will undoubtedly be a highly popular drive as by this route, with its connecting roads, it will be possible to go from the States through western Canada and the Klondike region to Fairbanks, and then connect with the Alaska Railroad, or to go to the coast by way of the Richardson Highway ending at Valdez. Such a trip could be cut short by connecting with the railway for Skagway, or by using the highway to Haines on the coast.

The remoteness of Alaska and the slow transportation that formerly existed, particularly away from the coast, caused the radio to become very popular. As a result, Alaskans have developed utilization of the radio much as they did the airplane, so that now there is scarcely a community of any size that does not have its radio receiving station. There are also many transmitting stations operated by the United States Signal Corps, the Alaska Territorial Government, canneries, mines, the larger commercial concerns, and private individuals. Alaska is therefore now
almost as well provided with transportation and communication facilities as many regions in the States.

CONCLUDING REMARKS

Contrary to popular misconceptions, Alaska is not a forbidding, inhospitable region. It has a wide diversity of topography and climate, and much of the Territory is unsurpassed in beauty of scenery and as a recreational area. Newcomers rarely like Alaska at first, but if they stay as long as a year, they almost invariably become enthusiastic about the country and have no desire to leave. It is difficult to define Alaska's charm but one potent factor in its appeal is the fact that within a few minutes' walk from the center of the largest town, one can be on the public domain, free to wander at will without fear of trespassing and with very few restrictions. This sense of untrammeled freedom, coupled with the unsurpassed scenery of many portions of the Territory, the great friendliness of the people, and the general atmosphere of genuineness, form the basis for a fascination that few can resist when they have been there long enough to appreciate these attributes of the country.

The white population of Alaska is decidedly cosmopolitan. Every region of the United States is represented, and many foreign countries. Among those of foreign birth, Norwegians, Swedes, and Finns are in the majority. The last census, begun September 2, 1939, recorded a total population of 72,524, of which 39,170 were whites and 32,458 natives, the remainder of other races. Among the whites, 8,786 were foreign-born. There were 5,559 Aleuts, 15,576 Eskimos, and 11,283 Indians of the southeastern and interior regions. Illiteracy is low among whites in Alaska, and many of the natives can read and write, some having attended college.

In spite of the fact that the population is very sparse and that the Territory is still considered a frontier, modern conveniences are enjoyed in a surprisingly large proportion of the homes, for the Alaska population includes many people who have enjoyed all the comforts and conveniences of the States and who live in Alaska by choice. Among these are mining engineers and other professional men, including many doctors.

In the present stage of development of the Territory, extremes of poverty and opulence are lacking. The average standard of living of Alaskans is higher than that of the average resident of the States, because the sparse population is well within that which can be supported by the natural resources, and the keen, ruthless competition of thickly populated regions is almost wholly absent in the Territory. Anyone who is willing to work can ordinarily find ways to occupy himself profitably.
In Alaska, people are accepted for what they are, not for what their ancestors or connections may be. This, together with the pioneering spirit of the country, is responsible for the sturdy character of the people. Alaskan conditions are a rather effective sorting device. People of all types appear in the Territory, but the weaklings, parasites, and misfits leave, so that those who stay show a high average of character and stamina. From such stock, a new generation of native-born Alaskans is just coming into its majority, who bid fair to be worthy successors to their good ancestors.

A great deal has been written and said regarding the future of Alaska, particularly with relation to an increase in the population, which in turn would call for the exploitation of minerals, oils, and timber, and the cultivation of lands. Even though this never takes place on the scale that some advocate, Alaska can nevertheless continue to prosper through development in a field in which no other part of the world is a close competitor. Lands that cannot produce crops, minerals, oil, or timber, can, if properly administered, yield annual crops of furs and game, and afford recreation unsurpassed in any other region, and equalled in only a few.

Alaska is a keystone in strategy relating to the protection of the Americas, for it is the logical point for an enemy to attack in order to obtain a base for further aggression in North America. Furthermore, it is a treasure house of food fish, minerals, timber, fur-bearing and game animals, and other natural resources much needed by the Japanese. Also an obvious base for our own offensive operations, Alaska is truly America's continental frontier outpost.

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