

## CHAPTER IV.

### THE SECOND OR KADIAK DISTRICT.

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To convey an adequate idea of the location and dimensions of the second or Kadiak district it becomes necessary to describe its boundaries.

This district, as defined for purposes of enumeration and investigation, begins at the point of intersection of  $60^{\circ}$  north latitude with  $141^{\circ}$  east longitude. From this point the line follows the same meridian to its point of intersection with  $63^{\circ}$  of north latitude. Thence the northern boundary of the district runs in a westerly direction to the point of intersection of latitude  $63^{\circ}$  with longitude  $148^{\circ}$ . From this point the western boundary of the district follows the chain of mountains known as the Alaskan range, describing approximately a diagonal line in a southwesterly direction, terminating at the point of intersection of longitude  $159^{\circ}$  east and latitude  $56^{\circ}$  north.

The North Pacific ocean forms the southern boundary of the district, including within its limits the Kadiak group of islands, as well as the Semidi group, the island of Chirikof, and Mitrofanian.

Proceeding westward along the coast from the meridian of Mount St. Elias the first people met with in the district are found settled in the vicinity of Cape Yaktag. The settlement here consists of single dwellings scattered along many miles of coast. The houses are now occupied only during the winter season. With the advent of spring the whole population embark in their large wooden canoes, and, passing by the inaccessible ice cliffs of the Bering glacier, they make their first camp at Cape Suckling. Here they fraternize with another branch of their tribe, who have their homes and winter hunting grounds on the lakes and streams of the level strip of land between the St. Elias alps and the coast of Controller bay.

After spending a few weeks together hunting and feasting, the Yaktag people paddle or sail across the wide but shallow strait which separates Kaye, or Kayak, island from the mainland. This is another favorite hunting ground, where until a few years ago a party of Norwegian hunters and traders maintained a station, which the fierce competition from stores connected with canning enterprises forced them to abandon.

Glancing at the map of Alaska to ascertain the position of Kayak island, we find it difficult to believe that this point of all others should have been the first land sighted by Vitus Bering on his eastward voyage from Kamchatka in search of the American continent; but such is the undeniable fact. It was here that the Russian explorers, who had long since become separated from their consort and who had almost despaired of ever seeing land again, were gladdened with the sight of towering snow-covered peaks, and on approaching nearer discovered a wooded, hilly island, with a prominent rocky cape at its southern extremity, which they named Cape St. Elias, the name of the saint of that day in the Russian calendar.

Near the northern end of Kayak island we find the small, low island of Wingham, which a few years ago was brought into temporary prominence by the establishment of a salmon cannery. The whole plant, together with the trading store, was subsequently removed to one of the many mouths of Copper river for the greater convenience of fishing. This cannery, which employs between 40 and 50 white men and 50 Chinamen, also offers to the Yaktag tribe an opportunity for remunerative labor throughout the fishing season. They come here each successive season, bringing with them their families and most of their household goods, to sail homeward again in August or September, laden with the proceeds of their labor, to enjoy a season of ease and plenty.

The Yaktag people, who have also been known by the local name of Chilkah, were still quite numerous 10 years ago; now there are scarcely 100 of them left.

At the mouth of Copper river, with its delta of tidal marsh and wooded slopes overhung by barren, precipitous mountains, we find but 2 permanent villages, Alaganak and Ighiak. The former is situated upon the westernmost arm of Copper river, about 20 or 30 miles from the coast. Ighiak stands upon the north bank of a broad tidal channel forming the outlet of Ighiak lake into Copper river. The lake is separated from an arm of Cordova bay by an isthmus less than half a mile in width. Their situation affords these villages unimpeded communication through sheltered inland channels, and taking advantage of this circumstance their people intermingle freely. These natives, numbering less than 200, form a distinct subdivision of the Thlingit family, their differentiation being caused by persistent intermixture with their Eskimo neighbors for many generations. The houses in these 2 settlements are constructed altogether after the Thlingit model, large, square structures, built

of huge logs and covered with bark, and set in a single row along the shore, each with a platform in front, upon which the inhabitants pass much of their leisure time in the summer. The Thlingit wooden canoe forms their principal means of transportation. Of these crafts two kinds are in use among the Ugalentz, the large traveling canoe with prominent uprising prow, resembling in shape those of the Yakutat tribe, from whom they are frequently purchased, and the smaller hunting or fishing canoe, also of wood, easily propelled by one man and of exceedingly graceful shape, with a ram-like protuberance at the bow, which they claim facilitates the ascent of rapid streams.

As fish, game, and fur-bearing animals abound in this vicinity, supplemented by additional food supplies in the shape of wild fowl eggs, berries, and edible roots, these natives are comparatively prosperous, and this condition has engendered among them a spirit of independence verging closely upon insolence in their intercourse with whites. This spirit manifests itself among the Thlingit only of all Alaskan tribes.

One of the favorite hunting and fishing grounds of the Ugalentz tribe, and also a point of rendezvous with their Yaktag neighbors, is in the vicinity of Cape Martin, near the easternmost mouth of Copper river. A small trading post has been located here for many years.

In addition to their other sources of wealth, the Ugalentz people formerly enjoyed the position of middlemen between the Athapascan natives of the upper Copper river and the traders on the coast. With the advent of the American pioneer among them this became impossible, and the Atnatena, or Atnas, now pay periodical visits to the seashore, doing their own trading at the numerous fur and fishing stations.

The Ugalentz also enjoy the privilege of laboring for the salmon canneries throughout the fishing season. 2 of these establishments, owned by San Francisco corporations, are located side by side upon the narrow isthmus separating Ighiak, or Odiak, lake from Cordova bay. Part of their supply of fish is obtained from the lake and its outlet by means of small steamers and then transported to the canneries over two parallel tramways constructed by the companies. It is necessary, however, in order to make up the quantity required for the season's pack, to send out steam tenders to outlying tributary stations located in the bays and fiords of Prince William sound, some of them 80 and 90 miles distant.

Quite a settlement of Ugalentz has sprung up about these canneries, but their houses are generally deserted during the winter for their own homes.

To a limited extent the Ugalentz Thlingit also make use of the kayak, or Eskimo canoe, but this is done only for the purpose of sea-otter hunting, and the canoes are purchased from their Eskimo neighbors. A few of these canoes can also be found among the Yaktags or Chilkahs living on the shores of Controller bay, and even among their fellow tribesmen beyond Cape Suckling. Here also, however, the use of the kayak is confined to the pursuit of the sea otter.

Proceeding westward from the Odiak salmon canneries through the narrow and rock-strewn channel between the islands of Hawkins and Hinchinbrook, and turning southward around the latter island, we find the central point of call, the trading post and post office, at the settlement of Nuchek. This place, which was visited more than a century ago by the earliest Spanish explorers and by Messrs. Meares, Portlock, Dixon, and Vancouver, and which was permanently settled in 1787 by the Russian fur hunters under the leadership of Baranof, who fought one of his numerous battles on this very spot, now contains a population of 120 Chugachigmiut Eskimo, a few creoles, and a white family.

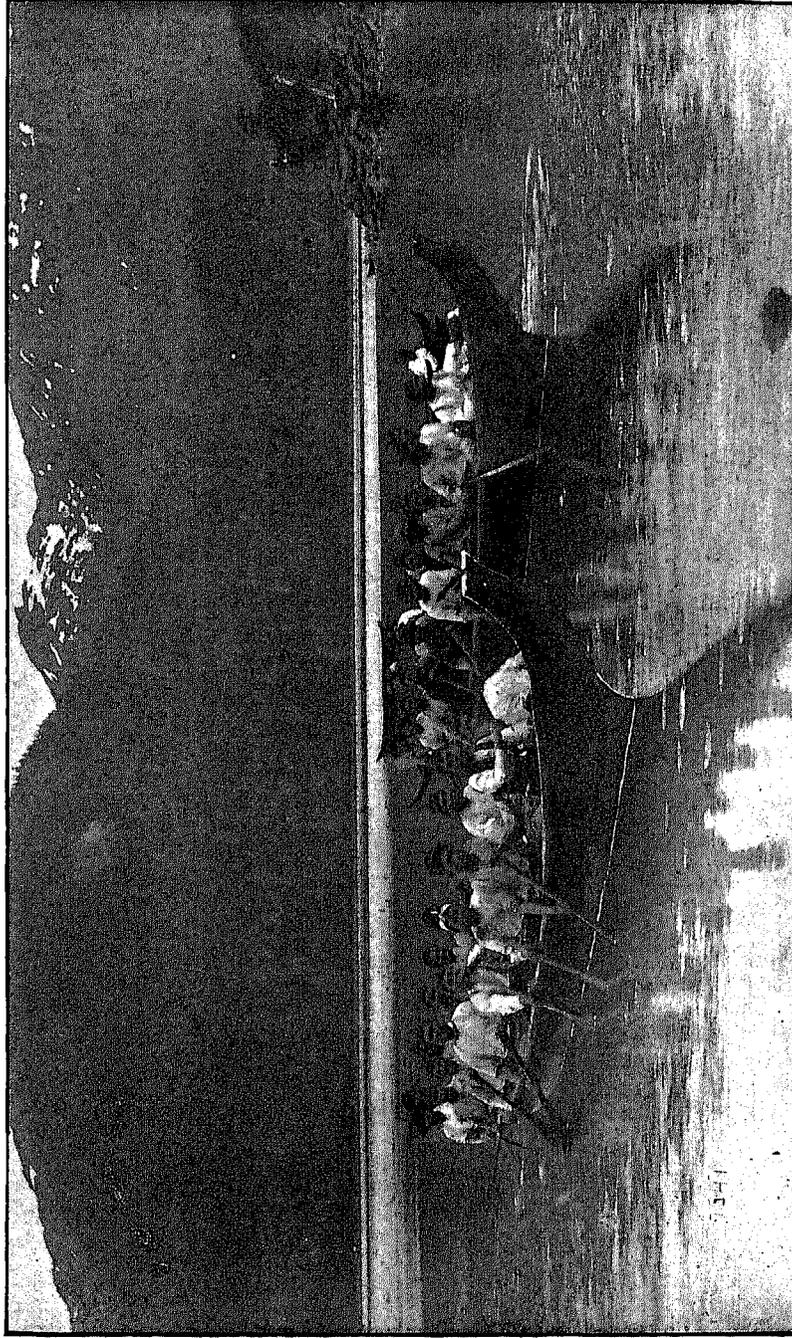
The hunting and trapping of fur-bearing animals, of which the most valuable, the sea otter, has become nearly extinct, form the only source of revenue open to the inhabitants of Nuchek. Of food, such as the country affords, there is no dearth. The waters of the bay teem with cod, herring, and halibut; the streams with salmon in their season, while the forests and mountains afford an abundant supply of bear, marmot, and ptarmigan. Immediately outside of their sheltered bay, in the strait separating their island from that of Sukluk, or Montague, the Nuchek people hunt hair seal, which furnish them with covering for their canoes, meat, blubber, and oil. The latter article they prize as highly as any of their Eskimo brethren, and they partake of many curious messes composed of dry seaweed, bark, and lint of various shrubs, which can have but little nutritive value aside from serving as a vehicle for the much coveted oil.

To the northward of Nuchek, upon the wooded shores of Port Fidalgo and Port Gravina, we find the settlement of Tatitlak, inhabited by 53 Chugachigmiut and between 30 and 40 Russian creoles. These people also depend almost wholly upon the proceeds of hunting and trapping as a source of revenue, obtaining a few additional dollars by selling fish to the canneries during the season. Their natural means of subsistence are the same as those of the Nuchek people, but they obtain no sea otters, while the close vicinity of ice-discharging glaciers attracts the hair seal in large numbers. Within a few miles of Tatitlak is the harbor of Snug Corner cove, used by the early English explorers as a wintering station, and the scene of the sufferings of John Meares and his scurvy-stricken crew amid hostile natives in the winter of 1787.

To the westward of Tatitlak, near the mouth of Port Valdez bay, we come to the village of Kanikhluk, inhabited by 73 Chugachigmiut, who lead an isolated existence, depending entirely upon the resources of their immediate neighborhood. Every bay and fiord in this part of Prince William sound has one or more glaciers at its head, discharging fragments of ice which the tides carry out to sea. Among these floating fields of ice the hair seals like to congregate and play, consequently oil is abundant and the people of Kanikhluk are proportionately happy.

Eleventh Census of the United States.  
Robert P. Porter, Superintendent.

Alaska.



THE THLINGIT CANOE.

The only other permanent native settlement on Prince William sound is Ingamatsha, on the island of Chenega, lying close under the foot of the towering peaks which line the eastern shore of the Kenai peninsula. This village is inhabited by 71 Chugachigmiut and 2 Norwegians, who have established a trading station, at the same time attending to one of the tributary fishing stations of the Odiak canneries. The natural resources from which the natives draw their subsistence are quite as abundant here as on other parts of the sound, augmented, however, by the presence of numerous "rookeries" of sea lions.

A few scattered habitations can be found along the eastern shore of the island of Montague. They are not permanently occupied, however, being the abode during the winter of a small number of white sea-otter hunters, who follow other pursuits in the summer season.

The scenery surrounding the landlocked waters of Prince William sound is grand almost beyond description: a semicircular amphitheater of rugged mountain peaks clothed in the white of eternal snow, but most delicately tinted here and there with the azure blue of glacier ice which fills every cavity and crevice. The immediate shore line along the foot of these mountains is cut up into innumerable coves and fiords, presenting rocky headlands of the most fantastic shapes. The rocks, again, are covered and fringed with dark green masses and lines of virgin spruce forest, darkly reflected in the transparent waters below. Hundreds of islets, clad in a light green covering of moss and grasses, shaded by occasional groves of coniferous trees, rise from the blue surface in every direction. In the northern section of the sound the glistening bergs and fragments of glacier ice, tinted with the most brilliant blue, with seals sporting and splashing among them, lend additional variety to a scene which is still almost unknown to civilized man. This is a fair-weather picture. Let the reader imagine that he beholds a gathering of rolling mist around the lofty summits of the eastern mountains, and within less than 30 minutes a revolution will take place in the smiling scene of beauty just beheld. Like mighty armies clad in gray the clouds sweep down the mountain sides, a furious gale behind them howling and shrieking as it tears its passage through the dense forests and rocky gorges, hurling down fragments of the weather-worn cliffs and snapping off like twigs the giants of the forest. By this time the erstwhile smooth surface of the sound has been lashed into creamy foam. The horror of the tossing, raging sea, thundering against the rocky sides of shores and islands, is increased tenfold by the crashing and creaking of fragments of ice grinding against each other upon the heaving water. The surrounding grandeur of mountain as well as the green frame of forest, the fantastic headlands gorgeously tinted with many-colored lichens, have all disappeared in a blinding mass of drifting spray and fog. During such gales, even in midsummer, the massive structures built of logs 2 and 3 feet in diameter, the sole remaining witnesses of the laborious enterprise of Russian pioneers, will rock and sway like ships before the wind.

The part of the district lying beyond the mountains and along the basin of Copper river has been described by Lieutenant Allen, United States army, as follows:

The mountains we were soon to cross were comparatively low, extending almost at right angles from the high chain of mountains to the eastward and southward of us. These high peaks form the apex of the mountain system south of the Yukon, from which spurs shoot out in every direction. The headwaters of three mighty rivers are located here, the Tanana, Copper, and White rivers. The location of the most prominent peaks, such as Sanford, Drum, Wrangell, Tillman, and Blackburn, as ascertained by compass bearings, does not tend to show the continuity of the range, but could a view have been obtained from the top of one of these peaks a backbone of the system might have been determined, showing its connection with the St. Elias range, with the mountains that separate the Copper from the Tanana, and those between the Tanana and the White. The existence of high mountains behind and around Taral and the high peaks north of Prince William sound led me to believe that the St. Elias range finds an extension at a rather uniform distance from the coast, terminating south of the Kuskokwim; but the mountains we were about to cross could hardly be a continuation of the high mountains to the eastward, unless one be considered a spur of the other. The range lying south of the middle Tanana contains some very high snow-clad peaks.

When we reached Lake Suslota, at the foot of the pass, we found a house and 3 or 4 families consisting of 8 men, 6 women, and 9 children. Their main subsistence was a dried fish much smaller in size than the salmon. They were not fishing during our stay. In the lake, which is only 2 miles long and very narrow, small grayling could be seen, but they could not be induced to rise for anything we could offer them, no insects of any kind being obtainable. From Suslota Mount Sanford was bearing southeast, and its peak had an angle of elevation of  $4^{\circ} 2'$ . It towered above all visible surroundings. The outlet of the lake, a tributary of the Slana, flowed in a southwesterly direction.

Concerning the few people inhabiting the Copper river basin much information has been collected during the last decade, the most valuable contribution in this direction having been the result of the military exploration conducted by Lieutenants Abercrombie and Allen. From the report of the latter, as far as it refers to the geography and ethnology of the Copper, Tanana, and Koyukuk river basins, I quote freely.

The Atnatena are of unmixed Athapascan type. Their number has probably never been large, and does not now exceed 300. The numerous traces of dwellings, long since abandoned, met with on the banks of the Copper and its tributaries do not necessarily indicate a much larger population in the past, and the nature of the country inhabited by them must always have compelled them to lead a nomadic life. Even at the present time the same families have various dwelling places, separated by long distances.

The average stature of the Atnatena is between 5 feet 6 inches and 5 feet 8 inches, though men 6 feet in height are not infrequently met with. The color of their skin is much darker than that of their Thlingit or Eskimo neighbors on the coast, the eyes are black, and their hair coarse, straight, and also black. Their muscular strength appears greater in the lower limbs than in the arms; their powers of endurance under a steady, fatiguing strain of

walking or packing are by no means extraordinary, though they can cover great distances within the first 2 or 3 days after starting upon a journey; but they can resist the effects of cold, rain, and hunger to an astonishing degree.

The houses of the Atnatena are of two kinds, permanent and temporary. The former are intended for winter use and are regularly occupied during that season, while the latter are extemporized at any place where game may be found. The winter house is loosely built of spruce poles and slabs and covered with spruce bark. Moss is used to make the structure measurably tight. The height of the side walls is about 4 feet, while the gables rise from 10 to 12 feet above the ground. The ground plan is generally a square of from 15 to 18 feet. A smoke hole pierces the middle of the roof immediately over the fireplace, and a sleeping platform, 5 feet wide, lines 3 sides of the room at a height of 3 feet from the ground. The space under the platform is boxed in to serve as storeroom or sleeping place for women, children, and puppies. The entrance to the house is through a small storm shed about 2 by 3 feet in dimensions, protected at the outer end by an undressed skin of the mountain sheep or goat.

In a majority of the winter houses we find at the end opposite the entrance an annex, a square log structure about 3 feet high, sunk into the ground, its sides and flat top covered with sods. This is connected with the main building by a round hole about 15 inches in diameter, and serves as both sleeping and bath room. The floor space of this addition is from 6 to 8 feet square and is lighted by a small square of bear gut. When a bath is to be prepared stones are thrown upon a loosely piled fire of sticks in the outer room, and when heated they are carried into the inner compartment by means of sticks; steam is created by throwing water upon them, and the round aperture is tightly closed.

The opinion expressed by Lieutenant Allen that the Atnatena adopted the bath house from the Russians is erroneous. It was found among other Athapascan tribes before settlements had been established, and if it was not indigenous with them its origin must be ascribed to intercourse with their Eskimo neighbors.

The temporary dwelling, which partakes more of the nature of a hunting or fishing lodge, is rectangular in shape, and is built of poles and sticks of spruce or poplar, with an open passage through the center from end to end. As only the sides of the structure are used, the central portion of the roof is but imperfectly covered, affording free exit to smoke. The parts of the rather flat roof immediately over the sleeping places are protected against rain by strips of bark or skins of animals.

Proceeding westward from Prince William sound along the eastern shore of the line of the Kenai peninsula we meet with the same irregular, rugged coast, guarded here and there by clusters or chains of small islets. High mountains, descending abruptly to the water's edge, and reaching out seaward in a succession of bold, precipitous capes, inclose within their rocky embrace deep, winding bays, generally sheltered from ocean winds but exposed to the sudden inroads of "woolies", or mountain squalls, that rush down the steep declivities without warning and lash the smooth inland waters into foam.

In nearly all of these bays we find one or more glaciers, many of them of very large dimensions, but as far as they have been observed they do not seem to be discharging like those of Prince William sound.

The only settlement on this whole coast, extending for 120 miles, from Cape Puget to Cape Elizabeth, is the place of residence chosen by a native of Maine upon the shores of Resurrection bay, or Blying sound. This man, who is one of the American pioneers of Alaska, entered the territory almost immediately after its purchase by the United States, and has never left it. He has named his home Lowell, after himself, and having married a creole wife, has reared a large family of stalwart boys, expert hunters and sailors, who assist their father in his hunting expeditions in a small schooner owned by the family.

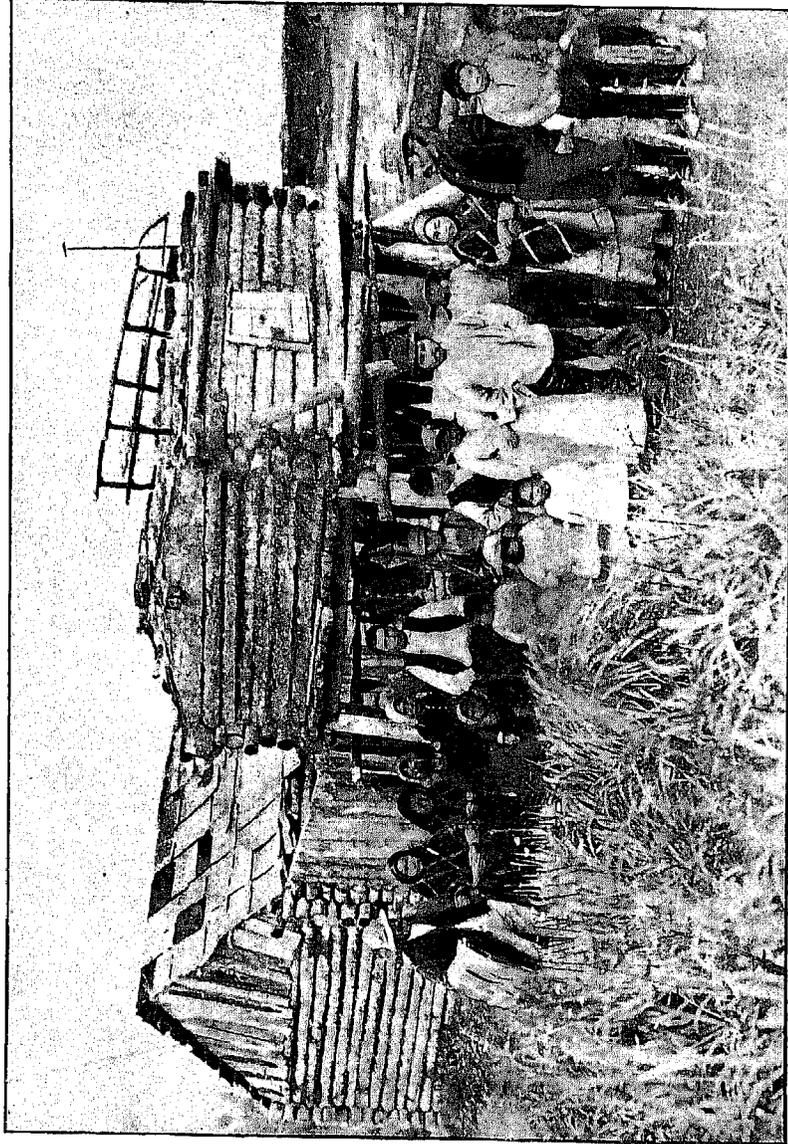
Mr. Lowell, who was appointed to assist in the enumeration of this district, has built his home in an ideal spot for leading a life remote from the cares and troubles of civilization. Nature appears most bountiful here, measured by the standard of northern countries. Dense forests clothe the mountain sides, the timber being of a quality such as to induce the Russians in years gone by to select this spot for their first shipbuilding operations in Alaska. A solitary English shipwright was carefully guarded here and prevented from meeting his countrymen during Vancouver's exploration of Prince William sound.

The open uplands and the swampy valleys and poplar thickets are still frequented by droves of moose and cariboo; the forests and ravines are the retreat of porcupines and marmots, while the black bear and wildcat inhabit the more inaccessible recesses of the mountains. The bay and streams teem with fish, cod, halibut, candle fish, trout, and the various species of salmon. Seals are sporting in front of the glacier foot by hundreds, and but a few miles to the southward, upon an outlying group of rocky islets, there is one of the largest sea-lion rookeries on all this coast.

10 years ago a settlement of Chugachigmiut existed on Ayalik bay, a few miles west of Blying sound, but upon the advice of the monk in charge of the Russian mission on Cook inlet they migrated to the settlement of Alexandrovsk, on English bay, beyond Cape Elizabeth. A few of the points and deep indentations along this coast have been named by Cook and Vancouver, such as Pye islands, Nuka bay, Point Gore, Port Dick, and Port Chatham. At present the first point of importance met with after rounding Cape Elizabeth and turning northward is Port Graham, or English bay. Here a trading post has been located since the earliest days of Russian occupation, and during the sixth decade of the present century the Russian Fur Company, in conjunction with several California capitalists, indulged in costly experiments at coal mining in this vicinity. An expensive

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TNAINA VILLAGE.

plant was erected on the north side of the entrance to the bay, and for a time the enterprise bade fair to become of the greatest importance for the Pacific coast, but as the shafts obtained greater depth the water, which is never far distant in Alaska, came in and would not be kept out, and as, in addition, the coal was found to be after all but an inferior quality of lignite, the undertaking was abandoned.

The trading store and settlement of English bay is situated upon the southern shore of Port Graham, and inhabited by 100 Kadiak Eskimo and a few whites and creoles. These people make their living chiefly by hunting the sea otter during the summer and trapping fur-bearing animals during the winter. Their natural food supply is ample, and some of the men find employment in salting 400 or 500 barrels of salmon for the trader each season.

A few miles to the northward, and almost within the mouth of the deep indentation of the Kenai peninsula known as the bay of Kachekmak, we find the landlocked cove of Seldovia, or Herring bay, with a settlement upon its eastern shore containing nearly 100 Kadiak Eskimo and a few creoles, who support themselves entirely by hunting on sea and land. The bay, as its name implies, is a famous resort for herring, which make their appearance in immense schools each spring and autumn. The interior of this southernmost extension of the Kenai peninsula is exceedingly mountainous and rugged. At several points glaciers extend clear across from shore to shore.

The northern shore of Kachekmak bay is low and wooded. At a point where its coast line turns northward extensive deposits of coal have long been known to exist. For several years past California capitalists have made spasmodic efforts to develop the veins and to place the product upon the market. Buildings have been erected and some facilities provided for placing the coal on shipboard. There can be no doubt as to the large quantity of coal existing here in a locality easily accessible to shipping, and the final success of the undertaking depends altogether upon finding at a greater depth a better quality of coal. The surface veins here, as in nearly all other Alaskan coal deposits, consist of a lignite coal varying in quality, but even the best of it is not well adapted to the making of steam. Though no satisfactory results have thus far crowned their efforts, the managers of the enterprise are still sanguine of a gradual improvement in the quality of the coal and ultimate success.

About 25 miles to the northwest from these coal deposits, at Anchor point, named thus by Cook, we find a small native settlement inhabited by people of the Tnaina tribe of the Athapascan family. The surface of this part of the Kenai peninsula, between the east shore of Cook inlet and the high mountain chain which lines the ocean coast of the peninsula, consists of a swampy plateau, elevated from 50 to 100 feet above the sea level, dotted with many lakes and small bodies of stunted spruce timber. Though such a formation would seem to hold out no promise of mineral wealth, mining is actually carried on at Anchor point upon a very modest scale.

At the time of my visit to this country 3 men were laboring here, running the gravel of the beach through a set of sluices. To obtain the necessary head of water they had constructed a ditch 2 miles in length. These miners claim that the gravel which is thrown up by the tides yields as high as \$7 a day to the man. The gold is exceedingly fine, and can only be saved by means of quicksilver. Both winter's frost and summer's drought cause a suspension of labor.

From Anchor point the coast of the peninsula extends in a northeasterly direction to the head of Cook inlet without a break or harbor. Between 30 and 40 miles to the northward of the mining camp we find the settlement of Ninilchik, inhabited by 50 Russian creoles and a small number of natives of the Tnaina tribe. The village is situated upon the edge of the plateau on the banks of a small salmon stream. The creoles of Ninilchik are the descendants of a group of Siberian farmers who were transported to Cook inlet at the request of the Russian Fur Company early in this century for the purpose of developing the agricultural resources of the territory. They have always depended upon their small fields of potatoes and turnips, together with the product of a small herd of cattle, as their chief subsistence, supplemented, of course, by the magnificent king salmon, which frequents these waters. The climate of the peninsula is quite favorable to agricultural efforts on a limited scale. There is pasture land covered with a most luxuriant growth of nutritious grasses in the greatest abundance, and the summers are sufficiently dry to permit of the curing of hay in such quantities as may be desired; the winters, however, are severe, and cattle must be fed for 6 to 7 months of the year.

Advancing over the grassy plain of the peninsula the first stream of any magnitude met with is Kassilof river, the outlet of a system of lakes extending to the foot of the snow mountains in the distance.

Two large salmon canneries have been established near the mouth of the river. The annual output of both establishments is from 30,000 to 45,000 cases, and in addition from 500 to 1,000 barrels of salted salmon are put up. The employes are chiefly Chinese and white men, but the inhabitants of a small Tnaina village, situated a few miles to the southward, are also employed in fishing, cutting firewood, etc.

15 miles north of the mouth of the Kassilof the Kaknu, or Kenai, river enters the inlet. Upon its northern bank stood the first permanent settlement established by the Russians on the shores of Cook inlet. The redoubt St. Nicholas, a stockaded post, was erected here in the year 1789 by one of the Russian fur companies then operating in the territory. A rival firm soon afterward located a fort in the vicinity of Kassilof river, and for some time blood flowed frequently, as the Siberian hunters made raids upon each other with the assistance of native allies. The formation of the Russian-American Company under imperial charter put an end to this strife, and since that time peace has reigned uninterruptedly upon the shores of Cook inlet.

The present settlement of Kenai, embracing also the Tnaina villages of Chkituk and Nikishka, is inhabited by nearly 100 Tnainas and about 50 creoles. A large salmon cannery has been in existence here for several years, producing from 15,000 to 20,000 cases per annum. The cannery employs about 50 white men and 80 Chinese during the season. The natives depend upon salmon chiefly for their winter's provisions, supplemented by the proceeds of trapping and hunting of fur-bearing animals during the winter. In former times Kenai was a very important fur-trading center, embracing in its operations not only the shores of the inlet but also the vast basins of the Sushitna and Kinik rivers, as well as a part of the Copper river country. To-day, however, owing to fierce competition from fishing and trading companies and to the gradual extinction of fur-bearing animals, its commercial glory has departed.

Since the beginning of this century Kenai has been the site of a mission established by the Russian orthodox church, of which all the natives of the Tnaina tribe have long since become devout members.

The northern part of the Kenai peninsula continues, without change in the character of its surface, almost to where the muddy waters of the inlet form its northern boundary. Here, however, the rugged chain of the Kenaian alps sends out branches, which rise abruptly from both sides of the Turnagain arm, the discovery of which blasted Captain Cook's last hope of having found the passage connecting the Atlantic and Pacific oceans. The scenery here is altogether Alpine in its character: glaciers, moraines, snow fields, and jagged peaks and ridges. All through the summer avalanches are thundering down the eastern and southern slopes, crashing through timber belts and dropping over precipices with detonations equaling those of heavy ordnance. Added to these awe-inspiring features we find here the grandest tidal phenomena peculiar to this uttermost extremity of the great estuary, the whole forming a scene of such grandeur as to inspire the dullest soul with some idea of nature's irresistible forces. The rise and fall of the tides vary from 45 to 65 feet, and owing to the peculiar topography of this region the impouring flood does not affect this branch of the inlet until the waters have been rising for hours in the main estuary. Then, with a rumbling, thundering noise, a "bore" comes rushing in like a moving wall of water, crested with foam and carrying with it drift logs and débris of various kinds. Within an incredibly brief space of time the muddy channel, left almost bare by the receding tide, is filled to the very roots of the forest covering the mountain foot, and converted into a heaving and tossing sea until the "slack water" restores placidity to the surface.

One of the glaciers at the head of the Turnagain arm connects with another, which flows into the waters of Prince William sound through Portage canal.

The forests and valleys of this region are still filled with numerous droves of moose, as well as with martens, foxes, lynxes, black bears, marmots, and porcupines, and furnish a rich hunting ground for the Tnainas of Nikishka and Kenai.

On one of the streams emptying into Turnagain arm from the south a few white men are mining for gold, which is found in small quantities among the gravel, bowlders, and other débris carried down the mountain sides by the action of the rain or avalanches. The total output of this claim had not in 1890 exceeded \$1,000, the miners eking out their scanty income by hunting and fishing.

Two great rivers enter the northernmost end of Cook inlet, the Kinik and the Sushitna. Near the mouth of the former we find a trading post and several villages inhabited by the Kinik branch of the Tnaina tribe, numbering between 200 and 300. They obtain their subsistence chiefly by hunting and trapping fur-bearing animals and by bartering for skins with the Atnas of Copper river, who cross the divide between the two river systems each winter, often remaining for weeks and even months. The houses of the Kinik Tnainas are constructed of logs above the ground, tightly calked with moss and covered with bark. Trading, as they do, in the most valuable land furs, such as beaver, marten, black fox, and black bear, they are comparatively well to do, and have acquired many comforts and even luxuries unknown to their less fortunate brethren. Small cook stoves and an abundance of cooking utensils are found in most houses, and the inmates have long since become independent of the proceeds of the chase for their wearing apparel. Only such furs as are not marketable are worn for warmth in winter time.

Upon the rivers and lakes the Kinik Tnaina uses the birch-bark canoe, but for fishing and traveling along the seaboard he purchases skin canoes or "bidarkas" from the Kenai or Nikishka people, who adopted this mode of conveyance from the Kadiak Eskimo, who invaded the Cook inlet region in the train of the earliest Russian explorers toward the end of the eighteenth century. They also make use for prolonged journeys at sea of the large open skin boat named "bidar" by the Russians. Their hunting is chiefly confined to the winter season, the spring and summer being devoted to the curing of salmon and gathering of berries as winter supplies.

Of the nature of the country intervening between the Kinik and Sushitna rivers, as well as of the headwaters of these two large streams, very little is known beyond a rather vague description given by natives and a brief account obtained from prospectors who attempted to follow up the Sushitna to its head. These men, after equipping themselves for a year's sojourn in the wilderness, returned in 3 weeks completely discouraged, and when asked what the country was like, replied that "it might contain the most beautiful scenery in the world or the richest mines, but that clouds of mosquitoes obscured their vision and occupied their attention to the exclusion of everything else". It is safe to assume that this region presents the features common to all central Alaska: swampy plateaus, tundra, and numerous lakes, with belts of timber along the river courses; but as to the topographical

and geological features, or the height of the divide between the Kuskokwim and Cook inlet drainage systems, we have not yet emerged from the field of conjecture.

We know that the Tnaina, who sparsely inhabit this region, perform long journeys, chiefly during the winter, from one hunting and trapping ground to another, and that they do not habitually harness their dogs to sleds. The latter are light and they are pushed or dragged by hand. Occasionally dogs are used as pack animals, but this is oftener done in summer than during the winter.

Proceeding in a southwesterly direction from the mouth of the Sushitna river, along the west coast of the inlet, we find the first settlement on the shores of a bight between North and West Foreland, named Traders bay by Captain Cook. The native inhabitants of this region, a branch of the Tnaina tribe, numbering between 150 and 200 people, subsist chiefly upon the proceeds of hunting and trapping, but since the establishment of salmon canneries they have been enabled to add considerably to their income by seining the magnificent king salmon that visit this part of the coast during the season. The cannery steam tenders call for the fish, and owing to competition the price paid the natives varies from 10 to 25 cents apiece. At Toyonok, near West Foreland, rival trading stores connected with the fisheries afford these Indians an opportunity to supply their wants at reasonable rates, while on the other hand the same competition secures them the highest prices for their furs. They are all members of the Russian orthodox church, and pay occasional visits to the mission church at Kenai.

In former times the Toyonok Tnainas acted as middlemen for the Sushitna branch of their tribe, but the latter now annually visit the station to trade, and to a limited extent share in the labor of fishing for the canneries.

Strata of coal are visible all along this coast, as on the Kenai peninsula, and though the surface croppings produce only a poor quality of lignite, fragments of a much better quality are washed up from submerged veins by the tides, which here rush up and down along the coast with great velocity.

Kustatan, an isolated settlement of the same tribe, is located on the large bight south of West Foreland. It contains 45 people, who, besides hunting and trapping for land furs, engage in occasional expeditions in search of sea otters along the coast to the southward. The village stands upon a level tract of sandy soil, which, under Russian rule, was partially cultivated and furnished the best potatoes on Cook inlet. Left to themselves since the transfer of the country, the natives first neglected and finally abandoned this useful industry, and they now live by hunting and trapping, with dried fish as their staple winter's food. Both the hair seal and the grampus or white whale are hunted with canoes, but they are not captured in sufficient numbers to figure prominently in their domestic economy.

But one safe harbor exists on all this western coast of the inlet, in the deep indentation between Redoubt and Iliamna mountains. It is known as Chazik harbor, and is protected from easterly winds by a small, high island. The cannery establishments of Kenai and Kassilof make use of this shelter to moor their large sailing vessels in safety during the season. Communication with the canneries is kept up by means of steam tenders. A salmon stream of limited capacity enters the head of this bay, and indications of the presence of mineral in the mountains are not wanting.

The low island of Kalgin, lying off this part of the coast, is not known to have been permanently inhabited within historic times, though traces of native dwellings exist. Up to comparatively recent times the natives from both sides of the inlet periodically visited the island to hunt hair seals and sea birds.

But a few miles to the southward of the Chazik anchorage we find the bay of Crenutna, a deep indentation of the coast, but too shallow to serve as a harbor for any but the smallest sailing craft. This bay has been visited annually during the last decade by large sea-otter hunting parties of Kadiak Eskimo, numbering from 100 to 200 canoes, carried here by schooners or steamers of the Alaska Commercial Company, and taken home again with their spoils when supplies were exhausted. These hunters lived in temporary camps upon the low sandspits partially inclosing the bay, going to sea in search of otters whenever the weather was clear and the sea smooth enough for canoes. For many years this was the richest sea-otter hunting ground in the Kadiak district, but as from year to year the number of white men hunting with schooners of from 8 to 15 tons burden increased, until the surface of the inlet was dotted with their sails, the shy animals began to disappear, and the few which escaped from the incessant slaughter sought more retired feeding grounds.

No permanent settlement exists on the mainland from Chenutna bay to and beyond Cape Douglas, the coast being bold and mountainous, and beset with outlying reefs dangerous to navigators. At Iliamna bay, which is shallow and affords but precarious shelter, we find a small depot of supplies for the trade with the Tnaina villages on Iliamna lake, to which the merchandise is carried on the backs of men over a steep mountain trail. On the island of St. Augustine, locally known as Chernobura, white men as well as natives can be found periodically hunting the sea otters which make the rocky reefs, extending seaward like the arms of a squid, a favorite resort.

More than 10 years ago a violent convulsion, accompanied by volcanic manifestations, caused quite a change in the outlines and topography of the island; a large crater appeared on its side, and the pyramidal summit fell in. At present only smoke and vapors issue from the crater and hundreds of lateral fissures. During the time of Russia's occupation the experiment was made of "planting" black foxes upon this island, but it met with failure. Subsequently a number of hogs were landed there to propagate, as it was thought that they would thrive upon the large quantities of mussels, clams, and seaweed, but the hogs perished during the first winter.

Along the shores of Kamishak bay, between St. Augustine island on the north and Cape Douglas on the south, numerous camps of sea-otter hunters can be found every season from early spring until late in autumn. These camps are occupied by Kiatagmiut, Aglemiut, and Togiagmiut Eskimo, who, under instigation of traders, undertake long, tedious journeys, transporting their household goods and skin canoes on sledges over tundra, rivers, lakes, and mountain ranges, before the snow melts in the spring, to return only when the first storms of autumn make sleighing possible again. The Togiagmiut, whose villages are located far to the westward of Bristol bay, must cover between 200 and 300 miles in their journeys to this hunting ground. All through the winter the shores of the Kamishak are deserted and desolate, a wilderness of barren rock and drifting snow, the battlefield of furious gales, and trembling before the unceasing onslaught of a raging sea, kept in a state of turmoil by the joint action of wind and tide. But though the native hunter gladly turns his face homeward on the approach of the dismal season, a few white men can be found to brave it. Small camps of otter hunters exist on the low, barren islands near the southern shore. Low structures of rocks, canvas, and drift logs are anchored with chains and cables to the rocky surface, to prevent them from being swept away before the constant gales; and here the hunter watches for weeks and months, bereft of all comforts, unable to stand erect within his lowly dwelling, while the force of the wind prevents him from doing so outside, waiting for a day's or even a few hours' lull between storms to visit his nets or to shoot sea otter from his boat.

From Cape Douglas southwestward to the end of the second district, at a point nearly opposite the island of Mitrofanian, the coast of the mainland presents the appearance of a rugged mountain chain, rising abruptly from the sea without any intervening lowlands, such as characterize the shore line of the St. Elias alps. The whole range gives one the impression of a more recent origin, or rather of a chain of islands that has risen from the ocean more or less gradually within comparatively recent geological time, until the narrow intervening and interlacing channels became transformed into valleys or isthmuses. This impression is strengthened by the various portage routes which cross the Alaskan peninsula without ascending much above the sea level. Viewed from the deck of a passing vessel, the formation of the coast resembles much the "scheres" of Norway, with its deep fiords and rocky headlands. The islands, however, are not numerous, and are of insignificant dimensions.

Another characteristic of this chain or group of mountains, varying from 2,000 to 7,000 feet in altitude, is the absence of all traces of glacial action along the lower ranges as they rise from the water's edge. Glaciers exist, but they are confined to the highest valleys and ravines, and very few are visible from the coast.

Coal and petroleum are known to exist in small quantities, but of other minerals few traces have thus far been discovered by the prospectors.

The only settlements in the vicinity of Cape Douglas consist of a small trading post, with a few native houses, and the village of Kukak, with less than 100 inhabitants of the Kadiak Eskimo tribe. Formerly this vicinity was looked upon as one of the most important sea-otter hunting grounds, but of late years the trade in these valuable skins at Douglas station has become insignificant, and the natives are obliged to seek distant hunting grounds with the assistance of the traders. The natural food supply of these people is still quite abundant. The sea teems with codfish and halibut, the streams with salmon, and hair seal are plentiful along the shore during the winter. Of land furs the land otter and fox are the most important. At Kukak bay salmon appear in sufficient numbers to induce several of the Karluk canneries to send their steam tenders for an occasional haul during the interval between "runs" of the fish at Karluk.

The traveler passing down the coast from Cook inlet will not fail to notice the change in the habitations of natives after doubling Cape Douglas. The log house of the Tuaina, with its bark roof, has disappeared to give place to the semisubterranean structure of drift material covered with sods, upon which grass and flowers grow and wither with the changing seasons.

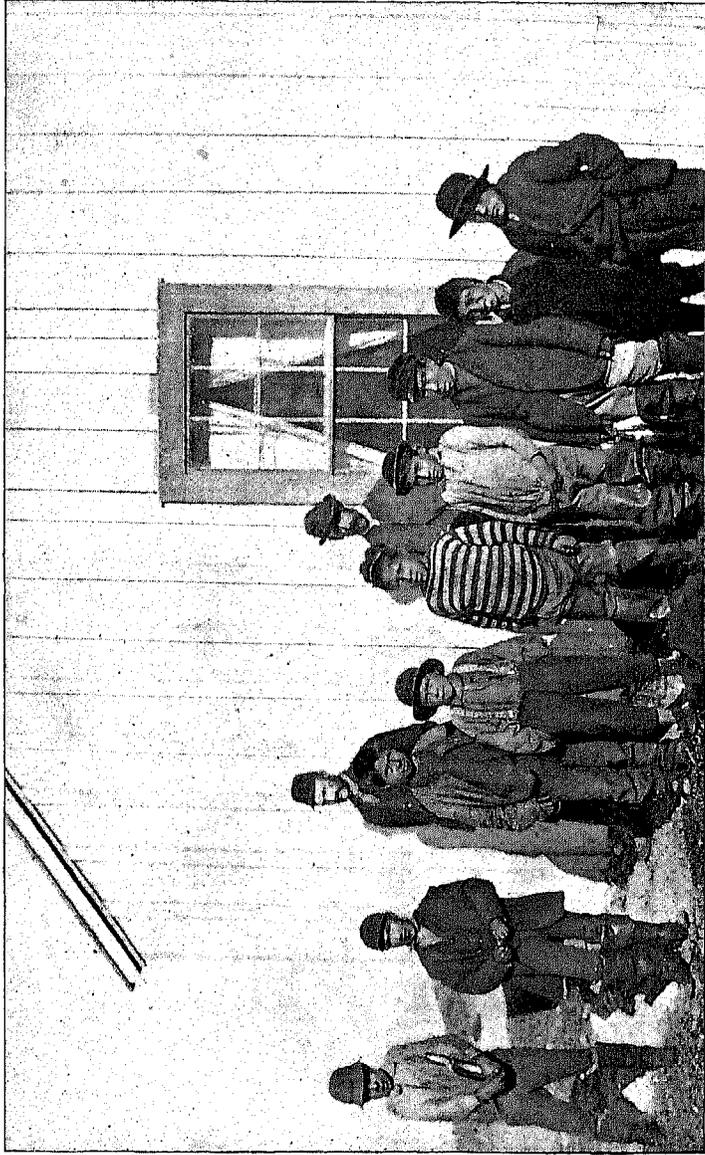
Katmai, a village and trading post situated on the shore of a bay of the same name in latitude 58° north, is the largest permanent settlement on this part of the coast, and was formerly quite an important trading center. At present its inhabitants, numbering 132 Kadiak Eskimo, depend chiefly upon sea-otter hunting as a source of revenue, but they must journey far from home to find their quarry, and the number of skins brought home grows smaller and smaller every year. The village, consisting of sod huts surrounding the "store" and a small log chapel, was built upon a swampy flat along the banks of a salmon stream, and owing to the scarcity of dry ground about them their dead have been buried indiscriminately among the dwellings until the whole settlement presents the appearance of a graveyard. The summer visitor is impressed with an idea of what winter must mean in this desolate spot when he notices the heavy chains and ropes which are laid over the roof of the trading store and securely anchored in the ground as protection against the furious gales that sweep down the steep mountain sides but a few miles beyond.

The river, small as it is, furnishes the Katmai people an abundance of salmon, the valleys and swamps abound in berries, oil is obtained from seals and occasionally from a stranded whale, and the more enterprising hunters kill cariboo in the mountains, while their traps yield them skins of foxes and land otters.

The portage trail between Katmai and the headwaters of the Naknek river, though beset with difficulties, is considered one of the most feasible routes across the upper peninsula, having been traversed by Lord Lousdale,

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Robert P. Porter, Superintendent.

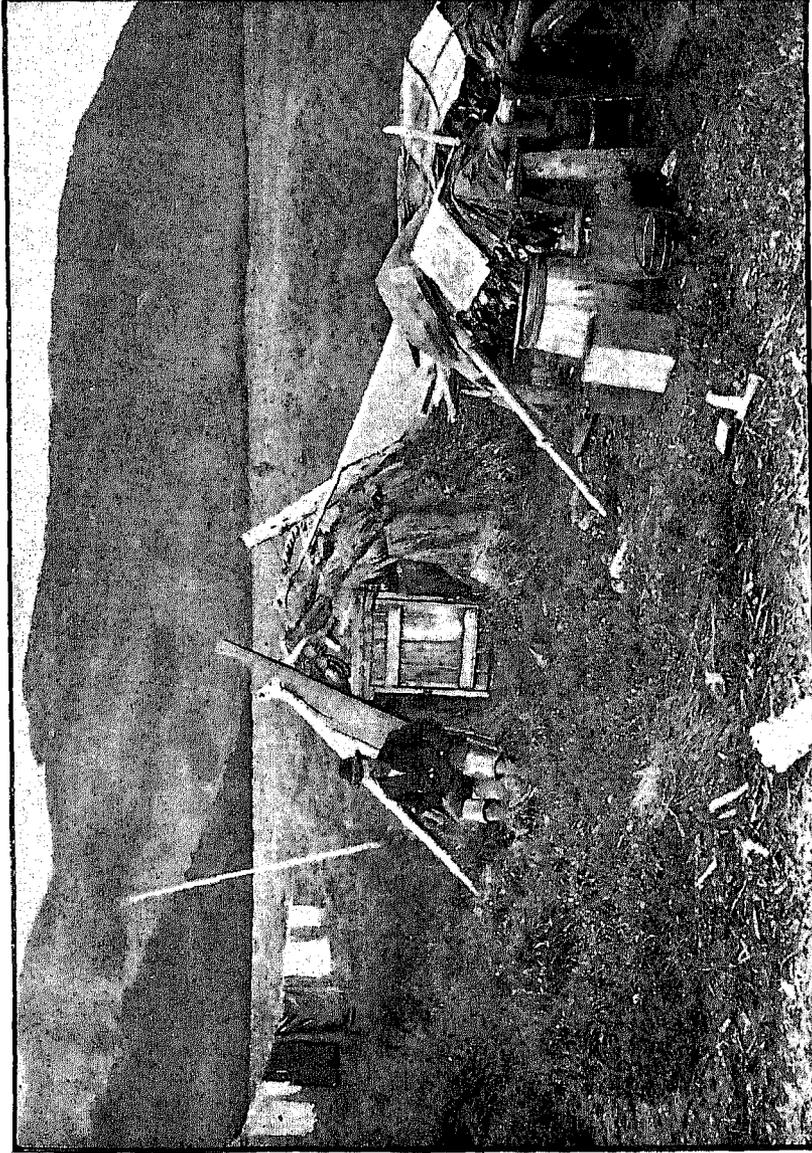
Alaska.



YOUNG FISHERMEN OF KARLUK.

Eleventh Census of the United States.  
Robert P. Porter, Superintendent.

Alaska.



FISHERMAN'S HUT, KADIAK ISLAND.

Mr. A. B. Schanz, of the Frank Leslie exploring expedition, Mr. J. W. Clark, and twice by agents of the Census Office. A few miles to the northward of Katmai a group of small, barren islands forms the point of departure for native parties intending to cross in canoes Shelikhof straits, which are here about 26 miles wide.

Many of the bays which indent the coast between Katmai and Wrangell bay are occupied temporarily by white men as hunting grounds, especially during the winter season, but there is no permanent settlement to be found until we reach the latter point, where 62 Kadiak Eskimo are engaged in hunting and fishing. They have their sod huts on the mainland within the bay as well as on the island of Sutkhum, or Sutwik. The latter place is occupied chiefly during the summer for the purpose of sea-otter hunting. A small trading store has been maintained at Wrangell bay for many years, depending partly upon the custom of the Aglemiut Eskimo living on the northern shore of the peninsula, which is here easily crossed by means of interlacing rivers and lakes. The white sea-otter hunters in their small schooners frequently put into Wrangell bay or adjoining bays to obtain a supply of cariboo or bear meat. Both of these animals are still found here in large numbers at certain seasons.

Proceeding southwestward from Wrangell bay we find an important fishing station on the shores of Chignik bay. A few years ago 3 salmon canneries were established here, but they have since been consolidated under one management, with an annual output of from 40,000 to 45,000 cases. The canneries employ about 60 white men and 120 Chinese laborers during the season. The only native settlement in this vicinity is located on Mitrofanina island, about 30 miles south of the bay, where we find a thrifty colony of 49 sea-otter hunters, Russian creoles and Kadiak Eskimo.

Coal has been found in the vicinity of Chignik bay and at other points along the coast, but not in sufficient quantity to warrant development.

To the eastward of Chignik bay, on the Semidi group of islands, the Alaska Commercial Company established nearly 10 years ago a so-called "fox farm". Blue foxes from the Pribilof islands and black or silver foxes from the mainland were landed upon the uninhabited islands and left to multiply. During the first years of the experiment small parties of natives were sent to the islands during the summer to hunt seals and sea lions for their hides, and to leave the carcasses as food for the foxes. Of late years, however, a permanent watchman has been employed, and the enterprise is reported as yielding a good profit.

To complete the review of the Second district we must now turn to that section which at present is of the greatest commercial importance, the Kadiak group of islands. The names of the most important of these islands in their order from north to south are as follows: Shuyak, Marmot or Yevrashka, Afognak, Spruce or Yelovoi, Wood or Lesnoi, Kadiak, Sitkhlidak, Sitkhinak, and Tugidak.

Shuyak is a low, wooded island without permanent inhabitants, though several populous villages existed here at the end of the eighteenth century, when the Russians established themselves on Kadiak island. The Afognak natives now look upon this, as well as upon Marmot island, as their hunting ground, without in any way interfering with such white hunters as erect temporary camps for the purpose of hunting foxes or sea otters. The spruce forest which covers the greater part of the island could furnish the finest timber in the district. The early Russian colonists obtained their largest logs from here when building the town of Kadiak, or St. Paul. The waters around the island abound in cod and the finest halibut, and salmon frequent the various creeks and rivers. The narrow strait separating Shuyak from Afognak island can scarcely be called navigable except at slack water; the channel is rocky and the tides rush through it with great velocity.

Marmot island is high, and contains but very little level land and no forest. Its easternmost point was sighted by Bering after his discovery of the northwest coast of America in 1741, and named Cape St. Hermogenes. We have no record that the island was ever permanently inhabited, but about the year 1830 the Russian-American Company "planted" several pairs of black foxes, and after allowing sufficient time for their natural increase, granted to certain creole settlers on Afognak island the privilege of trapping them under certain restrictions. Since the transfer of the country to the United States all the Afognak people have considered this their private domain, from which they derive a considerable part of their income. During the last few years private individuals (white men) have advanced a claim to having "stocked" the island with foxes, and are endeavoring to exclude the natives from their hunting ground. The only anchorage or safe landing place on Marmot island is at the northern end of the strait separating this island from Afognak. Codfish and halibut are very abundant in the surrounding waters, as well as seals and sea lions, which feed upon them. The only land animals are the foxes and myriads of ground squirrels (*spermophilus*), upon which the foxes prey for their subsistence. These rodents are called "yevrashka" in Russian. This word our map makers erroneously translated "marmot", and thus misnamed the island.

Afognak is a large island of about 2,000 square miles, separated from Kadiak island on the south by Afognak straits. The interior is mountainous, the highest peaks not exceeding 2,500 feet in height, and the whole island with the exception of the higher ridges is densely wooded. The shores are deeply indented with numerous bays, but owing to deep water, submerged reefs, and exposure to prevailing winds, anchorage for vessels is difficult to find. The only settlements on the island are located on the shores of Afognak bay at its southeastern extremity. This bay or roadstead was named Whitsuntide bay by Captain Cook, who mapped the adjoining coast as part of the mainland. Afognak village, consolidated for enumerating purposes, really consists of a series of settlements

lining the long, curving beach. At the eastern mouth of Afognak straits and opposite Whale island begins the creole village of Afognak, extending in a single row of dwellings, somewhat widely scattered, about three-fourths of a mile along the beach. This settlement was founded during the first quarter of the present century under the name of Rutkovsky village by superannuated and pensioned employes of the Russian-American Company, who were encouraged to keep cattle and engage in agriculture upon a limited scale. Their descendants have always lived upon a plane of civilization somewhat higher than that of their neighbors. Their representatives could always be found among the local officials of the Russian company in various districts and among the petty officers of their numerous fleet. The Afognak mechanics were prominent in the company's shops, and even now we find several families that furnish competent carpenters and boatbuilders. The men of the village are much away from home hunting or trapping, or laboring at the canneries and employed on schooners or larger craft, or during the winter cutting cordwood and logs for the fishing and trading establishments; and in their absence the women and old men take care of the cattle and dig, plant, and weed their potato gardens, or cure the fish which are caught by the boys. Near the northern end of the creole village there is a neat chapel built by the people and a handsome school building erected by the United States government, and a trading store of the Alaska Commercial Company. A few white men, sea-otter hunters married to Afognak women, have settled here also, finding a safe and convenient harbor for their small schooners in a cove opening into Afognak straits.

Proceeding northward a few hundred yards over a well-beaten trail we find the native village of Afognak, inhabited by Kadiak Eskimo. In contrast with the well-constructed log and frame houses of the creoles we find here a large number of sod and log huts, all covered with earth and scattered irregularly over a piece of swampy ground, protected from inroads of the sea by a high ridge of bowlders and shingle.

Nearly all the men of this village are carried away every summer to distant sea-otter hunting grounds by the trading companies; a few are also scattered over the various winter stations, and the remainder trap on Afognak and adjoining islands for foxes and land otters, and all who desire it can find additional employment at chopping wood during the winter.

The Afognak people obtain their supply of fish from a number of streams at various points of the island, some of them 50 or 60 miles away, though one river emptying into the head of Afognak bay within a mile of their village furnishes salmon enough for an output of from 10,000 to 15,000 cases by the canneries located there.

Two salmon canneries were established within a mile of the village, near the mouth of Afognak river, a few years ago, but finding the local supply insufficient for both, canning was discontinued and the fish were shipped to the Karluk canneries by means of steam tenders. Afognak river has been recommended by the United States fish commission as a site for the establishment of a salmon hatchery.

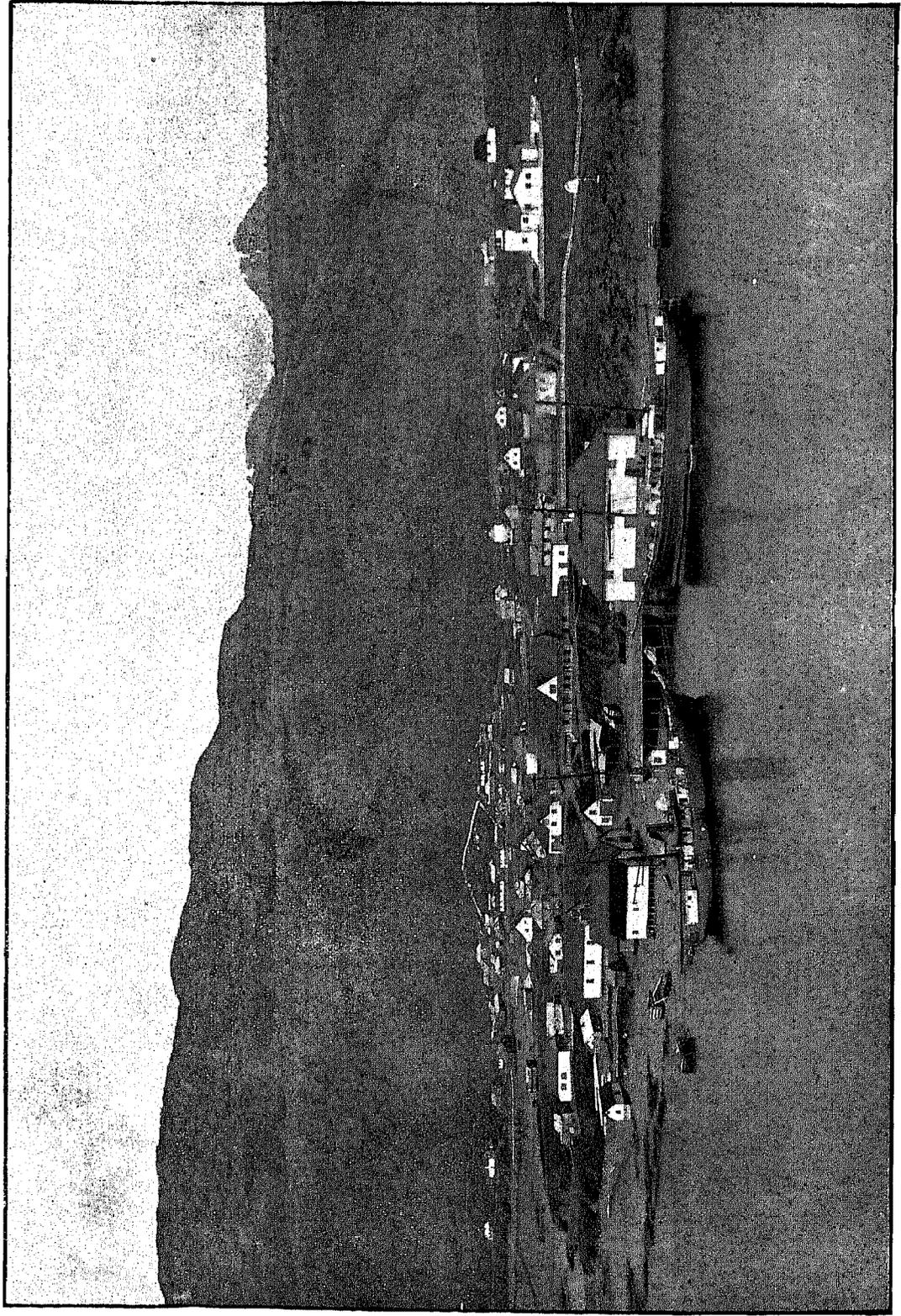
To the northward, across the bay of Afognak, we find 2 small settlements of 2 or 3 log houses each, inhabited by creoles. They are known as Little Afognak, and the people live very much in the same manner as those of the main settlement, raising a sufficient quantity of potatoes for their own consumption, and also laying in large stores of cranberries and cloudberry, which can be gathered in almost unlimited quantities all over the island. The population of this series of villages numbered in 1890, inclusive of cannery employes, over 400 people.

About 12 miles due west from Afognak village lies Spruce island, or Yelovoi, separated from Kadiak island by a narrow channel. Near the entrance to this strait in a sheltered cove we find another settlement of creoles, generally known as Uzinkee. The dwellings are well-built log houses, surrounded by stables, saw-pits, garden patches, and other evidences of industrious habits. Here also a small chapel has been erected by the people on an eminence overlooking the village. As this island produces no fur-bearing animals beyond a few red foxes, the Uzinkee people trap on the opposite shore of Kadiak for land otters and foxes, and their winter supply of dried fish is also obtained from a stream on the latter island. They eke out a sufficient income by hunting sea otters under contract with white hunters owning vessels, by cutting cordwood, and by sawing out boards by hand. A few families are settled at Yelovoi, the easternmost part of the island, within half a mile of the site of the first mission station established in this district by the Russian church during the last decade of the eighteenth century. The Uzinkee people, as well as those of Afognak, engage in a primitive kind of whaling when opportunity serves. They endeavor to insert as many spear heads, fashioned of slate or broken glass, as possible into the body of a whale, and then return home to await developments. These insidious missiles, assisted by the action of salt water entering the wound and the powerful movements of the animal, gradually work their way to some vital center, causing death. The carcass sinks to the bottom, but rises again when putrefaction produces gases, and is finally stranded. The "hunters" patrol the coast and watch for the "casting up" of their prey. As a whale thus wounded may travel many hundreds of miles before succumbing, this kind of whaling is somewhat of a lottery. The prizes may even fall to people who never took any risk. Fortunately these people do not dare to attack the large right whale or other valuable species, and there is no danger of useless waste of whalebone by this process. Blubber and meat is their only object, and it matters not to them how far advanced in decomposition they may be when found.

The most important permanent settlement in the Second district is Kadiak, designated on our charts as St. Paul. The place was selected as a central station and headquarters of the Russian fur-trading companies in the year 1789 on account of its good harbor and the close vicinity of good building timber. Previous to the

Eleventh Census of the United States.  
Robert E. Porter, Superintendent.

Alaska.



KADIAK VILLAGE.

establishment of New Archangel, or Sitka, on its present site Kadiak was also the headquarters of the Russian-American Company. The Russians gave it the name of "Pavlovsky gavan" (Pavlof's harbor), and the natives and creoles of the island speak of it to the present day simply as "gavan", or the harbor. The canonization into St. Paul is the result of faulty translation by our map makers.

After the transfer of the territory several American firms entered into competition for the valuable fur trade of the district, but though at times the contest was carried on with great vigor and much vituperation, one firm after another had to yield to the more perfect organization and greater means of the Alaska Commercial Company, which to-day controls the trade and occupies most of the space of Kadiak village, including the whole available water front. This firm has made the best use of its opportunity, erecting not only good, substantial log and frame buildings for its own use, but also assisting materially in improving the residences of the people, a majority of whom depend upon the company's transactions for a livelihood. The company has built reservoirs in adjacent ravines, from which water is piped to all parts of the settlement; it has constructed substantial wharves and moorings, warehouses, and coal bins; it has been foremost in showing what can be obtained from the soil with care and labor; it has improved the breed of cattle by importation of Jersey and other standard stock; it encouraged shipbuilding as a local industry until San Francisco stepped in as a competitor; it has employed, directly or indirectly, a majority of the people living within the vast field of their operations, and it has advanced provisions and other necessities to the value of over \$100,000 to shiftless or indigent natives. All this has been accomplished, not under the guise of benevolence or charity, but as a series of business transactions upon the broadest basis, all tending to result in ultimate profit to the company.

At present the village of Kadiak contains about 500 people, whites and Russian creoles. The United States government is represented by a deputy collector of customs, a deputy marshal or constable appointed by the United States marshal at Sitka, and a teacher of the public school, for which a handsome frame building has been erected. The customhouse is an old Russian log building, erected in 1848, and now beyond repair. In addition to the Alaska Commercial Company's store and distributing depot there is a local trading store. A handsome church and parsonage of the Russian orthodox community stand at the northern end of the village, and a small school building has also been erected by this denomination. Ever since the first organization of the Russian church in this region in the eighteenth century Kadiak has been the center of a parish embracing the Kadiak group and the adjacent coast of the mainland.

Nearly every family among the permanent inhabitants of Kadiak cultivates a small patch of ground for the purpose of raising potatoes and turnips. A few of these gardens are adjacent to the dwellings, but the greater number are scattered over what they consider the most favorable locations within a mile or two of the village. They generally select a piece of gravelly or sandy soil, within a few yards of the seashore, convenient to reefs of rock, from which they gather the kelp they use as fertilizer. Though many of these families keep cattle, they have not yet become used to the application of animal manure. The climate of Kadiak is remarkably mild, and open winters are the rule, but some hay must be provided to feed cattle during snowstorms. This task the people perform in the most laborious manner by mowing the heavy grass on scattered open patches along the hillsides or on small meadows at the head of the various bays and coves, and after being cured the hay is carried on the backs of men and women to the shore and either boated at once to the stable or left in stacks, to be used as emergency may require. The garden patches and meadows are held by these people merely by right of occupation and tradition. Fences are put up in a careless manner around potato gardens to keep out cattle, but the boundaries of "hay claims" are never defined, and as there is plenty of room disputes as to encroachment upon each other's premises are never heard of.

When the Russians first came to settle at this point they found a number of populous native villages upon the capes and headlands around the bay, but these have long since disappeared, leaving only a few grassy mounds to indicate their sites. There is now but one Eskimo community on Wood island, or Lesnoi, numbering about 120. Within the last decade a few families still lived on a wooded point between Kalsynsky bay and Cape Chiniak, about 12 miles to the eastward of Kadiak, but their houses now stand deserted, the inmates having removed to Lesnoi. The latter island is but a mile distant from the main village, and has for many years played a prominent part in the commercial and industrial development of this vicinity.

When, subsequent to the discovery of gold in California, a demand for ice was created in the growing city of San Francisco, the Russian-American Company formed a partnership with American capitalists to develop the ice trade. For this purpose two depots were established, one at Sitka and the other at Wood island, and the latter place, fitted with a long wharf, tramways, flumes, and ice houses, soon became the principal source of supply. The trade gave employment to men and ships, and with it was inaugurated the palmiest era of Kadiak's industrial progress. The ice plant was still in good order and shipments were continued to San Francisco when Alaska was acquired by the United States, and the American partners in the enterprise continued the business, combining with it an active rivalry in the fur trade. The increasing manufacture of artificial ice, however, gradually undermined the business, and after lingering for a number of years with the assistance of an annual subvention from California ice makers, under promise of not shipping the natural article, the enterprise was finally abandoned nearly 10 years ago. Since that time the Wood island people have earned their living entirely by sea-otter

hunting on distant grounds, to which they are carried on vessels of the Alaska Commercial Company. The old men and women attend to the potato gardens, and the company supplies them with boat loads of salmon to cure for the winter.

The extensive and substantial buildings of the ice company have all disappeared, but during the last year the North American Commercial Company, the present lessee of the seal islands, has established a large store on Wood island, and is endeavoring to revive its former industrial and commercial activity.

The creoles of this settlement and a few of the natives have built themselves attractive and comfortable houses at sheltered points along the edges of the forest, but in the main village the sod roofed cabin and "barabara" are still prominent. A once handsome chapel of the Russian church is rapidly falling into decay.

To the eastward of Wood island lies Long island, or Dolgoi. It is partially covered with spruce forest, and has been selected by a few white men as the site of a "farm" for the breeding of black foxes. The first success in this peculiar industry was made here after many futile experiments. Quite a herd of cattle also finds pasture on Long island throughout the year. The waters around the northern end of the island are a favorite cod-fishing ground with the people of Kadiak.

The only other settlement along the shores of this vast bay is found at Sapashkova, near the mouth of what is known as English bay. It consists of but one creole family, owning a herd of from 15 to 20 head of cattle, which find ample pasture upon level pieces of meadow some 50 acres in extent on both banks of a salmon stream. A few hogs can be seen rooting about promiscuously, but as they feed entirely upon fish, mussels, and clams, their meat, with its strong fishy flavor, finds no favor with civilized palates.

The scenery of Kadiak harbor is not grand, but very pleasing to the eye, especially when viewed from the deck of a steamer after a long stormy passage, or from one of the mountains rising immediately back of Kadiak village. The many islands and projecting points, some low and wooded, some bold and bare, long grassy slopes, and in the background high snow-covered peaks and ridges, are features of landscape which, when set off by the bright summer sun, a blue sky above and a sparkling blue sea below, away to the eastern and northern horizon, form a picturesque whole which the traveler will always remember with pleasure.

A monthly mail service for 7 months in the year has been inaugurated between Sitka and some points in western Alaska, with Kadiak as one of the ports of call. The compensation for this service is very small, and the vessel employed to carry the mail is a small steamer of but 35 tons, without any passenger accommodations. As no postmasters have been appointed at ports of call, much confusion and irregularity prevails, and the bulk of a voluminous mail from western Alaska is still carried by private parties directly to San Francisco. All business and industrial interests in central and western Alaska are in the hands of Californians; they have nothing in common with Sitka, and only a few official letters are carried on the little steamer. For all practical purposes the people of this section are not much better off than they were previous to the establishment of the mail route.

Proceeding from Kadiak to Eagle harbor, which contains the nearest settlement in a southerly direction, we leave behind us the spruce forests which have thus far diversified and characterized the landscape; and this farewell holds good for all the immense area of seacoast and islands of Alaska west of the 153d meridian.

The native village on Eagle harbor was named Orlova by the Russians, and erroneously renamed St. Orloff in our coast survey maps. It is now popularly known only by the name of the bay. The Kadiak Eskimo inhabiting this village number between 60 and 70. Their dwellings are all log structures covered with sods. A new chapel of hewn logs has recently taken the place of another which dated from the beginning of the century.

The natural food supply of the settlement is very abundant, including cod, halibut, and the various species of salmon. Of the latter, large numbers live throughout the winter in lakes and streams in close vicinity to the village. Sea lions and seals are hunted around the capes and on the island of Ukak, situated some 10 miles east of the mouth of Eagle harbor.

Opposite the village of Orlova, on the north shore, an important salmon stream enters the bay, and along its banks most of the families have erected temporary dwellings for their convenience during the fishing season. At the mouth of this stream a salting station has been established by the Kadiak Packing Company, with an annual output of from 600 to 1,000 barrels, affording employment to some of the Orlova people during the summer. A majority of the able-bodied males are taken to the sea-otter hunting grounds by the traders for the summer season, and as the winter trapping for foxes and land otters still brings ample returns, these people may be considered as fairly prosperous.

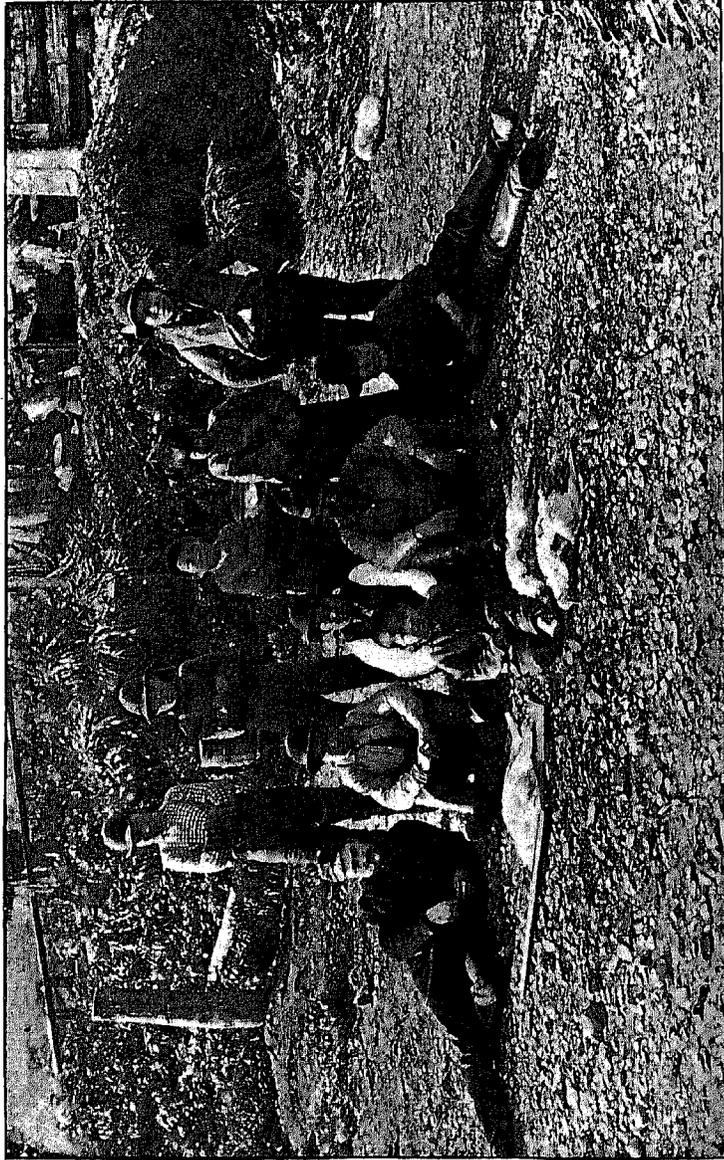
A portage trail across the peninsula separating Kadiak bay and Eagle harbor brings the two places within easy communication with each other by messenger.

In the high, rugged mountains which overhang the innermost branches of Eagle harbor, 25 or 30 miles from the sea, indications of mineral deposits have been found, but thus far this interesting region has not been investigated by competent prospectors.

To the southward of Eagle harbor the large bay of Killuda opens into the Pacific. This bay also has several salmon streams, and its mountainous shores abound in foxes, land otters, and bears. Codfish and halibut can be caught in its deep waters within less than 100 feet from sparkling streams fairly alive with the speckled trout,

Eleventh Census of the United States  
Robert F. Porter, Superintendent.

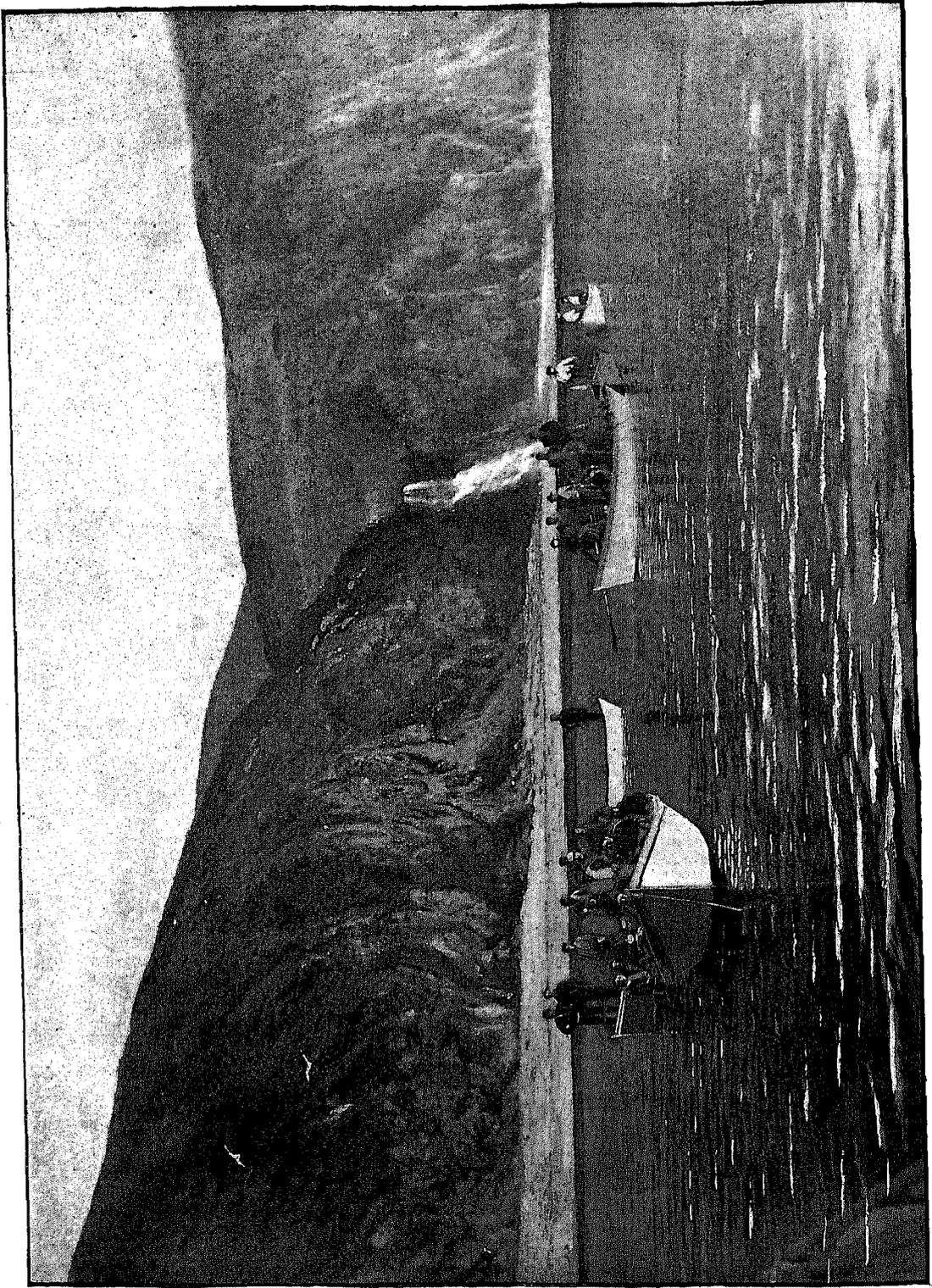
Alaska.



FISHERMEN AT KARLUK.

Eleventh Census of the United States.  
Robert F. Fortier, Superintendent.

Alaska.



SEINE BOATS AT KARLUK

seals and sea lions sport about in quest of fish, and whales in schools can be seen puffing and diving, especially during the pairing season. Occasionally one of these monsters is struck in the manner already described, and when the carcass is finally secured a season of feasting and gorging begins. As the population of the only village on all this wide bay comprises but a little over 20 people, their neighbors to the north and south are duly notified on such occasions, and it is curious to observe the almost incredible celerity with which the flesh and blubber of a huge cetacean are stripped off and carried away.

The village of Killuda is connected with that of Orlova by a portage trail which can be traversed on foot in less than 3 hours. The mountains surrounding the bay are rugged, covered with grass and mosses, and only here and there patches of darker green indicate the presence of alder thickets, which form the favorite retreat of the huge brown bears which inhabit this region. Berries are also abundant, and are dried or preserved in oil for winter provision.

East of the mouth of Killuda bay lies Cape Barnabas, the northernmost extremity of the large island of Sitkhlidak, which extends along the coast of Kadiak for a distance of 30 miles, affording safe inland passage for the native canoes. Sitkhlidak does not now contain any permanent inhabitants, but at several points sites of former villages can be observed which have been occupied within the present century. The rocky and almost inaccessible seaward coast of the island is a favorite resort for seals, and is periodically visited by hunters from Killuda and neighboring villages. Large numbers of red and silver salmon fill the few short streams on the island, and immense schools of herring crowd up to the shallow headwaters of the bays to deposit their spawn upon a dense growth of eel grass existing there, while the deeper waters are frequented by halibut in the summer season. Bears and land otters are plentiful, and the latter are famous for their very dark fur. All this natural wealth remains unused except for the spasmodic visits of natives from the main island. Only one of its many bays is used by the people of Old Harbor village as a salmon drying station for several families, who have erected sod huts for temporary occupancy.

On another bay of the island, named Port Hobron, a salting station was established a few years ago, but the plant was sold and removed to Eagle harbor.

Soundings made from the United States fish commission steamer Albatross have discovered the presence of an extensive codfish bank within a few miles of the Sitkhlidak shore, and as good harbors abound in this vicinity, it is only a question of time and increase in demand for fish when this region will be the home of prosperous fishermen. The climate is very moderate, and cattle or sheep could probably be bred here with very little winter feeding.

The village of Old Harbor, named Starui gavan by the Russians and Nunamiut by the natives, is situated upon a grassy flat on the western bank of the strait between Kadiak and Sitkhlidak islands. This settlement, containing now less than 100 people, was once an important station of the Russian Fur Company, who here obtained large quantities of dried fish for their native hunting parties as well as beef for their other employés from herds of cattle which found abundant pasture throughout the year. The dwellings of the people, mostly sod huts, with here and there a small log house, indicating exceptional prosperity, extend in a single line along the shore, with a good gravel path as a village street between the houses and the beach. At the southern end, upon a slight eminence, a neat new chapel with painted roof and belfry can be seen, together with the remnants of an older sacred edifice. Numerous graves marked by crosses and posts dot the steep hillside for nearly half a mile, an evidence of the former populousness of this settlement. The Old Harbor people annually furnish their contingent to the sea-otter hunting parties of the trading companies, but their natural food supply is ample for all their wants. Codfish and halibut are obtained with hook and line at their very doors, and seals and whales pass through the strait, and can always be found around the capes and headlands but a few miles away. Here, as at Killuda and Eagle harbor, alder thickets line all the ravines and lateral ridges, furnishing good fuel in sufficient quantities.

About 2 miles south of Old Harbor village Lissiansky bay opens into the straits. The salmon stream at its head was made use of by the Russians, and the remnants of their saltery and drying houses can still be seen half buried in the shifting sands of the river's mouth.

A few miles farther south we come to the large bay of Three Saints. Upon its southern shore, within a small landlocked cove, Grigor Shelikof established the first permanent Russian settlement in Alaska in the month of August, 1784, naming it after one of his ships, the Three Saints. From this small nucleus grew the powerful corporation which before the century closed had spread its arms northward to Cook inlet, westward to Bristol bay, and eastward to Sitka.

The natives indicate several points in the neighborhood as the scenes of battles between their forefathers and the early Russian visitors. Our only written authority for these events is drawn from Shelikof's own journals, which were printed after his death and probably much embellished, and it is difficult to reconcile his descriptions of contests with the localities pointed out by native tradition. Within 15 years after the landing of the Russians at Three Saints bay the headquarters of the company were transferred to Kadiak bay, and since that time the gloomy recesses of the bay, the arms of which wind for miles among precipitous snow-capped mountains, have rarely been visited by civilized man.

The Old Harbor natives consider the whole bay and the surrounding shore as their own hunting grounds.

From Three Saints to Kaguyak, the nearest settlement to the southward, is a distance of about 30 miles. This village is situated upon a narrow isthmus between two bays, one facing south, the other north. The northern bay opens into the ocean just west of the small island which Captain Cook named "Two-headed cape", believing it to be part of the mainland. Kaguyak contains a population of over 100, Kadiak Eskimo, a few Russian creoles, and a white trader with his family. In times gone by the Kaguyak hunters were famous for their activity and success in the pursuit of sea otters, and at intervals rival stores were established in the little settlement, causing "flush times", of which the people still love to boast. With all their past opportunities they have made but little progress in material home comforts. Their location, though convenient for launching their canoes in either bay, according to the wind, is a dismal one, exposed to furious gales, and fuel is difficult to procure. Only successful hunters can afford to build the small log houses so common in the timbered country, and with the exception of the chapel and the trader's store and residence their buildings present an exceedingly dilapidated appearance. Fish are less plentiful here than at settlements further north, but seals are still numerous, and ducks and geese breed in immense flocks in the neighboring swamps and chains of lakes.

Separated from the southern extremity of Kadiak island by a channel made dangerous by rocks and shoals we find the islands of Sitkhiak and Tugidak. They both lack permanent inhabitants, but are visited during the winter season by hunting parties of whites and natives, who combine sea-otter hunting with trapping for foxes and land otters.

Tugidak is low and flat, a favorite resort for hair seals, and occasionally the watchful hunter is rewarded by finding the carcass of an otter killed on the Shumagin hunting grounds to the southward and carried northward by friendly ocean currents.

On Sitkhiak, which is mountainous, hunting is also carried on. Several years ago a number of coal veins were discovered on the island, and for a time the locators reveled in joyful anticipations of future wealth; but though the mineral possesses good steam-making qualities, the natural obstacles to mining and shipping the product of the veins were found to be too great to overcome.

The group of small islands dotting the interval between Sitkhiak and Kadiak is known as the Geese islands, named thus by the Russians under Solovief during their first disastrous visit to Kadiak islands, in 1762. Upon the westernmost and largest of the group we find the village of Ayaktalik, established upon a site most dismal and exposed, solely for the convenience of sea-otter hunting. The people, though successful in the chase, still live in wretched semisubterranean sod huts, bereft of the comfort of fire a great part of the time, owing to the great scarcity of fuel. Since the establishment of salmon canneries in this vicinity the wreck of several large vessels upon the dangerous coast has brought temporary prosperity to the people of Ayaktalik, who made what seemed to them small fortunes from wreckage strewn along the shores of Tugidak and other islands. The village has a population of 106 Kadiak Eskimo, who probably within the near future will be obliged to search for new homes, as the practice lately adopted by the trading companies of hunting the otter with fast steam launches has well nigh exterminated their principal source of revenue. To be sure there are fish in sea and rivers, and seal and sea lions on cliffs and reefs, but these people have no land furs at their command wherewith to purchase fuel and clothing. Necessity may teach them to turn to steady labor for the canning establishments, which, with the natural independence of successful hunters, they have hitherto shunned.

On the great bay of Alitak, with its long arm of Olga bay reaching far into the interior of Kadiak island, there is but one native settlement, the village of Akhiok, near its mouth, containing over 100 inhabitants. The Akhiok people, also, have been famous as sea-otter hunters, but the white man's steam launches are rapidly destroying and driving off their most valuable game from the hunting grounds within reach of their frail canoes.

The hills in the vicinity of Akhiok are entirely devoid of timber; even the alder thickets are wanting, and the natives depend altogether upon driftwood for fuel.

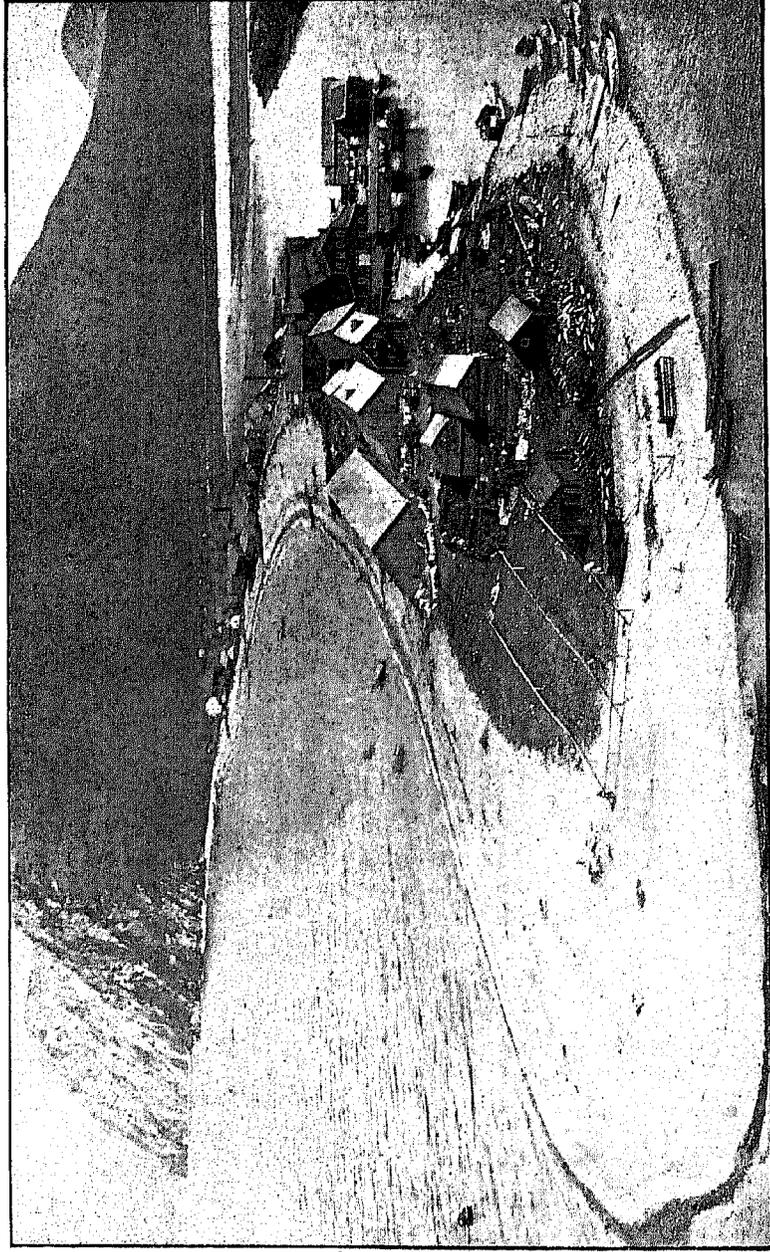
Upon the shores of a cove a few miles to the northward of Akhiok village the Kadiak Packing Company has erected a fine salmon cannery of a capacity of from 30,000 to 40,000 cases. The fish are obtained chiefly from streams emptying into Olga bay by means of steam launches and tenders. A second cannery has been established near the head of Olga bay by the Arctic Packing Company of about the same capacity. Both fisheries are operated in conjunction with other canneries at Karluk belonging to the same firms.

In addition to the various schooners belonging to trading companies or private firms, now generally fitted out with steam launches for otter hunting, the bay of Alitak is also visited by many vessels of the fur-sealing fleet. During the season of 1891 it was chosen as a rendezvous by this class of vessels to communicate with each other, pick up mail and home advices, and to transfer their catch to chartered steamers.

From Alitak northward along the coast of Kadiak island the country presents a monotonous appearance of rolling hills, covered with moss and grasses and broken into cliffs and precipices on the seashore. Though several sea-lion rookeries exist on outlying rocks and hair seals seem to be plentiful, no permanent settlement can be found here until we reach Karluk, the most important fishing station in Alaska, and perhaps on the whole Pacific.

Eleventh Census of the United States.  
Robert P. Forrer, Superintendent.

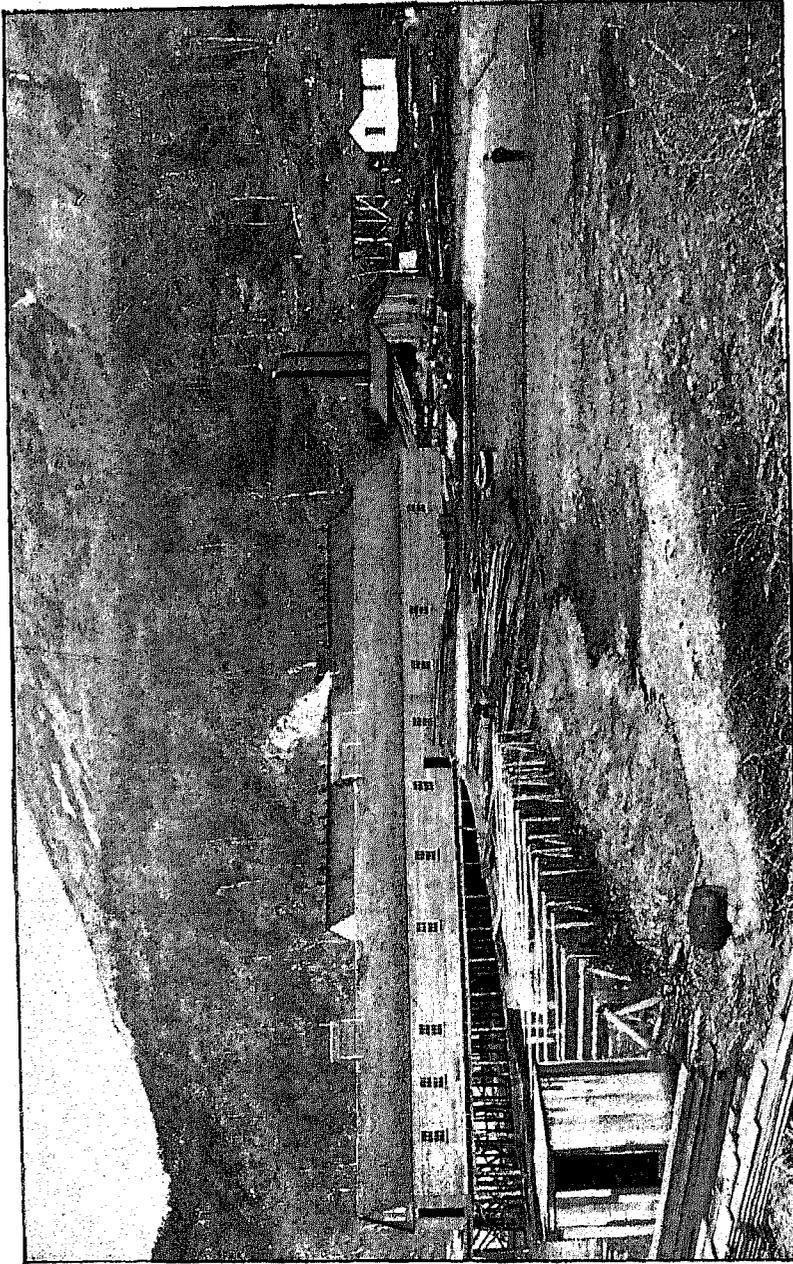
Alaska.



KARLUK SPIT.

Eleventh Census of the United States.  
Robert P. Porter, Superintendent.

Alaska.



CANNERY AT UYAK.

The Karluk river became known to the Russians as the most prolific salmon stream at an early date, and they utilized it as a depot for supplying their numerous hunting parties with dry fish as early as 1793. Ever since that time that wonderful little river has been made to yield its annual quota for the subsistence of Alaskan people. Salting salmon was not begun here until the middle of the present century, and then only for local supply. With the advent of the Americans the salting of Karluk salmon for the market began upon a limited scale at first, and it was only within the last decade that the California capitalists had their eyes opened as to the possibilities of this industry and that canneries were erected, of which there are now 5 upon the narrow gravel spit which separates the river from the bay for half a mile. Each of these canneries is fitted with the latest improvements in appliances and machinery, and each can put up from 40,000 to 50,000 cases in a season. During the season of 1890, when the fishermen at Karluk were paid a bonus on each fish caught, the accounts footed up considerably over 3,000,000 fish. The season or "run" extends from June until the beginning of September, but it is interrupted at various times by "slack intervals", lasting from 1 to 2 weeks.

In 1890 the fishing gangs of these 5 canneries were increased by others from the Arctic Packing Company at Uyak and from the Royal and Russian-American Packing Companies of Afognak, and during that whole season nearly 1,000 fishermen, in gangs of 24, could be seen lounging on the beach awaiting their turn to haul the seines, which was determined by lot. Since that time all the Karluk canneries and those of Alitak, Uyak, and Afognak have formed a combination, and have agreed to jointly employ 160 fishermen at Karluk, the fish to be divided pro rata among the firms. Steam tenders carry the fish from all outlying stations to Karluk.

The population of the place in 1890 was over 1,100, but only 180 of these were creoles and Eskimo, permanent residents of the village. A majority of the males and many of the females among the permanent residents are employed in the canneries as fishermen or fish cleaners, receiving good wages. During the winter considerable trapping is done for foxes and land otters, and altogether the Karluk people may be described as fairly prosperous.

The buildings belonging to the fishing firms quite cover the gravel spit referred to above, presenting a very respectable appearance. Each firm has its superintendent's residence, mess house, bunk house, blacksmith and carpenter shop, Chinese quarters, cannery proper, warehouse, cooper and boxmaker shop, and many also a trading store, while both bay and beach are fairly covered with steam launches, fishing dories, lighters, and boats of all kinds. Farther offshore moorings are laid down for the larger craft, the ships, barks, and steamers which carry the pack to San Francisco, and lastly quite a fleet of steam tenders for local traffic. In the height of the season "Karluk spit", as the fishermen call the place, and the roadstead and strait adjoining, present a scene of the greatest activity and animation.

The native settlement is now confined to the left bank of the river, opposite the canneries. It consists chiefly of "barabaras" or sod huts, but owing to the prosperous condition of the people the interior of these humble homes present the comforts and many of the luxuries of a more civilized existence. Upon the bluff overhanging the village stands a neat little chapel of the Russian church, erected by the people, and not far from it the United States government has built a handsome schoolhouse and teacher's residence.

Indications of precious minerals have been reported at various points in the vicinity of Karluk, but as far as known no steps have thus far been taken to develop any of the deposits.

Within 15 miles north of Karluk we find the bay of Uyak, which penetrates so deeply into the island of Kadiak as almost to sever it in two, there being only a single high but narrow mountain chain between Old Harbor strait on the east shore of the island and the headwaters of Uyak bay. As mentioned above, the Arctic Packing Company has established its headquarters and cannery here, within a sheltered cove called Larsen harbor, which affords anchorage to their larger vessels. Not far from this point we find the only native settlement on this large bay, containing less than 20 people. A short portage trail connects this village with the Karluk river.

Near the mouth of the bay one of the Karluk canning firms has erected a warehouse and wharf upon a small island, which affords sheltered anchorage, and the ships of other firms come in here for shelter when the fierce northern and eastern gales make the open strait unsafe for them.

To the northward of Uyak, on the south shore of the bay of Uganak, there is another small native village containing about 30 Kadiak Eskimo, who subsist chiefly upon the proceeds of hunting and trapping.

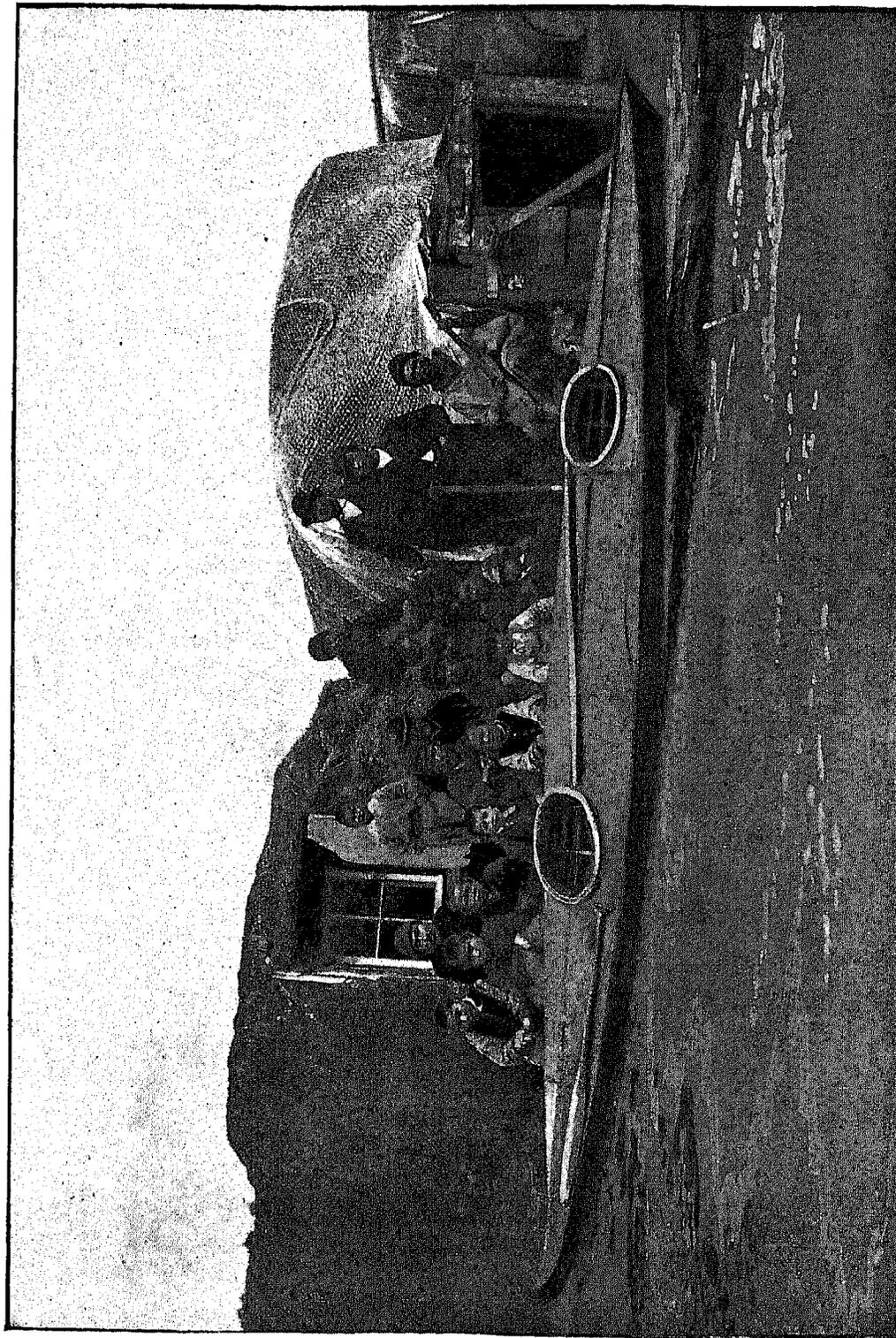
Before closing the review of the second or Kadiak district I must refer briefly to a number of its residents who are engaged in pursuits which carry them frequently into the adjoining, the Third or Unalaska, district.

The white sea-otter hunters of this region must be considered thus far as the only permanent civilized settlers who have made their homes here, and who invest their earnings where they live. This class of men, a majority of whom are Swedes and Norwegians, first sprang into existence in the early days of occupation by the United States, when the regulations of the Treasury department prohibited all but natives of Alaska from killing or trapping any fur-bearing animals. Excepted from this rule were such white men as were married to women born in Alaska. The immediate result was a demand for wives, as sea-otter hunting was then very profitable, the animals being still numerous. The number of hunters increased from year to year, and marriageable girls continued in demand, until with the lapse of time the Treasury department ceased to enforce its regulations, and the number of skins secured by individuals decreased from year to year. In the prosperous times nearly every hunter had been able to purchase, with the assistance of the trading firms, one or more small schooners, until this "mosquito fleet" now numbers

between 20 and 30, varying in capacity from 7 to 35 and 40 tons. As a rule these hunters obtain their summer's outfit from the traders on credit, and are furnished with native hunters and canoes. The accounts are settled at the end of a cruise if it has been a successful one, but if it is otherwise the account is allowed to stand over, and the hunter is fitted out again in the hope of better luck next time. Many of these men have earned large sums, reaching far into the thousands, in their arduous and dangerous pursuit, but only comparatively few have much to show for their money. At Kadiak and Afognak quite a number of comfortable homes have been built, and at Unga, in the third district, there is quite a hunters' colony. As the sea otters disappear such of these men as have families will probably turn their energies to fishing, and thus make the beginning of civilized settlement in this part of Alaska.

Eleventh Census of the United States.  
Robert F. Forster, Superintendent.

Alaska.



TWO-HATCH BIDARKA.

## CHAPTER V.

### THE THIRD OR UNALASKA DISTRICT.

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#### THE THIRD DISTRICT.

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BY SAMUEL APPLGATE.

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In complying with the request to write a brief report on the people, topography, climatology, and resources of the Alaskan district comprising the Shumagin and Aleutian islands and a part of the south coast of the peninsula, I shall carefully confine myself to what I have personally observed without regard to what others may have told or written regarding this part of Alaska.

I have been a resident of Alaska for the last 10 years, a part of that time in the capacity of observer for the United States signal service. During that time I have traveled from Unalaska westward, visiting several times the villages between here and Attu, and nearly all the coast from Nushagak to King island, in Bering sea, the seal islands, and the north side of the Alaskan peninsula to Port Hayden. To the eastward I have visited the islands and villages between Unalaska and Unga, and also Kadiak, Cook inlet, and Prince William sound. In the last place I spent one summer cruising in and out of the many deep arms radiating from that body of water. During the same summer I visited by canoe the various outlets of Copper river.

In writing about these people I can only describe them in a general way. I have never mingled intimately enough with them to become cognizant of that part of their innate nature not visible to the casual observer. However, I shall here describe their peculiar characteristics as seen by one who had the opportunity to gain some knowledge of them by long residence.

When I first visited Unalaska, in 1881, I found the people living in filthy barabaras, semisubterranean sod houses. There were some few exceptions, of course, but by far the majority lived in a manner but little above that of the higher animals. I soon discovered that the cause of their degraded condition was excessive indulgence in a home-brewed beer called quass, made from flour, sugar, and yeast. This was made almost constantly and inbibed so persistently that the people would remain in a drunken stupor for days at a time. At that time, and for 2 years subsequently, this condition existed. At that period there were rival trading companies established in the district, with almost everything imaginable, except liquor, in their stores to attract trade. Prices were fair and sea otters plentiful. In looking back to those times one can but deplore the weakness of human nature. There is not an able-bodied native here but could have been comparatively well off had he saved his earnings. With the disappearance of competition a check was placed upon the consumption of sugar, and since then the people have improved wonderfully, both mentally and physically; physically, because they can now much better resist the diseases that seem to visit them annually, and which formerly carried them off so easily. Most of them have inherited very liberally of pulmonary and syphilitic troubles, pulmonary being the most dreaded of their diseases. Even now, however, opportunities will occur to save up sugar for some special holiday and to indulge in a prolonged period of general intoxication.

The Aleuts live easily; nature has been very bountiful to them. If they get hungry all they have to do is to wait till low water and obtain shellfish or to drop a baited hook into the water and secure a sufficiency of the finny tribe. Their old customs and dress seem to have nearly disappeared. In only a few isolated villages, where they have had very little communication with whites, may still be seen traces of the dress and customs that formerly prevailed throughout this region.

They are devotedly attached to the Russian orthodox church, whose services are very impressive, but the people do not conduct themselves strictly in conformity with its teachings.

Wherever the people have the means and opportunity they have adopted all modern customs and utensils.

The men are almost exclusively sea-otter hunters, who, in many instances, leave their homes and proceed to distant hunting grounds in pursuit of their game. In some cases they are taken several hundred miles. This is undoubtedly the case with the people from Atka and Attu, who, up to within the last 2 years, have been transported to and from Sannak island to hunt during the summer. To the westward the otters have so far decreased that if 2 or 3 are secured during the year at Attu it is considered a good catch.

The Atka natives, for the past 2 years, have hunted principally around Kyska island with indifferent results. The hunters from the various villages on Unalaska and those from Akutan and Unimak islands hunt around Sannak and Unimak. Morzhovoi natives hunt on both sides of the last named island. Belkovsky and Voznesensky people hunt on Chernobura reef, while those from Unga repair to Semenovskiy for their game.

The women are employed in their various household affairs, and in the summer pick berries, gather driftwood and roots, and dry the fish for winter use. During the long, dreary winter, when they feel in the humor, they work at mat and basket making. They use dried grass for this purpose. The Attu and Atka women are very skillful at weaving and execute some beautiful work; they also make the skin hunting garments and sew together the hide covering for the canoes of their husbands.

The people live mostly in comfortable frame houses built by the traders when competition was active. They occupy them rent free, and the houses are kept in good order by the Alaska Commercial Company, which is the present owner of nearly all the frame houses in the different villages. To the westward many of the Aleuts still live in barabaras, or sod huts. At the present time there are 7 houses of this kind at Unalaska. Many prefer to live in them, especially during the colder months, when it does not require much more than an ordinary lamp to heat them. In their condition civilized men would make the same choice, but not without paying more attention to ventilation, which these people neglect altogether.

#### TOPOGRAPHY.

The Aleutian islands appear to be a continuation of that range of mountains which, varying in width and height, trends along the eastern shore of Cook inlet and down alongside of the Alaskan peninsula. Instead of being one continuous mass, the range is here broken into many isolated groups, forming islands, with deep passes of water between. The islands are extremely mountainous, with here and there a narrow valley running back a mile or two. They are much indented by numerous bays of various sizes. The only islands in the group where such is not the case are Umnak and Amchitka. Beaver bay, Makushin bay, and Unalaska bay, in the order named, are the most capacious among these island harbors. Pavlof, Portage, Cold, Morzhovoi, and Port Moller bays on the peninsula are much larger than the above, while the number of smaller bays and coves is legion. I stated above that these islands are very mountainous. I will except from this sweeping assertion the large island of Amchitka, the southernmost one of the Aleutian group, which seems to have been unchanged when all this region was convulsed in chaos. This island seems to be made up of low, undulating hills, probably not any one higher than 500 feet. The only other tracts of level land are found in a portion of Sannak island, at Thin point, on the south side of the peninsula, and in an extensive area on the north side. This last is contained in a strip from 25 to 35 miles wide in the north, between Bristol bay and the mountains, and growing gradually narrower as the coasts converge toward the southern extremity of the peninsula until Morzhovoi is reached, where the mountains again rise abruptly from the sea. This island region contains no stream that can be called a river.

One peculiar and notable feature in the conformation of most of the larger islands of this group is that the highest mountain ridges are on their northern ends, decreasing gradually in height in a southerly direction until about the middle of the island is reached, when the falling off is very marked.

There are many extinct volcanoes, and several from which issue vapor and smoke intermittently, and one is constantly active. This last, Bogoslov, arose in 1882 about three-fourths of a mile northwest of the old Bogoslov island, and it has been very active ever since. In 1883 or 1884 the two islands became connected by a low, narrow, shingly beach, which must have been forced up from below, when Sail rock (a pinnacle just northwest of the old island) was being elevated, until it is now covered with barnacles for several feet above the present water line. These various volcanoes are liable to burst forth at any moment; in fact, they do now occasionally discharge huge volumes of smoke and then suddenly cease for days or months. Old Bogoslov arose, I think, in 1796, remained active for a short time, and then died out, leaving an island about 700 feet high. The old Russian charts give a reef extending from the island to the north end of Umnak. This has since subsided and deep water is now found over the whole area.

There seem to be more or less changes taking place all the time on the bottom around these two islands. Shortly after the new volcano rose, one of the United States revenue cutters sounded around them and reported good anchorage. A year or two after the same vessel again visited them, and where there had been soundings before with the ordinary lead line no bottom was found.

On the mountain slopes of the north coast of Umnak, for several miles, can be seen jets of steam issuing from innumerable fissures.

## CLIMATE AND RESOURCES.

In regard to the climate, there is one thing that can safely be calculated on, and that is an abundance of "bad weather". In this respect a majority of those who have written about this part of Alaska have misled the public. The climate of a region can not be determined by being in it for a brief time during the most favorable part of the whole year.

The seasons here may be likened to 4 horses in a race on time around the world. The race bids fair to be very exciting. Autumn and winter soon take the lead and accomplish the heat in the most approved manner. After patiently waiting for spring she finally comes lagging along pretty much used up, having collided with winter. And summer! Where is she? Something more serious must have overtaken her. After all hopes have been abandoned of ever seeing her again she manages to reach home in August, and soon after dies a premature death.

The climate is entirely "of the sea", windy, chilly, damp, and anything but pleasant. July and August in some years are quite agreeable, but more often they are like the early spring months in the eastern states. The wind and rain begin in earnest in September, and it is surprising how often and suddenly the heavy blows succeed each other. Easterly and southeasterly winds are the ones most to be dreaded. The very moment the wind veers back into the southeast, it quickly increases in violence and is followed by rain. More than half the rain and snow that falls annually comes with a southeast wind. This is generally preceded several hours by a slow rise in the barometer, and as soon as the rain and wind begin the atmospheric pressure quickly diminishes. Excepting these southeasters, storms, probably mostly local, occur at any moment and without the faintest warning by barometric or atmospheric indications. From September to May there is a constant succession of strong winds. The air is heavily charged with moisture and needs merely a slight change in the temperature to cause it to precipitate in the form of snow, if it be cold enough; if not, in fog, and if the change be quick the fog will be converted into rain. It falls on the least provocation. It needs no exertion, but slides down as easily as oil.

Fogs are very prevalent, and the islands are enveloped in them most of the time. It may be very foggy outside close to land, when at the same time over the land itself it is rather clear or probably cloudy. The cloudiness in this case is doubtless the fog elevated in consequence of the heat emanating or radiating from the soil.

The average annual rainfall can not be far from 120 inches. It has been stated in some official report as being only 40 inches by some one who was supposed to be an authority on the subject. Following is the rainfall for the years 1882, 1883, 1884, 1887, and 1888 (for 1885 and 1886 the data are lost), respectively, as follows: 80.80, 90.12, 158.29, 98.07, and 160.88 inches, and a considerable part of the precipitation was lost during the period named in consequence of the rain gauge overflowing several times. For the years 1882 to 1886 the rainfall was measured by myself for the signal service; 1887 to 1888 it was taken from the weather records kept by the Alaska Commercial Company. Two or three times the monthly rainfall has exceeded 30 inches. October is usually the month of the greatest precipitation, but large amounts are likely to occur in any month from September to May. It will rain from 26 to 31 days each month from September to May, and from 18 to 25 days from June to August. It is probably this excessive moisture with much cloudiness which prevents the sun from warming the earth, in conjunction with cool nights that so seriously affect vegetable life. It is cloudy three-quarters of the year and fair the rest of the time, with 1 to 5 clear days per month. All this information can be confirmed from the records of the signal office for the 5 years named.

Lightning may be seen two or three times each year during the winter months; I have never observed it during the summer, and have heard thunder only once. The weather is never excessively cold. The wind is mostly from the southern quadrant and carries with it vapor from the warm ocean current traversing the whole Northern Pacific, and which wholly controls the temperature of the Aleutian islands.

For the past 10 years the temperature of Unalaska has not fallen lower than 9° above zero. To the eastward from here and on the peninsula it gradually decreases, while to the westward there is a slight increase in the average temperature.

The annual depth of snow has never been determined, from the fact that it drifts here and there in a wonderful manner. The air during the colder months is blinding and it seems to be snowing when it is not, that is, the atmosphere is full of particles of snow carried along by strong currents of wind from the mountain ridges. Toward the west the snow gradually merges into sleet, and by the time the western islands are reached the number of snowy days will amount to considerably less than at Unalaska. There are many heavy blows from the southwest, but as a rule they are not accompanied by heavy precipitation. Fine weather accompanies a south wind. West to north winds in summer bring quite fair weather, but during the winter they are very disagreeable, being accompanied by much snow and sleet. A northeast wind is usually quite fair at sea and over the land it is much better.

From an agricultural point little can be said in favor of these islands. No cereals will mature; they will grow very rapidly, but before ripening the grain will be cut by frost or become moldy in consequence of the humid atmosphere. Potatoes are grown in limited quantities; probably if they were planted properly and cared for the yield might be a little more than would be required for home consumption. As now planted the returns are not encouraging. Small whole potatoes are used for seed and are sowed like grass, and after coming up the superfluous plants are pulled out. Even then they are entirely too crowded, the distance between plants not

averaging more than 6 or 8 inches each way. This is the native way of planting. Perhaps all do not do this, but all I have seen cultivate in this manner. The yield in number will be about the same as elsewhere, but the sizes will range from that of a hickory nut to that of a walnut, with an occasional one much larger. They are much sweeter than is common, and are more or less watery.

Radishes and lettuce grow to perfection and are very succulent. Cabbage flourishes well, but does not seem to head. This may be due to the soil being too rich. Turnips, especially the little white variety, grow in a way that can not be excelled anywhere, and attain a size of from 3 to 8 and 10 inches in diameter, and are very juicy. Wild strawberries grow in several places. One variety of whortleberry grows and bears quite abundantly when the seasons are suitable, and also a wild raspberry. The latter is the principal berry, and is about 5 times as large as the cultivated ones, often measuring an inch and a quarter to an inch and a half long by an inch or more across. It is very watery, with little or no fragrance, and is but slightly sweet. No trees grow in the district, unless I except a stunted, shrub-like willow which flourishes in the valleys along the streams on the peninsula and islands, and one small grove of spruce trees planted at Unalaska in 1824. Wild flowers grow in abundance. During July and August the mountain sides present a beautiful appearance and resemble a richly hued carpet. Few of the blossoms are fragrant; however, there is one of a blue color that is very redolent, of the clover family, and one which probably belongs to the hyacinth family. The former flower is only to be found growing among loose stones at an elevation of from 800 to 1,000 feet, the latter only in marshy places.

Grasses grow very profusely, some of the coarser varieties reaching 5 feet in height. The several kinds make excellent hay when it is possible to cure it, which can not always be done. The cattle prefer it to that which is imported. If the two are mixed, they will separate it and eat the native grass first.

While this region will yield little of much value from the land, except of course any minerals that may be hereafter discovered, it can be said that the deficiency is made up by what the water produces.

The quantity of cod is almost unlimited. The aggregate area of cod ground is many thousand square miles, and the total number has not yet been determined. Of salmon there are in summer comparatively small quantities of the red variety (*Oncorhynchus nerka*) and in the fall the silver salmon (*Oncorhynchus kisutch*). They are inferior to those in the streams on the mainland, being much smaller, hard, and very dry. Halibut seem to frequent pretty much all the banks where cod is found, and attain a very large size, some weighing 300 pounds or more each. Of other fish that would probably have a good commercial value, if properly introduced, there is the so-called Alaska mackerel. This fish, though in no way resembling a mackerel except in flavor, is found in this district from the Shumagin group of islands westward to Attu, the western islands being more favored than elsewhere. In flavor it is excellent. It is found mostly among kelp where the current is strongest, which of course makes it difficult or impossible to catch them in nets. The natives at Attu and Atka use a gig, or rather a long pole, along the length of which are fastened several hooks. This they push down in the water, then give it a quick jerk upward, and thus often catch more than one fish at a time.

Of shellfish there is quite a variety, the principal being the clam, of which there are several kinds, of excellent flavor. Mussels are plentiful and large, and in proper season are very fat, firm, and sweet. The natives consume large quantities of the sea urchin.

In regard to the stock raising and dairy business, of which considerable has been said and written by various individuals, I would say there would be no doubt about the success of these two industries were the conditions the same throughout the year as when seen by these writers. They base their opinion upon the topographical and climatic conditions seen during the most favorable portion of the year, when everything appears most promising. In considering the pro and con of the question one must be familiar with the obstacles that must be encountered. These do not present themselves in this case to the judgment of transient summer visitors. While the hills and mountains are destitute of timber, which naturally adds to the advantages for the purpose stated by affording greater area for grazing, it is this very fact that would cause incalculable suffering among stock during the cold, icy, and damp winter months. One would say "house them". This would certainly have to be done. Whether the extra cost for immense buildings to accommodate large herds would be any serious objection I am not qualified to say. In my judgment it would be quite an item, as the buildings would have to be very substantial or else the usual winter storms would soon demolish them. Stock can not remain outside with immunity from serious loss of life. The storms are frequent, with rain, snow, and sleet falling all at once or alternately. This freezes or melts, according to whether the temperature is low or high. This would be the greatest drawback. The ground becomes caked over with ice, hiding every blade of grass, and remains so for many days at a time, too long for cattle to wait. This condition continues from the middle of November to the middle or end of April. The winters are variable; occasionally we will have one that is quite a surprise to us for its mildness, but this is an exception, and must not be expected. Another objection to the raising of cattle is the long distance from a market.

The climate of this section naturally precludes any possibility of sheep raising. It has been tried repeatedly with a few at a time. They very quickly get the disease known as the "foot rot", and soon become covered with ugly sores.

Hay can be made, but failure to do so will be as frequent as success. Most of that now used here is imported from San Francisco. Of course ensilage could be substituted, as grass is plentiful.

Of precious metals the indications are quite promising. At present there is only 1 mine in this district, on Unga island, that is under development. This is owned by a San Francisco company. Elsewhere mineral bearing veins and ledges have been found, but they all seem to contain small amounts of metal.

Bituminous coal of good quality has been found at Port Moller. This has been worked for the past year and some 700 to 800 tons have been shipped to Unalaska. However, it will need much more prospecting before its value can be determined. The surface indications are excellent. This mine also is in the hands of San Francisco capitalists.

In order to impart a better understanding of the leading features of this district I will attempt a detailed description, beginning with the Shumagin group in the east and finishing at Attu, the westernmost island of the United States.

The Shumagin islands were named after the first victim of the scurvy which decimated Bering's crew after his discovery of the northwest coast. This man was buried upon one of the smaller islands, which one it has been found impossible to determine. The group was then inhabited, as it is now, by the easternmost offshoots of the Aleutian or Unangan people. They were sea-otter hunters then as now, and though somewhat more warlike than their western kinsmen, they were easily conquered by the Russian fur hunters in their gradual advance from the Aleutian islands eastward. The islands comprising this group are quite numerous. Many of them have only local native names, but the more important are Unga, Popof, Korovinsky, Nagai, Korovin, Andronica, Semenovsky, Chernobura, and Bird islands. But few of these have any permanent inhabitants.

The northernmost of the group is Korovin, named after one of the early Russian hunters who was one of the few survivors of the massacre of Russians by the natives of Unalaska in 1760. The island contains a single settlement near its southern extremity, with a population of 41.

These people have reaped the benefits arising from commercial and industrial development in their immediate vicinity without taking a very active part. They hunt sea otters occasionally and trap black foxes, with which their island was stocked by the Russian Fur Company. They have good sailboats, built by themselves, and sometimes join the fleet of boats and dories sent out by the cod-fishing firms located on Popof island. In former times a small herd of cattle flourished here, finding ample pasturage almost throughout the year.

Popof island is some 9 miles across its greatest breadth. It is made up of low mountains, with a few small valleys, the highest part being on the east and the lowest on the west side. It has 2 fine little bays, Pirate cove and Humboldt harbor, and in each of these is established a cod-fishing depot, owned by San Francisco parties.

Pirate cove was selected more than 12 years ago as a central depot for a company engaged in catching and pickling cod, to be cured and packed in San Francisco. The harbor is quite small and shallow, accessible only to light draft vessels. A number of substantial frame buildings, dwellings, store, warehouses, and a wharf have been erected here, and as the climate permits of fishing at nearly all times of the year the little cove always presents a lively appearance, with scores of boats and dories, either hauling up or passing in and out through the narrow entrance. During the last few years the firm has established branch stations on Sannak island and considerably enlarged its trading operations.

Humboldt harbor has been for several years the central station of a San Francisco firm, which has put up good buildings and constructed a wharf. The harbor, opening into the strait between Unga and Popof islands, is easy of access and affords excellent shelter. It has served for several years as a point of rendezvous and call for the fur-sealing fleet of schooners and steamers, especially those of foreign bottom. Last year, however, this port, which is popularly known as "Sand point", was selected as the site of a customhouse, with a deputy collector, and the "contraband" visitors must flit elsewhere, much to the regret of the storekeeper, who did a thriving trade. The cod fishing here is carried on in the same manner as at Pirate cove. A small branch station for fishermen has been established at Red bay, a few miles away, on the southern shore of the island.

The next island, Unga, is about 18 miles across its greatest length and about 4.5 miles over its middle, where it contracts like an hourglass. It has 3 small bays, 2 on its southeastern end and 1 on the north. The settlement and trading station is on the southeastern end, in Delarof harbor, named after the first commander of the Unalaska district under the rule of the old Russian Fur Company. This village contained in 1890 over 100 Russian creoles and 48 whites, including employes of the Apollo mine. Unga saw its most prosperous times when sea otters were still numerous in these waters. The white hunters then returned at the end of each season with thousands of dollars to their credit, besides abundant cash jingling in their pockets. Drinking and gambling was the rule, and occasionally scenes of violence were enacted. A few of this band of roughest pioneers had comfortable houses erected and natty little schooners built for them by the trading companies. As previously mentioned, the system of fitting out these hunters on credit prevailed, a system which was fostered by rivalry between firms and which resulted in making them more reckless in their expenditure. The otter hunter was then and is now welcomed at every trading station for his lavish expenditure, and wherever competition was possible he was petted and made much of. The prestige of one or more fortunate seasons clings to him for years after, and has often enabled him to incur a heavy indebtedness at various stations at the same time. The most fortunate hunter among them was a Wyoming trapper, who, after many years of hard struggle in

trapping land furs around Cook inlet, tried his luck at sea and happened to run his craft into an unknown retreat of the animals. His season's catch netted him \$16,000 in San Francisco, with which he prudently purchased a stock range in Wyoming. The hunters never tire of quoting this man's luck. It serves to buoy up their own hopes in these latter days of disappointment and gradual decadence of their hazardous trade. A few of the once successful hunters, who were most reckless in their expenditures, are even now turning their attention to fishing for cod in summer and trapping foxes in winter.

The village consists now almost wholly of neat frame houses. The Alaska Commercial Company has here a trading store of considerable import, and at times quite a fleet of small craft is moored in the harbor or hauled up on the beach. The creole members of the community maintain a chapel, which is served intermittently by the parish priest of Belkovsky.

At the head of Delarof bay is situated the Apollo mine, with numerous substantial buildings, tramways, tunnels, and shafts. The vein worked here is gold-bearing quartz, yielding ore of a somewhat low grade; but, with improved processes of manipulation, steam drills, and other machinery, the prospects of the mine have improved to such an extent as to warrant the erection of a much larger mill. Water power of ample capacity can be utilized for this purpose. Several locations have been made and worked at Squaw harbor, about 3 miles from the above named mine. The rock in these veins seems to be of a rebellious nature. The mine was allowed to be worked 2 years ago by an outside party, with the agreement that he was to furnish the capital and receive therefrom a certain proportion of the profits. I believe he bankrupted himself about the time the mine bade fair to repay him for his labor and expenditures. The owners then stepped in and took possession, expecting to reap a rich harvest. However, they have not met with much success, and are now merely doing assessment work.

On the north end of Unga island, in Coal harbor, a deposit of coal exists which has been worked at long intervals since the earliest days of occupation by the United States. The supply of the mineral here is ample, but the quality is a poor lignite, and after various corporations have sunk capital in the hope of realizing fortunes, the place is now in the hands of 2 white men, who live here with their families, selling small cargoes of coal to the otter hunters and traders for fuel and eking out a living by means of hunting and fishing.

The surface of Unga island is hilly and covered with grass and mosses. The inhabitants claim that sheep can be raised here successfully, as snow does not remain long enough upon the ground to interfere seriously with grazing, but the experiment has yet to be tried.

On the coast of the Alaskan peninsula to the northward of Unga we find a number of large bays. The easternmost, which is named Stepovakh, is bordered by high, barren mountains rising gradually from the sea. The waters of this bay are very deep and afford no sheltered anchorage except from northerly winds. The next bay to the westward is Portage bay, which is narrow but deep, extending about 20 miles into the interior. From the head of this bay a portage trail, between 12 and 13 miles in length, leads to the head of Herendeen bay, a branch of Port Moller, on the north coast of the peninsula, and the site of the coal mine referred to above. Preparations have been made for building a railroad across this isthmus if the coal obtained here continues to be of marketable quality. Portage bay being a much safer and more accessible harbor than Port Moller, such a road would greatly reduce the cost of shipping the product of the mine. But a few miles west of Portage bay the coast is deeply indented by Otter and Beaver bays, affording good anchorage and favorite hunting grounds for the Unga people in search of bear and cariboo meat.

Within 38 miles west of Unga there are 8 islands, the largest of which are Dolgoi, Voznesensky, and Ukolnoi, in the order named. On the northeastern end of Voznesensky island is the settlement of the same name. This is a trading station with a store. Very few pelts are to be had here, and I believe it is intended to abandon the station, though but a few years ago the inhabitants, numbering about 50, were quite prosperous and supported a small chapel of their own. Dolgoi and Ukolnoi islands are utilized by white sea-otter hunters as winter stations, and a few foxes and land otters are still trapped there annually.

Just north of this group of islands the peninsula is almost cut through by the wide bay of Pavlof. The north and south shores of this bay, on both sides of the entrance, rise up into towering mountain groups, with black, rocky sides and snow-covered peaks, the southern one culminating in Pavlof volcano, which has been intermittently active since the discovery of the northwest coast. A few years ago large masses of fine volcanic dust were carried northward from here by southerly gales and deposited inches deep upon the smooth rocks, wharves, and the decks of vessels hundreds of miles away. Large deposits of sulphur are said to exist in the crater, from which in former times the natives obtained the material used in their primitive fire apparatus. The northern shore of Pavlof bay is very low, affording a clean sweep for the gales of Bering sea, which make this broad and apparently sheltered sheet of water dangerous to navigate and cause it to be shunned even by the small craft of venturesome otter hunters. Immediately south of these islands is the Chernobura reef. This reef is some 30 miles long north and south by about the same width east and west. It extends to within 12 miles of Sannak. The Sannak group of islands and reef covers an area of 17 miles north and south by 30 miles east and west. These 2 reefs are the principal sea-otter resorts in this district, and probably in all Alaska. They are comparatively shoal, with many small islands and rocks hidden and awash.

North of the Chernobura reef, on the mainland, is the village of Belkovsky. The settlement is situated on a bluff on the south slope of a mountain rising immediately behind it. There is no anchorage, only an open roadstead, from which vessels have been blown away with the loss of their anchors. Nearly all the houses of Belkovsky are neat frame cottages, erected for the natives by trading companies when sea otters were plentiful. They are generally painted in white or light colors, and are set off in pleasing contrast by the green mountain slope behind them. Even now, in its decadence, Belkovsky contains 185 people, among them a few white men, sea-otter hunters, who make this their permanent home. Less than a decade since the sea otter pelts collected at this station numbered in the thousands, and there were 3 large rival stores bidding for the precious peltry, wheedling and coaxing the lucky hunter to sell his skins, then stimulating him to the most reckless extravagance, and finally hurrying him off again with an outfit given on credit to face the whistling gale and raging sea in search of more furs. In those days the storekeeper would keep only the most expensive wares. Fishing and seal hunting were neglected, the families of absent hunters feasted upon canned meats and preserved delicacies, while their houses were filled with useless crockery, pictures, and bric-a-brac, and gaudy clothes and dresses unsuited to the climate. Each visit of successful hunters to their homes was sure to wind up with a long debauch, which left the hunter as well as his family ill prepared to meet succeeding periods of hardship, exposure, and want caused by extravagance. During these flush times the natives made constant gifts of valuable peltry to the church for the purpose of erecting a fine building, which, together with a handsome parsonage, now forms the chief ornament of the settlement.

In our days the glory of Belkovsky has departed, the number of otters secured has decreased from thousands to less than a hundred, dissipation and epidemics have decimated the hunters, and poverty and strict economy have taken the place of affluence and extravagance. The rival stores stand vacant, and even the shelves of the only surviving place of business are but thinly stocked with inexpensive wares. Salmon and seal meat have once more assumed their place as staple food, and the luxuries of former days are but a pleasant memory. The trader finds no difficulty in maintaining a small herd of cattle, and occasionally the more active hunters bring in a supply of reindeer meat.

About 10 miles southwest of Belkovsky lies Oleni, or Deer island. It is some 10 miles long and composed of low, grassy hills, with many outlying reefs and kelp beds. Formerly these were a favorite resort of the sea otter, and then the green slopes of the island were dotted with the white or blue-striped tents of Kadiak Eskimo hunters, who were carried there by the trading company's schooners; now the natives of Belkovsky only pay occasional visits to Deer island for the purpose of hunting.

To the northwest of this island, and on the west side of Thin point, is a broad cove, on the north shore of which are 2 large salmon canneries. The success of these canneries is as yet uncertain. One has been in operation 2 years and the other 1 year. The first year one cannery packed some 25,000 cases, the next year the two together only put up 11,000 cases. Most of the fish are caught with seines at the mouth of a small creek, the outlet of a brackish lake of considerable extent, but steam tenders also visit adjoining bays in search of an additional supply. The buildings erected by the canning companies at Thin point are both large and expensive.

The island of Sannak, named Halibut island by Captain Cook, which has long been a well-known center for both white and native sea-otter hunters, bids fair also to become important for its fisheries. The cod-fishing firms operating on the Shumagin islands have established branch stations here, which are also convenient as depots for the Unimak and Bering sea codfish grounds. The Alaska Commercial Company and some of its rivals have been in the habit of carrying hunting parties to Sannak for many years from all the settlements on the Aleutian islands. On the northwestern end of the island, in a small cove, they have a permanent trading station, stocked only to supply the immediate wants of hunters, and also comfortable quarters for such natives as are willing to exchange the free and easy but uncertain shelter of their tents for the restraint of bunks in tiers under a solid roof. During the summer the coasts of the island are still white with tents. Although the island of Sannak has no permanent inhabitants except the storekeeper and agents of fishing and trading companies, over 100 hunters and fishermen were enumerated there in 1890. Several white sea-otter hunters have erected houses on small outlying islands, which they occupy during the hunting season with their families. The reefs which surround Sannak, and which extend their dangerous network about 30 miles in width northward nearly to the Shumagin islands, have been considered the most important sea-otter ground of Alaska. The waters frequented for feeding by these shy animals are never very deep, as their principal food supply consists of clams obtained from vast sandy beds in easy soundings.

At the western extremity of the Alaskan peninsula, in a cove opening into Morzhovoi or Issanak strait, there is a native settlement inhabited by about 60 Aleuts, who make a good living in hunting sea otters on both sides of the peninsula, and trapping foxes and land otters on their own shore and on Unimak island. Both bears and reindeers are numerous here, and food fishes exist in the usual abundance. Morzhovoi has a good trading store, and has also been selected as headquarters by a number of white sea-otter hunters owning several smart schooners, which skip in and out through the shallow and intricate northern entrance of the strait, which is practically impassable for larger craft and skippers not possessed of the most intimate local knowledge. But a few miles to the northward of this village are several hot springs possessing good curative qualities, especially for skin diseases.

Immediately southwest of the peninsula, and only separated from it by Issanak strait, a quarter of a mile wide at its northern entrance, is the island of Unimak. It is about 70 miles long and very mountainous, but has quite a smooth beach around its whole extent. It has the highest mountains of any of the Aleutian islands. A little to the eastward of the center of this island is the Shishaldin volcano, nearly 9,000 feet high, but not very active, merely emitting occasional puffs of steam, and at its western extremity rises the Pogromnoi peak to a height of a little over 5,000 feet. Violent volcanic eruptions and convulsions have been observed on this island within historic times, and described by Veniaminof and other Russian writers. The earlier Russian visitors also reported 11 populous villages of natives on the island, but these inhabitants were either killed or carried away to the eastward as hunters and never returned. The sites of these settlements can still be clearly traced, but at present this large island, with its abundance of natural resources, is only rarely visited by hunters in quest of bear or reindeer. The Russians, probably deriving their information from native sources, reported the existence of large deposits of sulphur in the craters of Unimak.

Unimak pass, between the island of the same name in the north and a group of smaller islands in the south, is 20 miles wide at its narrowest point, and is used by nearly all vessels bound from ports on the Pacific coast to Bering sea, Bristol bay, or to the Arctic as a point of entrance from the Pacific. The great width of the passage makes it possible for sailing craft to beat through it against the wind. As another advantage of this pass over others farther west may be counted the 2 towering peaks of Shishaldin and Pogromnoi to the north of it, which, characteristic in graceful outline, loom up as infallible beacons above the fog and mist which so frequently cover the surface of this part of the ocean.

Between Unimak pass and Unalaska island, within a distance of about 50 miles, we find a number of islands, Ugamok, Tigalda, Avatanok, Akun, and Akutan, the last two being the largest and the only ones among them which have been permanently inhabited within historic times. They are all mountainous, and Akutan is distinguished by a smoking volcano nearly 4,000 feet in height. On Tigalda a few white men have been prospecting a gold-bearing quartz vein for some time, but no results have as yet been reported. On Akun there was until very lately a small native settlement, but the people have now moved their homes to Akutan, the adjoining larger island, which has the advantage of an excellent harbor and a small trading store. Codfish and halibut are abundant around these islands and salmon ascend the small streams, while large beds of clams and mussels are uncovered by every receding tide. Foxes, which were exceedingly numerous before the advent of the Russians, have nearly disappeared. All the smaller islands and outlying rocks are utilized by gulls, cormorants, puffins, and other sea birds as breeding places, and are periodically visited by native hunters in search of eggs. Whales can be seen in schools in and about the passes, but they are no longer hunted by the islanders. If, however, the carcass of a whale, struck by some whaler, is reported as drifted ashore anywhere within 100 miles, the people still flock together from all points of the compass to join in the distribution of rancid blubber and in the subsequent feast.

Crossing from Akutan by Akutan and Unalga straits to the eastern end of Unalaska island the first settlement met with is Borka, situated on Spirkin island, in Beaver bay. The village contains 57 native Aleuts and a Russian creole trader, who live in neat and comfortable dwellings, though many of them are but sod huts. Borka was also once a quite prosperous hunting community, which the gradual disappearance of sea otters has reduced to comparative poverty. The hunters still join the parties sent to the reefs of Saunak every season, but they bring but few skins back with them. Fortunately the natural food supply of these natives, derived chiefly from the ocean, is as abundant as ever.

Within a few miles north of Borka a fine harbor, Samganuda bay, opens into Unalga strait. Here Captain Cook, on the 3d of October, 1778, moored his ship to restow cargo and stores. Though he found the Russians already established on the island he went through the ceremony of taking possession for the king of Great Britain and then sailed for the Hawaiian islands to meet his death.

The characteristic features of Unalaska island are its abrupt shores rising in steep slopes and precipices from the water's edge, its many bays, and high mountains. The latter culminate in the northwestern part in Mount Makushin, between 5,000 and 6,000 feet high, with an old crater which still smokes occasionally. The first impression derived from a glance at the map of Unalaska island is that it resembles a crushed crab with its legs extended and deep bays between them. On the northern edge of what would be "the body of the crab" is Captains harbor, or Unalaska bay, and on its southern shore we find the village of Unalaska, the center of trade and navigation of western Alaska and Bering sea. The Russians began to trade and hunt here about the year 1750, and since that time the place has always been occupied as a station. The name of Captains harbor was derived from Captain Levashef, of the Russian navy, who wintered here in 1762. Nearly 20 years later Captain Sarychef, of the Billings exploring expedition, moored his ship, the Black Eagle, for the winter in a cove on the west side of the bay, which was subsequently named "Gollandsky bukhta" (Hollandish bay) by the Russians, and is now known as Dutch harbor.

Fully two-thirds of the buildings at Unalaska are the property of the Alaska Commercial Company, as well as the wharf and the water supply, pipe line, and pump. In addition to these there is a Russian church, somewhat out of repair, with parsonage and schoolhouse, and some private dwellings belonging to the family of a former priest and to employes of the company. A small customhouse has been allowed to fall to pieces, and the deputy

collector, as well as a United States commissioner and a deputy marshal, are obliged to pay rent out of their slender salaries. The only government building at Unalaska in a serviceable condition is a coal shed of limited capacity, in which fuel for the use of the revenue marine is stored. Among the native dwellings but 4 or 5 of the old sod houses remain.

The trade carried on at Unalaska has always been of considerable volume, and for a number of years a rival trading firm was located at the eastern end of the village. The number of arrivals and departures of vessels during the season reaches into the hundreds, and embraces craft ranging from 10 to 2,000 tons capacity. Trading and hunting schooners and steamers, freight carriers under sail and steam, colliers, revenue marine and naval vessels, and a numerous whaling fleet under steam and canvas make this port a regular place of call, to coal and water and refit, and to collect and deliver a voluminous mail, which is handled and carried by the Alaska Commercial Company in the absence of a postmaster or mail contract for direct communication with San Francisco.

One of the company's buildings is also occupied temporarily by a school for girls under the auspices of the Methodist church. Rev. Mr. Tuck, who, with his wife, has charge of the institution, is also employed by the United States government to teach a day school, but as this is the center of one of the regular parishes of the Russian church which has been in existence for nearly a century, the connection of the teacher with the missionary establishment of another church prevents the people from sending their children to school. This state of affairs is all the more to be deplored because the Russian church also neglects to maintain a school of its own. The girls who are boarded and lodged in the school and are not permitted to mingle with the people are making good progress in their studies.

Nearly all the grown males of the native population of Unalaska, or Iliuliuk, as they call it, are engaged in sea-otter hunting on distant islands and visit their homes only at long intervals. During their absence their families are provided with necessaries by the company, and many of the women, boys, and girls labor on the wharf, discharging or ballasting and loading vessels, as no other assistance can be obtained. A sufficiency of salmon is always obtained from streams in the neighborhood, and codfish, halibut, and shellfish can always be secured from the waters of the bay. Fuel is very scarce, the driftwood within reach of their canoes having well nigh disappeared, and all who can afford it buy coal and cordwood of the company, while others still practice their ancient method of gathering the dry vines of the "chiksha" berry, which the women carry home from the hills upon their backs. The Alaska Commercial Company and a few private individuals maintain a small herd of cattle at considerable trouble and expense.

At Dutch harbor, on Amaknak island, the North American Commercial Company, the present lessee of the seal islands, has established a coaling and watering station and depot for the fur-seal industry. They have erected substantial buildings and a wharf, to which water is carried in pipes from a beautiful lake nestling among the hills.

During the shipping season Unalaska is certainly the most important and liveliest seaport of Alaska, fairly bustling with activity, but when the last steamer has taken her departure in the month of November about a dozen white men and women are left to pass the gloomy winter days and nights as best they may, waiting and longing for the first news from the outside world in the following April.

The agent of the company at Unalaska has under his control all the stations between Unga in the east and Atka in the west, as well as those of Bristol bay, the Kuskokwim, and the whole of the Yukon region. Communication with the northern and western stations is had only once a year by means of the company's vessels.

On the northeastern shore of Unalaska island a small native settlement exists at the mouth of the bay of Makushin, containing 51 Aleut natives, who maintain themselves by joining the sea-otter parties and by trapping during the winter. Their dwellings are sod huts, and they have a small log chapel, sadly in need of repairs. Mount Makushin, an extinct volcano, looms up to the northward of the little village, and to the eastward extends the vast bay for over 20 miles, its dark, rocky shore colored here and there with the green mounds of long deserted settlements.

A few miles to the southward of Makushin there is another small settlement of natives known as Kashigin, or Kashiga, and containing between 40 and 50 people, who depend entirely upon hunting and fishing for their subsistence. Fish are very abundant, and the hunters reap quite a harvest of fur-seal skins by hunting the animals at the time of their migration to and from the islands through the pass between Unalaska and Umnak islands. The same may be said of the village of Chernovsky, near the southwestern extremity of the island, but the people of this settlement have the additional advantage of a resort for sea otters in their immediate vicinity among the reefs and kelp beds which fringe this desolate coast. At Chernovsky a trading store was maintained for many years, but it has now been abandoned. The dwellings are chiefly sod huts, but comfortably kept, and a neat little chapel was erected during the more prosperous times of the past.

Owing to the large quantities of driftwood deposited on the south shore by ocean currents, both fuel and building material are quite plentiful here.

Crossing Umnak strait we come to Umnak island, extending nearly 100 miles from northeast to southwest. The northern half of this island is covered with mountains, which slope gradually toward the south. The earliest Russian visitors found many populous villages on Umnak, and their sites can still be discerned on many of the

numerous bays and coves, but at present there is but a single settlement, near the southwestern end of the island. About 100 natives live here in comfortable sod huts, finding ample subsistence in their immediate vicinity, but only few marketable furs. Consequently the Umnak hunters also are carried away periodically to the various hunting grounds. A few of them stay at home and occasionally secure a few otter from the reefs and small islands lining their shore. A store which was maintained here for many years has lately been discontinued as unprofitable.

Within 200 miles to the westward of Umnak high, mountainous, and uninhabited islands rise from the ocean at intervals, with navigable passes between them, the widest of the latter, Amukta pass, being 30 miles. The easternmost of these islands, Kagamil, Chiginadak, Uliaga, and Kigalgin, form what is known as the Four Mountain group. These islands were probably once inhabited, but within historic times they were utilized as burial places for distinguished dead. Quite a number of dried and shrunken bodies or mummies have been obtained from caves and sheltered nooks. The pyramidal snow-covered summits of these islands can be seen at a distance of 60 or 70 miles.

Next comes the Amukta group, consisting of the islands of Chegula and Yunaska, both uninhabited and rising abruptly from the water to a height of 3,000 and 4,000 feet, respectively; and beyond the pass we find Signam, a high island, and Anlia, long, narrow, with low rolling hills, extending 50 miles from east to west to within half a mile of Atka island. On these two islands, also, no villages have existed since the beginning of this century. They are visited occasionally by hunting parties from Atka in quest of seals, sea lions, and foxes. The old Russian-American Company had these islands stocked with blue foxes from the Pribilof group at various times, but the animals evidently were never allowed sufficient time to multiply, as none are found there now.

The most important island of the Aleutian chain west of Unalaska is Atka, which, under the management of the Russian-American Company, was selected as headquarters of a separate district, independent of Unalaska, and supplied directly from either Sitka or Okhotsk. At that time the chief settlement and station were located on the shores of Korovin bay, on the northern end of the island, and there were other settlements on Atka as well as on surrounding islands. Now the only village is found at Nazan bay, on the east coast. It is inhabited by a white trader, 116 natives, and a few Russian creoles. Their dwellings are mostly sod huts, but some of the more prosperous hunters are living in frame buildings, and they maintain a neat chapel in good repair. The Atka men have always been successful hunters and consequently have been fairly prosperous, especially during the period of competition in the fur trade, when they became possessed of many of the comforts and luxuries of life. Though money is getting more scarce with them, nature still provides these people most liberally with food and fuel. With but little labor they can obtain ample stores of fish, seal and sea-lion meat, shellfish, and berries, and if they but choose to exert themselves a little, potatoes and turnips will grow abundantly in sheltered locations. A striped fish, known as the Alaska mackerel, of excellent flavor, is found in large schools around the rocky kelp beds and is easily caught with hook and line. Herrings are also very plentiful, but are rarely touched by the natives.

The hunters of Atka are taken either eastward to Sannak or westward to Kyska to hunt. The women are very skillful in making grass mats and baskets, plaited or woven in artistic patterns.

In outline Atka island resembles Unalaska, with its highest land in the north, culminating in several volcanic peaks from 3,000 to 5,000 feet in height, and thence gradually sloping toward the south and west. The southern declivities are covered with luxuriant pasturage, and many hot springs exist on the island.

For a distance of 150 miles to the westward of Atka extends a chain of uninhabited islands, all but one very mountainous and very few affording anchorage for vessels or even landing places. Their names, from east to west, are Tagalakh, Chigul, Igitkin, Great Sitkin, Umakh, Little Tanaga, Kagalaska, Adakh, Kanaga, Tanaga, Amatignak, and Goreloi, with a number of others unknown to cartographers.

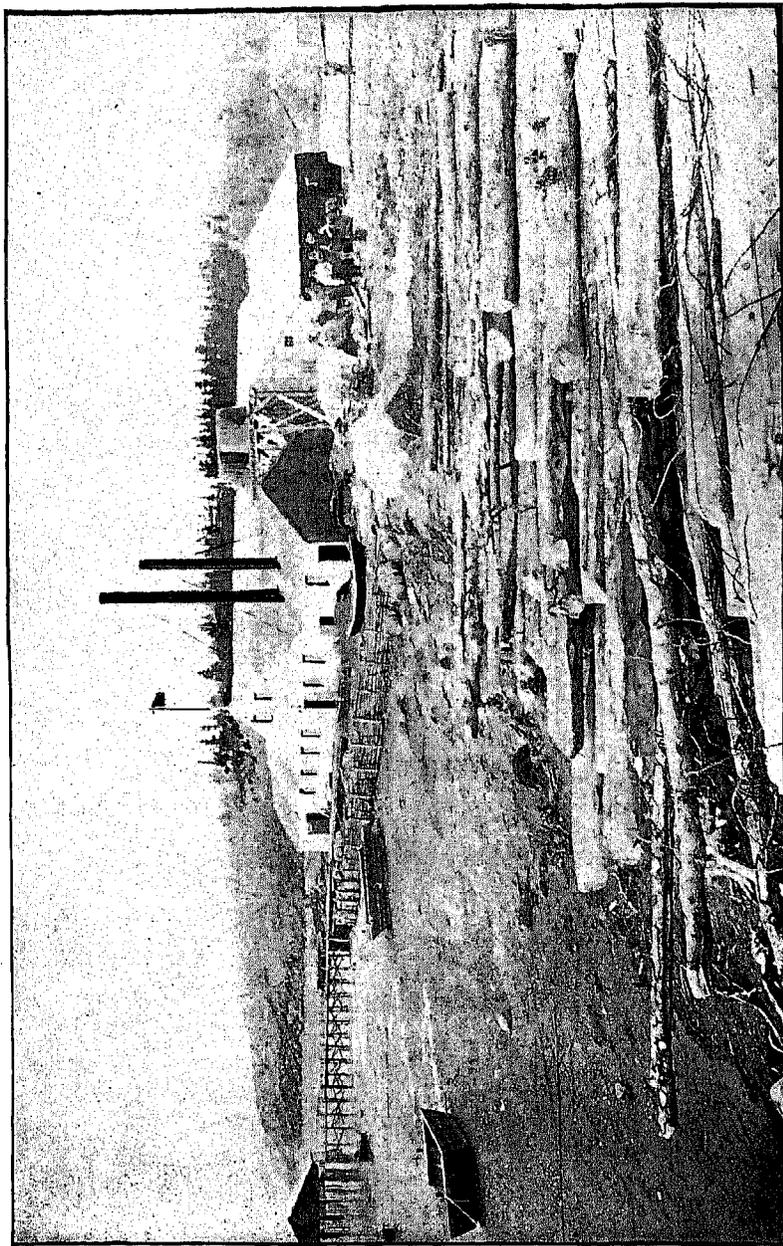
This whole archipelago, which, together with Atka, was distinguished by the Russians as the Andreianof group of islands, was found densely populated when the Russians first visited them, about the middle of the eighteenth century, but in their eastward progress the Muscovite fur hunters impressed these harmless people into their service and they never returned, leaving their grassy, mountainous islands, with their fine harbors and bays, and abandoned village sites an uninhabited waste. The mountain peaks, which rise from all the islands, vary from 2,000 to 4,000 feet in height.

Now follows an interval of water some 50 miles wide, and then islands of good size thinly scattered for the next 100 miles. Among this number there are 2 that are quite prominent from the fact that one of them is the only one of the Aleutian chain that contains low, level land; this is Amchitka. The other is Kyska, where the Atka people are taken to hunt.

The next stretch is one of 125 miles of water with only one small island intervening called Bouldir. Then come Semichi, Agattu, and Attu. These form a triangle in position and are about 18 miles apart, Attu being the only important one. This has one settlement, located at the head of Chichagof harbor. The store at the settlement was abandoned last summer, as it had been nonpaying for several years past. However, provisions are yet taken there by the Alaska Commercial Company to keep the people from starving, and are left in charge of a native, who gets in return what fox skins he can. This island is in latitude 173° east of Greenwich, and is the most western land of the possessions of the United States.

Eleventh Census of the United States.  
Robert P. Porter, Superintendent.

Alaska.



CANNERY AT BRADFORD.

## CHAPTER VI.

### THE FOURTH OR NUSHAGAK DISTRICT.

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#### THE FOURTH DISTRICT.

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BY ALFRED B. SCHANZ.

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That portion of Alaska which in the allotment for the Eleventh Census was characterized as the Nushagak district includes territory which in point of development, and therefore in point of commercial importance, probably ranks first on the mainland of our northern province. The Yukon country's progress has been retarded by the lack of a ship channel which would allow vessels to enter the majestic stream, and thus the finest salmon river in America has been of little use to the outside world. The Kuskokwim has suffered from the same cause, which is further aggravated by the enormous shoals in Kuskokwim bay and by the great expanse there of the tundra, that melancholy waste of spongy moss, without stick or stone, which reaches for hundreds of miles inland. At Nushagak, however, things are different. Though the entrance to the harbor is not without its dangers (there were 2 shipwrecks within sight of the trading post within the last few years), there is at any rate an entrance, and there are excellent Eskimo pilots to take vessels inside. The consequence has been that, in addition to the development of fisheries and the fur industry, Nushagak trading post, indicated on maps as Fort Alexander and called by the natives Tahlekuk, has become the distributing station of supplies and trading goods for the entire mainland coast of Bering sea south of Good News bay, including the valleys of the Togiak, Kullukuk, Nushagak, and Kvichak rivers and their tributaries, the greater part of Lake Iliamna, and the whole northern coast of the Alaskan peninsula. All this territory, of which Nushagak trading post forms the supply center, is included in the Nushagak district.

For the purpose of systematizing a general discussion of this area I have divided it into geographical regions according to natural boundaries, which themselves mark the limits of the subdivisions:

I. TOGIAK REGION—Includes all territory between the watershed on the peninsula which ends in Cape Newenham and that forming the backbone of Cape Constantine, viz, Aziavigiok river (which empties into the sea behind Hagemeister island), Togiak bay and river, and Kullukuk bay and river. Census taken by Rev. F. E. Wolff.

II. NUSHAGAK REGION—Includes all territory between the watershed on Cape Constantine and the ridge separating the Nushagak river valley from the Iliamna drainage basin, viz, Igushik river, Wood river and the Aleknagik lake system, Nushagak (Tahlekuk), and the Tikchik lake system. Census taken by Rev. F. E. Wolff and Mr. A. B. Schanz.

III. NORTH PENINSULA REGION—Includes all the river basins emptying into Bristol bay from the mouth of the Kvichak to Cape Menchikoff, viz, Alaganak lake and river, Naknek lake and river, Bocharof lake and Igagik river, and Ugashik lake and river. Census taken by Rev. F. E. Wolff, and Messrs. A. B. Schanz and W. C. Greenfield.

#### TOPOGRAPHY.

The seacoast of the Togiak and Nushagak regions is deeply indented by ragged-edged bays and shallows, full of sand and mud bars. These bays are in all instances the outlets of streams, and their shores consist at all times of an alluvial deposit unless the action of water and ice against the foot of a rocky cliff has created a pebbly beach. The latter is the case, for example, on the south side of the cape known as Kullukuk point, where a precipitous granitic eminence extends boldly into the sea. The bays are separated from each other by ridges of low mountains, forming the spines of the watersheds. Such ridges, for example, separate Togiak bay from

Kullukuk bay, Togiak bay from Good News bay, and Kullukuk bay from Nushagak bay, and in each of these cases every little depression between the mountain summits is filled with beautiful clear water. There are dozens of these lakes in each of the peninsulas which end in Cape Newenham, Kullukuk point, and Cape Constantine. As a consequence, it is possible and advantageous to make portages from one bay to the next by carrying bidarkas (skin canoes) over the little strips of land separating the mountain pools. Thus a series of such portages forms a line all the way from the Kuskokwim to Nushagak, and a dozen lakes must be crossed in that distance.

This interruption of the coast line by rocky capes necessarily reduces the width and extent of the tundra strip to a minimum, and the swampy moss plains are broken up into comparatively small plots, wedged in between the rivers and the hills, whereas at the mouths of the Yukon and Kuskokwim the tundra extends several hundreds of miles inland before anything deserving the name of forest is seen, there is a needlewood forest on the Nushagak river within 5 miles of Fort Alexander. The so-called Wood river, which is the outlet of the Aleknagik lake system, has very fine timber forests not more than 15 miles from Nushagak bay, and all firewood as well as building logs are brought from them to the trading post, the missions, and the salmon canneries on the bay. The whole Nushagak, or better, Tahleku river valley, including Tikchik river and lake, is densely wooded with trees not more than a foot in diameter, until the distance from the coast and intervening natural obstacles protect the vegetation from the blighting ice-laden Siberian storms, which, though not so low in temperature as the interior blizzards, are yet by far more dangerous, on account of their humidity, to animal and vegetable life. Then the diameter of the trees and the density of the primeval forest increase rapidly, so that on the Mulchutna and the Kokhtuli (Forest) rivers exceptionally large trees may be found in number. On my last winter's exploring journey I measured in a Kokhtuli spruce grove 9 trees, each of which was over 3 feet in diameter.

The monotony of the gradual ascent from sea level of the Tahleku is broken about 75 miles up stream by a curious ledge of high, clay banks, with probably a rock foundation caused by volcanic upheaval. This ledge crosses the river from east to west, and has been canyonized by the stream for several miles. The same ledge was later again observed in the Iliamna region, on the northwest shore of the lake, and the northwestern bank of the Kvichak. After this ledge is passed the Tahleku valley is again wide and flat for a while, and the river is broken up by many small willow-grown islands into numerous sloughs or channels. It is at the affluence of the Kakwok river, on the western side, that the banks again become high, and at Agivavik the first real mountains become visible from the river bed, still offshoots of the interior ranges of this Switzerland of the north. Upon entering the Mulchutna the country becomes extremely rough, and when the Kokhtuli is reached and the traveler's route trends more and more to the eastward he finds himself in a chaos of foothills. The rivers and creeks become most serpentine in their courses, and to advance a mile on a stream bottom one must travel 4 miles. The watershed between the Nushagak valley and the Iliamna basin is low and dotted with lakes and pools, the general characteristics of the two slopes being the same near the "divide". Chulitna river, which forms the chief approach from the Nushagak watershed into Lake Clark and the Iliamna basin, is certainly the most sinuous stream of Alaska. Not one of the hundreds explored, creeks and all, could compare with it as far as its intricate convolutions were concerned. Its meanderings were so involved that the members of my party would probably have left their lines had not the sensible plan been adopted to follow the general trend of the Chulitna valley overland. As it was, we ran out of provisions, and it was in reality a good result of a piece of guesswork that all turned out right.

We discovered Lake Clark on the morning of Sunday, February 15, 1891. It is a typical Alaskan mountain lake, for it has all the characteristics in a marked degree. It is very long, very narrow, very irregular, and very deep, and is surrounded on all sides by high mountains. It is nearly 70 miles long, is at its widest point hardly 10 miles wide, and is crooked and full of bays and bights. We tried in vain with a sounding line over 100 fathoms in length to find its bottom, and the mountains hemming it in tower in altitude from 5,000 to 12,000 feet. The general direction of the lake is about northeast and southwest, and extends from the base of the Alaskan range bordering Cook inlet to the 155th meridian. The longitude of the geographical center of the lake is about 160° 15'. It has five noteworthy affluents, and its outlet, the Noghelin river, was found to be an important stream of great volume, open throughout the winter on account of its force, and running generally almost due south. The Noghelin supplies the great Lake Iliamna with its vast store of crystal water, the source of which has hitherto been absolutely unknown to geographers.

Lake Iliamna is the largest lake thus far discovered in Alaska. Its greatest length is about 90 miles, and its greatest width about 40. It therefore extends over one-half the width of the peninsula, and together with its outlet, the Kvichak river, it provides a waterway from Bristol bay to within 20 miles of Cook inlet, and an easy portage over a mountain pass completes the route. This method of reaching Bering sea from the Pacific side is already in favor with traders, and will ultimately be extensively used.

The north peninsular region is really the northern slope of the Alaskan mountain range. This slope is much wider than the southern, for on the Pacific side the mountains fall precipitously to the sea. The foothills on the north slope are full of lakes, and half a dozen rivers run northward into Bering sea. The mouth of each has been employed by the natives as a village site, and usually there is another village at the headwater lakes.

## ETHNOLOGY.

In general the natives of the whole district are Eskimos of the same physical type as those of the lower Yukon and the Kuskokwim. Their customs are different, however, according to the amount of association they have had with Russians and other white people. Their barabaras, or dugouts, are of precisely the same style of architecture and method of construction as those seen at Ugavigniut, on the upper Kuskokwim, or at Pastolik, at the mouth of the Yukon. The kayaks and bidarkas, the sealskin canoes of the natives, are also constructed in the same manner as they are farther north, and only display the usual tribal differences of design. The Eskimos of the Nushagak district employ also the same weapons of the chase as their northern brethren, the walrus-tusk spear, the spruce bow and ivory tipped arrow, and the bone barbed harpoon, and fish with the same kind of bobhooks, hand nets, and wicker fish traps.

There are two notable exceptions found at the northernmost and southernmost extremities of the district. The inhabitants of the shores of the newly discovered Lake Clark are North American Indians, and are really an offshoot of one of the Tnaina tribes which belong to the great Kuskokwim headwaters basin. The other exception is the Aleut half-bred type found in the neighborhood of Ugashik, a people who speak a language with marked dialectic differences from the Eskimo, and who show the peculiar domestic traits which characterize the inhabitants of the Aleutian islands.

The Eskimos of the Nushagak district belong to 4 tribes, the Kuskwogniut, the Nushagagniut, the Kiatagniut, and the Aglemiut. Some small differences were noticeable as soon as I had crossed the Cape Newenham divide in the customs of the natives. The first village reached was at the mouth of the Aziavignok river, opposite Hagemeister island. The natives there were by far more hospitable than had been the Kuskwogniut at Mumtrahamiut, on Good News bay, and had great difficulty to get away. As it was, they fairly loaded us down with gifts of seal oil and some delicious dried salmon trout. The northern Eskimo are not usually fastidious about their food, and their dried salmon is invariably incrustated with a mysterious layer of filth. The Aziavignokhamiut, however, had kept their trout "yukala" most daintily clean, and we accordingly ate it with rare appetites. The women at this village were all attired in parkas (smock frocks) made of the feathered skins of geese, cranes, and swans, a dress which gave them a ridiculous puffed-up appearance, hardly as angelic as might be supposed. I had seen isolated specimens of this class of garb before, but here, as well as in Togiak and in some of the Aleknagik and Tikehik villages, it seemed to be the proper form for women to wear this borrowed plumage. The kayak of the Kuskwogniut, with a circular "eye" through the tapering bow, also remained behind, the Kiatagniut skin canoes not being provided with the "loop".

The Togiak river natives are extremely primitive in their ways of living and make the impression of extreme poverty. They are splendid hunters, however, who have tons of walrus tusks as tokens of their prowess, without appreciating the value of this ivory. The traveler from the northward here, on Togiak bay, finds the first branch post of Fort Alexander, the trader being an Aleut with an almost oriental talent for barter.

At Nushagak itself, at the villages of Kanakanak, Kanulik, Stugarok, and Yekuk, all on Nushagak bay, the natives have abandoned many of their primitive habits. Many of their houses are provided with hinged doors and gutskin windows; some have stoves, and civilized pots, kettles, and dishes are the rule rather than the exception. The white man's "store clothes" have almost entirely replaced the aboriginal fur garments. This state of affairs arises from years of association with white men, there having been a trading post on the bay for nearly a generation, and an influence having been even previously exerted by the presence at Fort Alexander of a Russian priest and a church. Of late the development of the salmon canning industry in the neighborhood has tended further to deprive the natives of many of their natural inclinations and substitute therefor the wants and desires of the white man. Many of them have also acquired vices which can not be found in settlements elsewhere, and which are clearly the result of association with rough fishermen and sailors. Thus some of the Eskimo have learned to distill from flour paste, sugar, dried fruit, berries, etc., a horrible kind of liquor, which they drink without rectification, fusel oil and all. The trader at Nushagak discountenances such proceedings, and has tried to put a stop to them by giving orders that not more than 20 cents' worth of sugar or flour should be sold at one time to a customer. The natives, however, have repeatedly been discovered saving up this flour and sugar. They will deprive themselves for weeks of sweetening in their tea and refrain from eating bread in order to indulge in a beastly debauch as soon as they have stored up enough flour and sugar to make a brew.

It was here, too, that I heard of the only case of dishonesty during my whole Alaskan travels. A series of petty thefts was attributed to a young Nusliagak Eskimo who spoke very fair English. He was almost loathed by his companions, who warned me against him when he made application to enter my service. I hired him nevertheless, and found him very faithful and painstaking, though he seemed overwhelmed with the consciousness of wrongdoing.

The close grouping of the villages on the Igushik, Wood, and Nushagak rivers and Nushagak bay makes it possible for the natives to get up the enormous dance festivals which are held every winter. The villages alternate in inviting the inhabitants of the other settlements, and the dance in each case continues usually for 10

days or more. The nature of the dancing, which is always a solo performance, is a pantomime illustrative of incidents of the chase, of love, or of war, represented by contortions of the upper part of the body and gesticulations of the arms, while the feet accompany these motions with a rhythmic stamping. A sort of chant to a monotonous melody and the ear-splitting clamor of an enormous drum made of whale's bladder form the dance music. Each night ends with a sumptuous feast, the delicacies of the menu being provided by the guests on the plan of the American surprise party, and participants in the frolic also make the latter an occasion for exchanging presents. I attended a number of such dances during the winter of 1890-1891, and always went to my quarters with a number of interesting presents which these kindly people, from whom many civilized persons could learn hospitality, had bestowed upon me.

At the risk of iteration I desire to introduce a short sketch of the Lake Clark Tnaina, with a superficial review of the dog-sledging journey of discovery performed by my party last winter. I was accompanied on this expedition, which left Fort Alexander on January 29, 1891, by Mr. John W. Clark, chief of Nushagak trading post, who had kindly volunteered to assist me, Innokente Shishkin, a young Russian from the trading post, and 6 Eskimo. The outfit consisted of 3 dog teams and sledges, and our object was to explore the upper tributaries of the Nushagak river and attempt to get into the Iliamna drainage basin north of the great lake, in order to determine if possible its source of water supply. We ascended the Nushagak, taking the census of the villages along our route. In about latitude 60° north we left the Nushagak, ascended the Mulchutna, the Kokhtuli, and Kogiukhtuli creek, and by making a portage reached Chulitna river. (a) We descended the sinuous Chulitna to find that it emptied into the magnificent lake described above under the name of Lake Clark. On that memorable Sunday we wearily trudged over the ice in search of inhabitants, for, through days of delay caused by snowstorms and blizzards, we were sadly reduced in supplies both for ourselves and our dogs; in fact, a number of the latter had already starved to death. Clark and I had no idea of the kind of people we would find, but naturally supposed they would be outposts of the coast Eskimo. When eventually, by a strange piece of good fortune, we were discovered by a native who had been looking after his traps and rushed to meet him, we found a handsome, well-built, athletic-looking young fellow, with fine, velvety black eyes and a laughing, rosy cheeked, reddish brown complexion. He was extremely vivacious, gesticulated a great deal, and addressed us with wonderful volubility in a strange language. None of our party could understand a word of his tongue, although I recognized a strong resemblance in the language to that spoken by the Tanana Indians, a language akin to the Tnaina.

I was surprised most, however, by the fact that our new friend contrasted very favorably with our Eskimo. His dress consisted of a curious but sensible combination of jeans and fur, and looked clean and neat. With his lively disposition he did not spend much time in palaver after he found that we could not understand him, but started off on a graceful run ahead of our dogs, evidently to show us the way to his village. Sure enough a brisk dash of a couple of miles over smooth ice, a short turn into the mouth of a river, and a helter-skelter climb up a low bank brought us into the very middle of a typical Alaskan Indian village. It was indeed a surprise, and I almost imagined I had been miraculously transferred to the shaman's village on the Yukon. A score or more of fine-looking young men, with their inborn native courtesy, bade us welcome, at the same time, like children, examining our persons, our clothing, and our sledges and weapons with the greatest curiosity. It took us only a few minutes to ascertain that the chief of the village knew a few words of Eskimo and a few of Russian, so that with the aid of considerable pantomime we managed to make ourselves approximately understood.

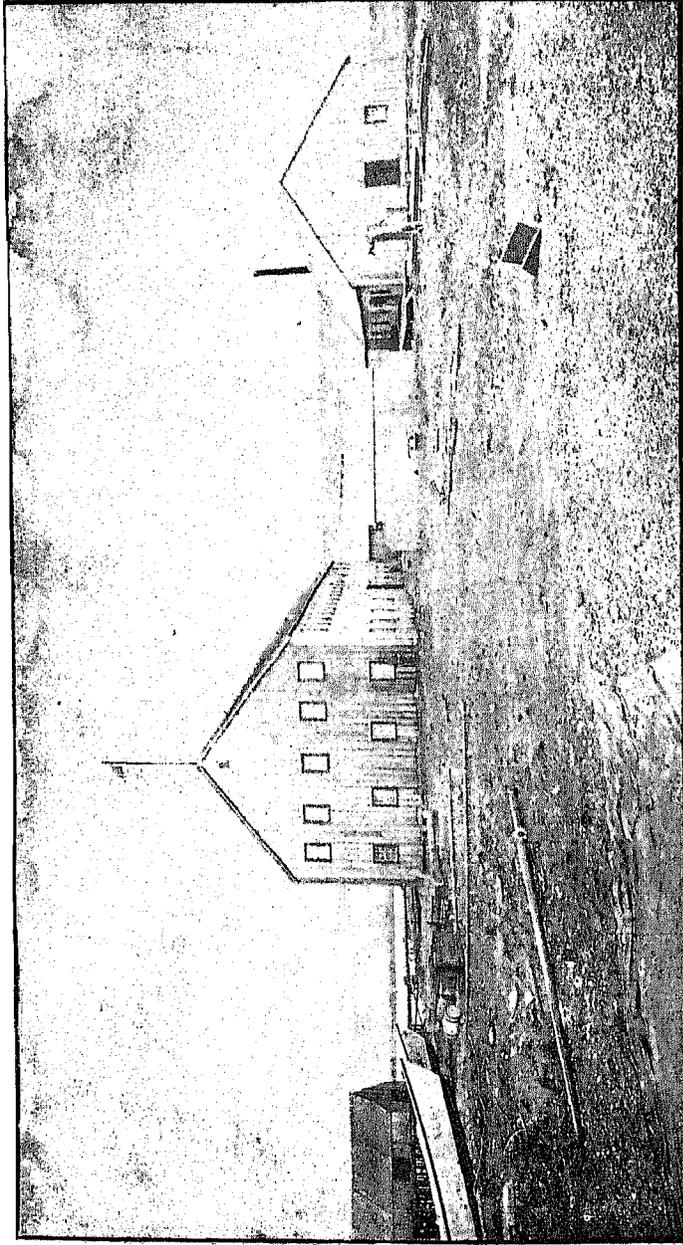
The headman of the village wore cowhide top-boots and blue swallow-tailed coat with brass buttons, probably many years ago the dress uniform coat of some Russian officer. A number of the others who received us also had one or two articles of civilized raiment. The houses and fish caches were neatly built of hewn logs and planks, the houses having windows made of tanned skin of mountain sheep intestines. The whole village bore an air of respectability and cleanliness almost startling to one accustomed to the filth of Eskimo mud huts. This impression was further enhanced when, upon entering the chief's house, we found it floored with carefully hewn planks and heated by an old-fashioned heavy Russian box stove with 4 holes for cooking. The chief had also built himself a bunk for sleeping, a table, and several benches. Soon the teakettle was singing on the little stove, and before long we were stimulating ourselves with an infusion of fragrant tea, which the chief proudly had served in some fancy china cups, of the possession of which he seemed very vain. His squaw also laid before us some excellent dried salmon, very clean and of a delicious flavor. All these surprising circumstances contributed much to our astonishment. We afterward learned that these Indians have been accustomed to secure articles of civilized comfort and luxury through intertribal commerce from the trading posts on Cook inlet. The chief himself had repeatedly visited posts on the inlet, having even gone as far as the store on Kinik bay.

We remained in the village of Nikhkak, for that was the name of it, 2 nights and a day, being compelled to cut short our visit on account of our inability to secure sufficient provisions for our outfit. During the day of our stay we took the census of this village, as well as that of the second Tnaina village, Kilchikh, which is situated about 9 miles up the river, which empties into Lake Clark at Nikhkak. The problem was a difficult one, but with the aid of Innokente Shishkin and one of my Eskimo boys I managed to solve it. The headman and his fighting men

<sup>a</sup> This is an entirely different stream from that erroneously called Chulitna on the coast and geodetic survey maps. The correct name of the tributary of the Kuskokwin is "Hollitauk".

Eleventh Census of the United States.  
Robert F. Forster, Superintendent.

Alaska.



CANNERY AT NUSHAGAK.

showed deep interest in the proceeding and tried hard to understand what it was all about. After considerable difficulty we managed to get the chief's name. It was Thkadatstudenchin, and was one of the easiest names in the tribe. The chief was an intelligent man, however, and he had knowledge of some of the Russian terms of relationship, so that before long we succeeded very satisfactorily. Eventually an idea of his made the completion of the work comparatively easy. He ordered each head of a family to go out and bring in the members of his household. The relatives were then stood up in a row according to age, and as I would point to one after another Thkadatstudenchin would give me the name. The other men began to understand, and soon each name was in its order shouted out by a robust chorus, until I had it down phonetically. After we had finished the work I made them all small presents of tea and tobacco, which pleased them greatly.

On the evening of February 17 we reached the outlet of Lake Clark, the beautiful Noghelin river, and the next afternoon, in our descent of the river, we again found at the village of Noghelingamiut, a few miles above Petroff falls, our old friends, the Kiatagmiut Eskimo. Strange it seemed that within 50 miles of each other, in such a wilderness, two people so dissimilar in characteristics should live without mutual recognition or intercourse.

The Eskimos at the mouth of the Noghelin river, "Noghelin painga" as it is known, at the villages on the north and south shores of Lake Iliamna, and at those of the Kvichak and of the north peninsula region, we found almost exclusively the typical Kiatagmiut Eskimo, intermingled occasionally with a few families of Kuskokwogmiut. The village of Iliamna, however, on the Cook inlet side of the lake is populated by Russian half-breed Eskimo descended from progenitors who originally settled here from the island of Kadiak.

#### INDUSTRIES.

The chief industry developed by white men in the Nushagak district is that of canning salmon, and next to Kadiak island the canneries on Nushagak bay produce the greatest output in Alaska. There are at present 4 canneries on the bay, 2 on the western and 2 on the eastern shore. The former, the "Bristol Bay" and "Scandinavian", are located near the village of Kanakanak, the Arctic Packing Company is at Kanulik, 3 miles above Fort Alexander, and the Nushagak cannery, which is owned by members of the Alaska Commercial Company, occupies a fine site at Stugarok, 11 miles below the trading post. The capacity at present of each establishment is about 30,000 cases per season of 5 weeks, so that the output annually approaches 120,000 cases every summer. The run of salmon in these waters is magnificent, and some abnormal catches are on record. The individual fish are not so large as they are on the Yukon, where I have seen specimens 6 feet long, weighing over 90 pounds, but they have a most delicious flavor, and the "salmon steaks" put up by the Nushagak canneries are worthy to rank among the greatest delicacies.

The run of king and silver salmon is short and heavy, and the shortness of the season is thereby explained. The canneries during the best part of the run are worked night and day, yet it has frequently occurred that the fishermen brought ashore more fish than could be handled. The bay during the summer is a scene of greatest activity. There are usually 4 or 5 large sailing vessels at anchor near the canneries; a revenue cutter, a company's vessel, or the fish commission's vessel Albatross is liable to be there; the surface of the bay is dotted with over 100 sail of fishing smacks, and busy, puffy little launches and steam tenders skip about to lend a hand wherever it may be necessary. The transient population numbers away up into the hundreds, and the sudden contrast after the cannery vessels have departed with their cargo of fish and fishermen is almost startling. The middle of September usually witnesses the change, and from that time until the following June the great cannery buildings give forth no sound beyond the hollow echo of the whistling wintry blast; the ice-covered fishing smacks and steam launches lie in ghostly rows beyond tide water, and the thin line of curling smoke from the fishermen's quarters only shows that the stoic Scandinavian watchmen, 2 of whom are left at each cannery, are sitting near the little fire in the big range mending nets.

On the north peninsula shore of Bristol bay, as well as at various points on Nushagak bay, notably at the village of Togiak, 6 miles above the post, individuals independent of the canneries have established salting stations, whereby they legally reserve cannery sites which may be of value in the future. They use boats of their own for fishing, and make their winter's provisions from the sale of fresh fish to the canneries, and the shipment of salted salmon to the states.

During the last season the catch was only about one-half its usual dimensions, but that was by no means due to a diminution in the salmon run. It was, on the contrary, the result of an agreement between the different canning companies to restrict the production on account of the low price then prevailing in the markets. On Nushagak bay, therefore, a combination was made by the 4 companies, whereby only 2 canneries were worked. The number of fishermen and cannery workmen was thus reduced to one-half the usual force, and only half the output possible with full capacity was secured. Similar arrangements were also in force during the season at Kadiak and elsewhere.

Next in importance to the canning industry is the trade in furs, which in this district, as elsewhere on the mainland of Alaska, has been developed and is now monopolized by the Alaska Commercial Company. The chief of all the trading posts in the Nushagak district, the company's agent at Fort Alexander, has substations at various

villages throughout the district, and is represented at these outposts by native traders, who, at certain seasons of the year, bring their purchases to the head storehouse at Fort Alexander. Most of the furs secured are those of land animals, though the traders every year secure a fine lot of seals and sea otter, the latter ranging in value from \$200 to \$600 each. The land furs include black, brown, and cinnamon bears, gray timber wolves, wolverines, black, red, and white foxes, beaver, marten, muskrat, mink, marmot, land otter, lynx, ground squirrel, and occasionally ermine and sable. A fine business is also done in tanned hides of hair seal and of reindeer and moose. Altogether, excepting ground squirrel and muskrat, which are very numerous, over 4,000 furs find their way every year through the warehouse at Fort Alexander.

There is considerable reason to believe that the headwaters of the Nushagak river, as well as some of the creeks feeding Lake Clark, may reveal some fine deposits of placer gold. Prospects which have been made on the Mulchutna have shown extensive gravel banks, every panful of dirt taken from which showed a good "color". Several prospectors and placer miners have been sent up recently to see what they can do with these prospects, and have reported that the gold, although in numerous places found in pay quantity, is everywhere as fine as flour and can not be saved by ordinary mechanical means. A number of gentlemen interested are now in communication with the California Gold-saving Company, several of whose machines will probably be sent up this spring to experiment in the new territory. The latter, if it proves anything of a new Eldorado, will have numerous and apparent advantages over the bleak Arctic diggings on Forty Mile creek, 1,500 miles up the Yukon.

#### MISSIONS AND SCHOOLS.

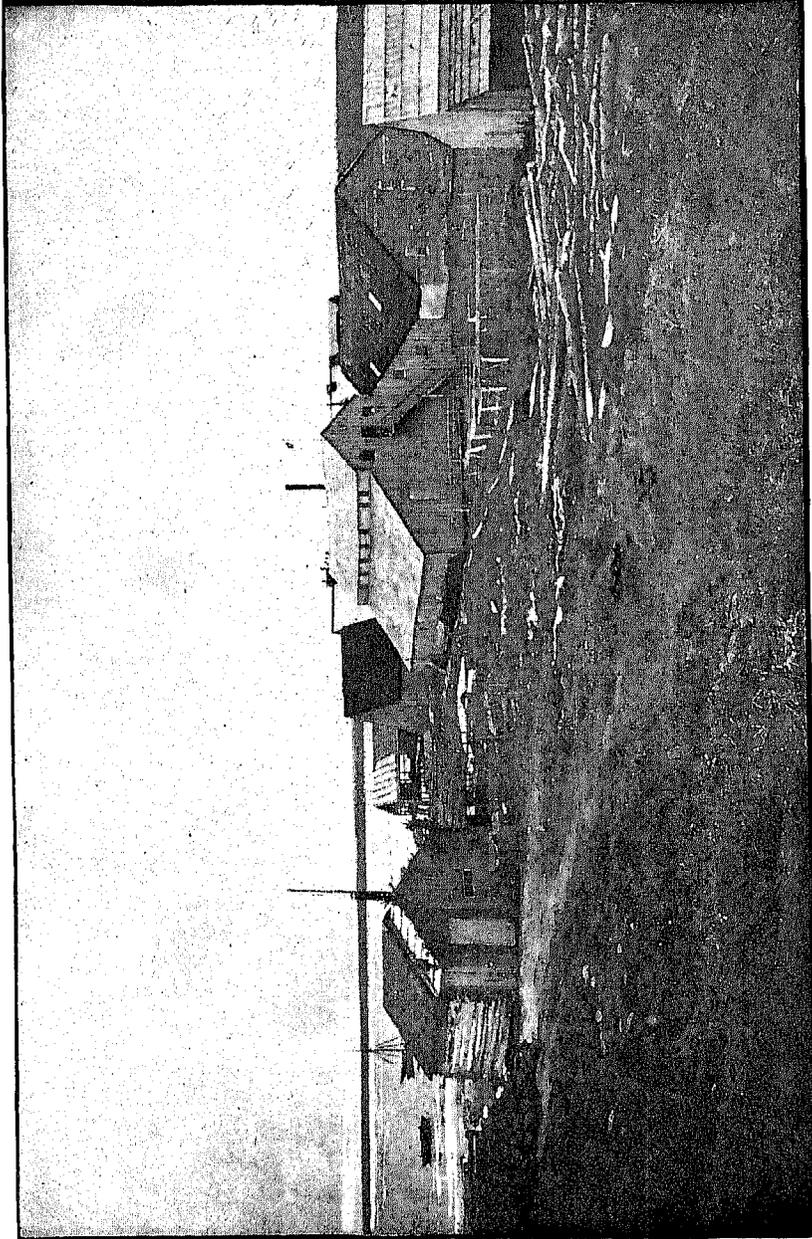
There are in the Nushagak district 2 missions, if the Greek Catholic church at Fort Alexander may be called a mission. This church has been so long in existence, its influence is so extensive, and its proselyting efforts are so limited, that it may well be looked upon as the established church of the district. With very few exceptions all the coast Eskimo of the entire district are Greek Catholics, at least as far as an adherence to the ritual can make them Greek Catholics. Those who live near enough go to the church with commendable regularity. Some have even acquired a knowledge of the texts and chants, so that in a pinch they could conduct the services themselves. Such as these the priest, Father Shishkin, has used in several instances as his representatives in outlying villages which can not be reached regularly at short intervals. Thus at the village of Pakwik, at the mouth of the Naknek river, north peninsula region, the old chief Pietr is acting priest. About twice a year, however, Father Shishkin, in spite of his advanced age, undergoes the hardships of Alaskan travel and makes a trip over the entire district, his travels each time occupying nearly 2 months and covering a distance of from 300 to 800 miles. It is this conscientious devotion to his work which aids the Russian priest to retain so thorough an influence over the natives. On his trips he baptizes the children, marries young couples or ratifies marriages already informally entered into, and gives the last blessing to those who have died since his last visit. The sale of blessed candles and saints' pictures reimburses him for the expenses of such a trip.

The Russian priest at Nushagak, as at all other Greek Catholic churches of Alaska, is salaried by the Russian czar, the head of the church, and is the only mark left by time of the Russian occupation. The fact that the territory is now owned by the United States cuts no figure, and many of the native members of the church are not even aware of that fact. The natives of the north peninsula villages divide mankind into 2 classes, Russians and non-Russians, and to all of the latter class they apply the generic term Americansk, no matter whether the individual specimen be a German, a Scandinavian, a Finlander, or a Kanaka. One unable to speak any Russian whatever is looked upon as pitifully ignorant and is treated with contempt. Whatever may be said of the Russian church, it is hardly just to charge it with exercising a demoralizing influence upon the natives, as has repeatedly been done. I found the Russian Catholic natives as honest, faithful, and reliable as any others, and they had the advantage of being very apt servants.

The other mission in the Nushagak district is that of Carmel, near the village of Kanulik, 3 miles above Fort Alexander. This has been established within the last 5 years by the Moravian sect which has its bishop's seat at Bethlehem, Pennsylvania. They are a charming, simple, devout people, full of benevolence and philanthropy, and their purposes are honest and sincere. The Moravian mission on the Kuskokwim among heathen natives has proven a thorough success, and the relations between the missionaries and the natives are based on newly awakened feelings of love and humanity. At Nushagak, however, the efforts of the Moravian mission have been almost hopeless. It is within 3 miles of a Russian church founded a generation ago. I had the rare advantage of spending several months in winter quarters at Carmel as a guest of the Moravian missionaries, and I can not pay too high a tribute to their consistent christian life, their devotion to their purpose, and their unselfish love of mankind. There were at Carmel Rev. F. E. Wolff, Mrs. Wolff, their two beautiful children, Sisters Mary and Emma Huber, and Brother John Schoechert. All of them vied with each other to make me feel comfortable, and I look back upon the days I rested in that atmosphere of love as among the happiest of my life. The mission buildings, all of which were erected by Mr. Wolff, are handsome frame houses, 3 in number. A very pretty dwelling is connected with the original chapel and schoolhouse, and within a year and a half a large 2-story wing has been added, which is to be used as a boarding school for native children.

Eleventh Census of the United States.  
Robert P. Porter, Superintendent.

Alaska.



CANNERY AT CARMEL

The only school in the Nushagak district is the Moravian school at Carmel, of which Miss Emma Huber is teacher. This school is partly supported by the government under the contract system. Its sectarian connection produces similar limitations upon its influence to those affecting the work of the mission, as those attached to the Russian church are not readily reached through the efforts of other sects. It is possible that a nonsectarian government school might reach a larger number.

In order to complete the review of the Fourth district, I add here a graphic description of the characteristic features of the watershed between the two great river systems of the Kuskokwim and the Nushagak, by Mr. William C. Greenfield, as observed by him during his journey over the Holitnuk portage:

For a distance of probably 90 miles by the river, the Holitnuk flows with a very sluggish current and remarkably crooked course through a very flat country, a narrow belt of timber just fringing the stream; the banks are very low and it is evident that in spring and early summer the country is overflowed. There are large stretches of flats on the lower Holitnuk covered with the most luxuriant growth of grass that I have ever seen in Alaska for extent and richness.

There are no villages on the lower Holitnuk, on account of floods. The first natives were encountered on the third day's travel. On the fourth day I arrived at the last and largest village, called Nohchamute, a few miles from the branch stream flowing from the southeast called the "Kitquik", up which my way led. From the top of a hill near the village Nohchamute I could see the course of the Holitnuk flowing from the southeast, plainly marked by the fringe of timber on its banks. A day and a half up the Kitquik, making very slow progress on account of riffles and bends in the river bed, brought us to the portage, the general course of which is south about 12 miles over low, rolling hills not exceeding 500 to 600 feet high, trending northeast and southwest, forming the watershed between the Nushagak and Kuskokwim systems. The hills are bare of timber, only being covered with the usual coat of moss. It has been at one time a great range for cariboo, and though there are none to be found there now, tracks and well-defined paths can be seen running for miles around the hillsides, just as on a sheep or cattle range. The country on the Nushagak side is similar to the Kuskokwim, rather more hilly and with more tree growth, and a very much swifter current.

I ran through a large beaver dam and past a beaver village of 2 houses on the small stream leading into the Nushagak river (or Iliyarayuk, as the natives call it here). On the third day from the portage, in the evening, we arrived at the junction of the Iliyarayuk with the large stream flowing eastward from Lake Nushagak. The timber is entirely spruce (very poor growth), cottonwood, alder, and willow. At the end of 2 long days' travel we reached the salt house 6 miles from Carmel. The water of the main streams on both sides of the watershed was unfit to drink, owing to the immense quantities of dead fish lying on the edge of the streams and in the water.

There were only 3 families in the village of Nohchamute. At one time there were large numbers of beaver skins obtained from the Holitnuk, but one especially severe winter froze them out of their houses, and the natives killed the beaver off, almost exterminating them.

On passing the beaver houses, the eyes of my men twinkled, and they promised the unfortunate inhabitants that they would call on them on the return trip.