

REPORT

ON THE

POPULATION, INDUSTRIES, AND RESOURCES OF ALASKA.

BY

IVAN PETROFF,
SPECIAL AGENT.

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LETTER OF TRANSMITTAL.

WASHINGTON, D. C., August 7, 1882.

HON. CHARLES W. SEATON,
Superintendent of Census.

SIR: In obedience to my instructions of April 20, 1880, under which I was directed to ascertain and report as far as possible the number of inhabitants of each geographical division of the Alaskan district, with an account of the occupations, modes of subsistence of the people, their dietary, dress, etc., indicating a proportional consumption of domestic and imported articles; their religious and educational institutions, with all statistical information relative thereto which might be available, together with such matters of economical and social importance as should seem to me to fall within the scope of my labors, I have the honor to report that during the seasons of 1880 and 1881 I made an extended exploration of the greater part of Alaska and a careful enumeration of its people, collecting at the same time facts and statistics bearing upon their past and present condition and the volume of trade in that region.

The immense extent of country contained in the district made it impossible for me to visit every section in person, even in two summers, but the population statistics of regions beyond my reach I have obtained from the most reliable sources. The people of the Arctic coast down to King's island, in Bering sea, were enumerated by Captain E. E. Smith, a whaling master of long experience, speaking the Innuvit tongue, who accompanied the United States steamer Thomas Corwin on her Arctic cruise in 1880 in the capacity of ice pilot. Most of his figures are from actual count.

For the enumeration of the coast people from King's island to the mouth of the Kuskokvim river, and of the inhabitants of the Yukon delta, I am indebted to Mr. E. W. Nelson, United States signal service, who obtained his figures by actual count during a series of sledge journeys through all that region. The same gentleman has also furnished me with much statistical information of great value.

The enumeration of the people of the Yukon river and its tributaries beyond the points reached by me during my journey of 1880 was obtained, with the assistance of the traders, Messrs. Harper, Mayo, and McQuestion, from chiefs and other prominent natives of the various settlements during their annual visit to the coast.

At all places visited by me in person I succeeded in making an actual count. Having obtained the official returns of the church authorities within the area claimed by the various parishes and missions of the Russian church, I compared these with my own enumeration. I also compared the parish returns with the local registers kept by the "reader", or church representative, in each Christian village. The official returns of the Russian church were furnished me by the Rev. Zakhar Belkof, missionary of the Kvikhpak mission (Yukon river); Rev. Peter Shishkin, missionary of the Nushegak mission (Bristol bay); Rev. Father Nikita, missionary of the Kenai mission (Cook's inlet); Rev. Nikolai Rissef, of Kodiak parish; Rev. Moses Salamatof, of Belkovsky parish; and Rev. Innokenty Shaiashnikof, of Oonalashka parish. The returns of the Russian parish of Sitka, in southeastern Alaska, were obtained from the Russian consistory of San Francisco, California, through the courtesy of Bishop Nestor, of the diocese of Alaska.

The enumeration of the people of southeastern Alaska, which region I failed to visit in person, was made by Mr. Alexander Militich, who was appointed a special agent of the Tenth Census by the Superintendent upon the recommendation of the collector of customs in Sitka. As far as I have been able to check Mr. Militich's figures of population by comparison with later counts made by the naval authorities at Sitka I have found them correct, and therefore feel justified in accepting his enumeration as a whole.

LETTER OF TRANSMITTAL.

Of the commercial, industrial, and mining statistics of southeastern Alaska I was unable to obtain much satisfactory information, owing to an apparent disinclination on the part of the majority of the business men to furnish the same. My inquiries by letter were answered with glowing statements of what the country would be in the near future, but as to the state of affairs at the time of writing my informants were silent.

For information concerning the educational and religious establishments in southeastern Alaska under control of the Presbyterian board of missions I am indebted to Rev. Sheldon Jackson, D. D.

Throughout the west and north of Alaska I was assisted and aided in my researches, and in my progress through the country on land and water, by the agents and traders of the Alaska Commercial Company and of the Western Fur and Trading Company, both of San Francisco, California. This assistance was of the greatest importance to me; in fact, without it I could not have accomplished my exploration.

Through the kindness of Mr. E. W. Nelson (by permission of General William B. Hazen, Chief Signal Officer, United States army) and of Captain Calvin L. Hooper, United States revenue marine, I have obtained important geographical data, which, together with the notes of my own observations, enabled me to compile a new map of Alaska. During the progress of this work I have also profited by the favors of the United States coast and geodetic survey and the United States hydrographic office in the shape of the latest geographical corrections. All the ancient and modern maps and charts (Russian, English, French, and American) accessible to me have been consulted, and the various authorities duly examined and compared, and I trust that the result will be a map of Alaska more accurate both in contour and detail than any heretofore published. Mr. Henry Gannett, geographer of the Tenth Census, has kindly superintended the technical execution of the work.

In addition to this general map, I have prepared special maps, showing the distribution of native tribes, of timber, and of the various fur-bearing animals of Alaska. On the latter point I have received the most valuable assistance from traders and others acquainted with the resources of the country.

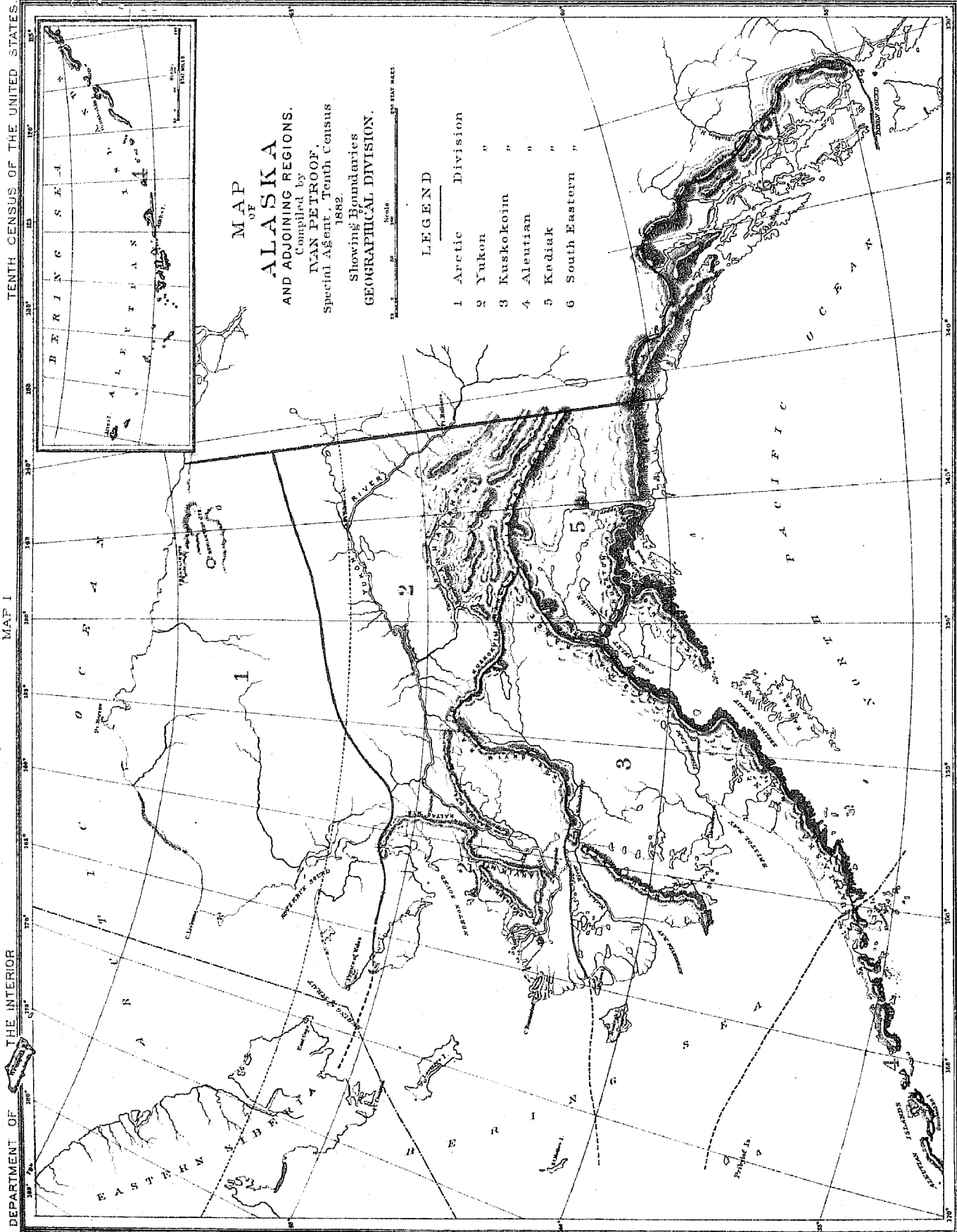
In arranging my work, the result of my own observations as well as of researches in public and department libraries, archives, etc., I have found it most convenient to divide my report into the following heads:

1. A brief statistical review of Alaska in geographical divisions, with tables of population, statistics, etc.
2. A review of the fur trade, fisheries, mineral, and agricultural resources in the past and present.
3. The geography and topography of Alaska.
4. An historical sketch of Alaska from its discovery to the year 1880.
5. Notes on Alaskan ethnology.

I have the honor to be, very respectfully, your obedient servant,

IVAN PETROFF,
Special Agent.

NEWTON
THEOLOGICAL



DEPARTMENT OF THE INTERIOR

MAP I

TENTH CENSUS OF THE UNITED STATES

MAP OF ALASKA
 AND ADJOINING REGIONS.
 Compiled by
IVAN PETROFF,
 Special Agent, Tenth Census
 1882.
 Showing Boundaries
 GEOGRAPHICAL DIVISION.

LEGEND

- | | | |
|---|---------------|----------|
| 1 | Arctic | Division |
| 2 | Yukon | " |
| 3 | Kuskokwim | " |
| 4 | Aleutian | " |
| 5 | Kediak | " |
| 6 | South Eastern | " |

Julius Wren & Co. lith.

CHAPTER I.—STATISTICAL REVIEW BY GEOGRAPHICAL DIVISIONS.

For the purposes of this report it has been found most convenient to divide Alaska into six geographical divisions, as follows :

1. The Arctic division, containing 125,245 square miles, and comprising all that portion of the North American continent between the one hundred and forty-first meridian in the east and cape Prince of Wales, or Bering strait, in the west, the Arctic ocean in the north, and having for its southern boundary a line indicating the water-shed between the Yukon River system and the streams emptying into the Arctic and impinging upon the coast of Bering sea just north of Port Clarence.

2. The Yukon division, containing 176,715 square miles, and comprising the valley of the Yukon river as far as it lies within our boundaries and its tributaries from the north and south. This division is bounded by the Arctic division in the north, the one hundred and forty-first meridian in the east, and Bering sea in the west. The southern boundary lies along a line indicating the water-shed between the Yukon and the Kuskokvim, Sushetno, and Copper rivers, and runs from the above-mentioned meridian in the east to the coast of Bering sea, in the vicinity of Hazen bay, in the west. The island of Saint Lawrence, in Bering sea, is included in this division.

3. The Kuskokvim division, containing 114,975 square miles, bounded on the north by the Yukon division, and comprising the valleys of the Kuskokvim, the Togiak, and the Nushegak rivers, and the intervening system of lakes. The eastern boundary of this division is a line running along the main Alaskan range of mountains from the divide between the Kuskokvim and Tennenah rivers down to the low, narrow isthmus dividing Moller bay from Zakharof bay, on the Aliaska peninsula. Bering sea washes the whole west and south coasts of this division, which also includes Numivak island.

4. The Aleutian division, containing 14,610 square miles, and comprising the Aliaska peninsula westward of the isthmus between Moller and Zakharof bays and the whole chain of islands from the Shumagin group in the east to Attoo in the west, including also the Pribylof or Fur-Seal islands.

5. The Kadiak division, containing 70,884 square miles, and comprising the south coast of the Aliaska peninsula down to Zakharof bay, with the adjacent islands, the Kadiak group of islands, the islands and coasts of Cook's inlet, the Kenai peninsula, and Prince William sound, with the rivers running into them. The main Alaskan range bounds this division in the north and west. Its eastern limit is the one hundred and forty-first meridian, which intersects the coast-line in the vicinity of Mount Saint Elias, while the south shores of the division are washed by that section of the North Pacific named the Gulf of Alaska.

6. The southeastern division, containing 28,980 square miles, and comprising the coast from Mount Saint Elias in the north to Portland canal, in latitude $54^{\circ} 40'$, in the south, together with the islands of the Alexander archipelago between Cross sound and cape Fox. The eastern boundary of this division is the rather indefinite line established by the Anglo-Russian and Russian-American treaties of 1824 and 1825 respectively, following the summits of a chain of mountains supposed to run parallel with the coast at a distance not greater than three marine leagues from the sea between the head of Portland canal and Mount Saint Elias.

THE ARCTIC DIVISION.

Situated, as it is, almost entirely above the Arctic circle, this division is known to us only from observations made on the sea-coast. The vast interior, consisting probably of frozen moors and low ranges of hills, intersected here and there by shallow, sluggish streams, remains entirely unknown. We may presume that the reindeer find a refuge here from the constant persecution of the coast people or Arctic Eskimo on one side and of the Yukon River people on the other. Statements have been made by natives of the latter region to the effect that routes of travel are in existence connecting the river settlements with those on the Arctic, but nothing definite can be

ascertained concerning them with the exception of the general and well-established route of traffic between the Koyukuk, a northern tributary of the Yukon, and the settlements on Kotzebue sound; and even this has never been traversed by a white man. Lieutenant Zagoskin, of the Russian navy, made the attempt nearly forty years ago, but failed, reaching merely the headwaters of the Selawik river, and since his time the only reliable information concerning this route rests upon the statements of a few intelligent half-breed traders.

The only rivers known to emerge from this inland waste are the Colville river, emptying its waters into the Arctic ocean about half-way between point Barrow and our eastern boundary; the Kok river, the mouth of which is located perhaps 50 miles to the eastward of Icy cape, near Wainwright inlet; the Inland river, or Noatak, falling into the northern part of Kotzebue sound, and the Kooak, the Selawik, and the Buckland rivers, debouching into the same estuary.

The natives on the coast and whalers report the existence of settlements farther up on all these rivers, with the exception of the Colville river, whose headwaters no white man has ever visited. The coast settlements between cape Prince of Wales and point Barrow are visited annually by many schooners and ships engaged in whaling, hunting, and trading, and the inhabitants are better accustomed to white men than the natives of any other regions in Alaska. Being possessed of great commercial genius and energy, they do not confine themselves to this intercourse with the Caucasian race, but carry on an extensive traffic with the natives of the Arctic coasts of Alaska and of Asia, meeting the latter on the common trading-grounds of Bering strait and the Diomedé islands. In the intervals between this traffic the natives living in the villages of cape Prince of Wales and the Diomedés are active hunters and whalers, and when the icy barriers of winter close up their deep-sea hunting-grounds they confine themselves to the inlets and streams, hunting seal, reindeer, and polar bears, and trapping the Arctic fox, whose snowy coat is rising in value from year to year.

From point Hope to the eastward we find a series of villages, inhabited principally by reindeer hunters, who kill the seal during the summer season only for the sake of its luscious blubber and meat. The skins of the reindeer are made up into garments, and in that shape find ready sale among the whalers and the neighboring Eskimo tribes to the westward and southward. Along that dreary, low, ice-bound strip of coast between point Hope and point Barrow the scattered Inuit settlements also depend upon reindeer, seal, and walrus for their subsistence, each of these animals being hunted in its proper season.

From point Barrow eastward to the boundary the settlements are few and widely scattered, and the navigators who have made their way through the dangerous channel between the ice and the shore have found these people quite expert whalers, harpooning the huge cetaceans on their way to and from their breeding-ground at the mouth of the Mackenzie river.

The only mineral of any value known to exist on the coast of this immense Arctic division is coal, located in several easily-accessible veins in the vicinity of cape Lisburne, reported long ago by Kellett and other English explorers, but more definitely located and utilized by Captain Hooper, of the United States revenue marine, in July, 1880. This discovery is of importance to the cruisers of the revenue marine and to the steam whalers visiting the Arctic from San Francisco, but will not probably open up a field for private enterprise in that direction. The only attraction for the daring navigators who pay annual visits to this coast consists in the natural resources of furs, oil, and walrus-ivory; but under existing circumstances, and as long as our portion of the Arctic is comparatively unprotected against encroachments of unscrupulous contraband traders, there is danger of an utter exhaustion of furs and of walrus-ivory at no very distant period.

The whaling industry may be expected to decline gradually here, as it has done in other sections of the globe. The danger indicated lies in the fact that the trading-vessels coming to this region, chiefly from the Sandwich islands, have carried such quantities of alcoholic liquor that the natives have acquired a craving for the same, that can no longer be subdued, and this causes them to look for no other equivalent for their furs, oil, and ivory than the means of intoxication. At the same time they have become utterly reckless in their pursuit of fur-bearing and other animals, thinking only of satisfying their desire for the present, without the slightest thought of the future; and if this state of affairs be continued, the extermination of the people, consequent upon the exhaustion of their means of subsistence, can only be a question of time. The immoderate consumption of alcohol brings with it disease and war. Against the former all remedies are out of reach, and, far from using his influence in suppressing strife arising through his fault alone, the freebooter supplies the unfortunate Eskimo liberally with breech-loading arms and ammunition, thus making their wars more bloody and destructive.

No trace or shadow of Christianity and its teachings has found its way to these desolate regions, the dark night of shamanism, or sorcery, still hanging over the human mind. These people share with their eastern kin a general belief in evil spirits and powers, against whom the shaman alone can afford protection by sacrifices and incantations. All sickness is ascribed to the direct action of evil spirits, and is treated accordingly. There can be no doubt of the sincere belief of many of these sorcerers in their own performances, but in every instance they make the exercise of their power, be it real or imaginary, a source of revenue and of influence among their people.

No philanthropic missionary has ever found his way to this icy coast, and unless some modern Hans Egede makes his appearance among them in the near future there will be no soil left in which to plant Christian seed.

It must be evident to any careful observer that there is no foundation in this division of Alaska upon which to build hopes for future development. As it is now it may remain for a few years at the most, but improvement seems now beyond the range of possibility.

As a foothold for Arctic explorers and for the scientific phalanx now steadily advancing toward the pole this region may yet be utilized, especially since a beginning has been made in this direction by the establishment of a meteorological station at point Barrow, under the auspices of the United States government.

A brief account of the animal life of this region, based upon our latest authority—a naturalist accompanying the steamer *Thomas Corwin* on her Arctic cruise—is partially embodied in the report of Captain C. L. Hooper.

Whales are found in all sections of the Arctic, and enter as soon as the ice breaks up and remain until compelled to leave by the closing up again of the sea. They are always found in the immediate vicinity of ice. The Eskimos assert that these marine mammals are most numerous after the departure of the whaling-fleet in the autumn. The variety called the "bow-head" by hunters is the most common; the "California gray" and the fin-back whale are much more rare; in fact, they are seen only occasionally here and there. The white whale, or grampus (beluga), although confined to no particular section of the Arctic, is more numerous in the vicinity of the rivers, and especially those emptying into Kotzebue sound, the female grampus with its young often ascending the rivers as far as tide-water reaches, feeding upon small fish, and they may be observed on almost any clear day or night, the mother coming first, puffing and snorting, with an occasional display of her milk-white back as she guides her calf to the feeding-ground.

The walrus, like the whale, is found all over these waters in the vicinity of ice. These animals enter the Arctic in the spring as soon as the ice disappears from Bering strait, and remain until driven away again by the ice, when they retire into Bering sea. They collect in large numbers on the ice in groups or herds, called "pods" by the hunters, and hundreds of them may be seen drifting through the strait on ice-floes during the month of June. The walrus seem to prefer detached bodies of ice to the main pack, because they can better watch thus for the approach of their natural enemy, the polar bear.

Seals in three or four varieties seem to be ubiquitous in these waters, the leopard seal being the rarest among them.

Polar bears are met with everywhere, and are generally found on the ice or in its immediate vicinity, but instances have been recorded of their being seen at sea, 50 or 60 miles away from any land or fixed ice. They grow to an enormous size, often weighing from 1,000 to 2,000 pounds. The skin of this animal is only valuable late in autumn and during the winter; but only a few are secured during that season of the year. They fight the walrus constantly, and generally successfully, and are ever ready to turn upon the man who happens to inflict a wound not immediately mortal.

Reindeer are said to be most numerous in that section of the coast lying between point Barrow and point Belcher, but they often change their habitation, at times migrating in immense numbers to regions hundreds of miles away, where their human pursuers do not dare to follow. This habit of migration alone has thus far preserved the reindeer from extirpation by the ardent hunter.

Moose do not appear anywhere on the Arctic shore, but natives report them as numerous in the far interior. Mountain sheep are also said to be plentiful on the lines of hills remote from the sea-shore, but only a few horns of the animal, shaped into spoons and other utensils, can be found on the sea-coast; and if these animals are killed in this region at all, it is done by natives located in the interior and not yet visited by white men.

Musk-rats and squirrels are numerous all over the coast. Their skins are offered for sale in large quantities, as the Eskimo does not make use of them for his wearing-apparel, but prefers the heavier coats of the reindeer and seal for that purpose.

Foxes are plentiful, especially the white or Arctic variety, and their skins are easily secured and meet with ready sale. In the depth of winter, when these foxes experience great difficulty in obtaining necessary food, they fearlessly approach the dwellings of men and help themselves to whatever comes within their reach, no matter what the material so long as it fills the stomach.

Aquatic birds are very numerous along the coasts and cliffs, and myriads of geese and ducks breed and rear their young on the vast swampy tundras as soon as the snow disappears and the plains are covered with the enlivening colors of an Arctic summer vegetation.

The only fish of any value found on the Arctic coast of Alaska are the salmon. They are quite plentiful and of fine flavor, though generally smaller than those caught farther south, and the Eskimo located in the vicinity of rivers cure large quantities of them by smoking and drying for winter use. The presence of vast numbers of seals living on fish alone indicates most certainly the presence of other smaller varieties of fish, but the natives appear to catch no other kind, and even the whalers can give us no information upon this point. In the chapter on fisheries further details will be found.

It is impossible to obtain statistics of the provisions, manufactured goods, arms, and ammunition shipped to the Arctic coast of Alaska and disposed of among the natives there, chiefly because the bulk of this trade has fallen into the hands of illegitimate traders, who clear from American ports for the coast of Siberia, then touch at the Sandwich islands to lay in a supply of spirituous liquors, and finally cruise along the Alaskan coast, purchasing

all the furs, fossils, and walrus-ivory in the hands of the Arctic Innuits with rum, breech-loading arms, and ammunition. This traffic, though quite extensive in volume, lies at present altogether without the pale of official investigation, and only the continuous presence of one or two vessels of the revenue marine in these waters could reduce the trade of the Arctic division to a legitimate basis.

During the summer of 1880 an enumeration of the Eskimo inhabiting this division was made by Captain E. E. Smith, then ice-pilot of the revenue-cutter Thomas Corwin. In nearly every instance this enumeration was made by actual count, and based upon this authority we present the following list of settlements and their population:

ARCTIC DIVISION.

Settlements.	Location.	Eskimo.
Total		3,094
Kingigamute	Cape Prince of Wales, Bering strait	400
Inalit	East Diomedo island, Bering strait	40
Village opposite on mainland	Arctic ocean	18
Ta-apkuk	Cape Espenburg, Kotzebue sound	42
Kugalukmute	Kotzebue sound	12
Kongigamute	Buckland river, Kotzebue sound	90
Selawigamute	Selawik lake, Kotzebue sound	100
Kikiktagamute	Kotzebue sound	200
Sheshulegamute	Kotzebue sound	100
Tikizat	Arctic ocean	75
An-iyakh	Arctic ocean	25
Cape Sepping	Arctic ocean	50
Ip-Not	Arctic ocean	40
Tikirak	Arctic ocean	270
Cape Dyer	Arctic ocean	15
Cape Lisburne	Arctic ocean	18
Point Lay	Arctic ocean	30
Olok-kok	Icy cape, Arctic ocean	50
Kolumatourok	Arctic ocean	45
Neona-agamute	Arctic ocean	74
Ootkaiowik	Arctic ocean	55
Pinoshuragin	Arctic ocean	29
Ootiwakh	Arctic ocean	225
Refuge inlet	Arctic ocean	40
Kokmullit	Point Barrow, Arctic ocean	200
Colville river	Arctic ocean	50
<i>In the interior.</i>		
Koo-agamute villages	Kooak river	250
Noatagamute village	Inland river	400
Killafmute villages	Kok river	150

The superficial area of the Arctic division of Alaska embraces 125,245 square miles, which, with a total population of 3,094, would give us the proportion of one native inhabitant to 40½ square miles, without a single white man or woman. Fully nine-tenths of this vast area lies north of the Arctic circle.

THE YUKON DIVISION.

The second geographical division in the order of discussion is the largest in Alaska, comprising as it does the valley of the largest river on the North American continent, so far as this mighty stream flows within our boundaries. Along the eastern portion of this division its northern and southern boundaries are clearly defined by nearly parallel chains of mountains, the southernmost of which greatly exceeds in height the northern. Farther to the westward, where the Kuskokvim river takes its rise in the region unknown to white men, the branch of the main Alaskan chain of mountains, forming the water-shed between the latter river and the Yukon, gradually decreases in height, until nothing remains but isolated groups of hills only a few hundred feet above the level tundras, stretching away to the westward, until they finally merge with the shallow waters of Bering sea. In the vicinity of the portage route between these two large rivers, where they approach to within thirty or forty miles of each other, the country is so low that a canal of less than half a mile in length would allow the waters of two vast river systems to mingle with each other.

The life artery of all this vast division is, of course, the river from which it takes its name, which has served as the highway of nations and tribes for many centuries, long before the white man, with his improved means of transportation, accomplished the feat, marvelous in their eyes, of traversing in one brief season the distance from its deltoid mouth to the Hudson Bay fort at the junction of the Yukon and the Porcupine rivers.

The North American Indians of Athabaskan stock inhabiting the banks of the Yukon and its tributaries east of the Anvik and Chageluk rivers had but a faint conception of the sea to the westward, and perhaps a majority of the tribes were ignorant of its existence. On the other hand, the hardy Eskimo, living along the coast of Norton sound, the lower Yukon river, and the Kuskokvim delta, had advanced at an early day across the divide between the great river and the sea, following up the course of the Oonalakleet river, striking the Yukon forty or fifty miles south of Nulato. They settled the right bank of this river from there to its mouth and both banks west of the Chageluk, but were not allowed to hold peaceable possession, the Indians rallying from all directions and driving the intruders back far down the river, where the last traces of rolling hills are lost in the swampy tundras. From time to time the Eskimo advanced again, and traditional tales of bloody battles and years of war between the tribes have come down to us, but through all the varying fortunes of the contest the Eskimo succeeded in keeping the Indians from reaching the sea.

At the present time the Indian or "Ingalit" tribes hold full sway over the river down to Paimute village, situated below the junction of the Anvik river with the Yukon, and no Inuit (or Eskimo) ascends the river beyond this point unaccompanied by white men, while no Ingalit descends without the same protection.

During the brief summer of this region the whole population flock to the river banks, attracted by myriads of salmon crowding the waters in their annual pilgrimage of reproduction up this mighty stream. At that time both banks are lined with summer villages and camps of fishermen, who build their basket traps far out into the eddies and bends of the stream and lay up their store of dried fish or "yukala" for the long Arctic winter. This annual congregation along the river banks completely drains of human life the valleys and plains stretching away to the northward and southward, and many of the lake regions in the western plains.

The traveler passing up or down the river during this busy season would form an entirely erroneous estimate of the density of the population if he should draw the conclusion that the vast forests covering the mountains and slopes on either side are inhabited by other tribes. Were he to make a brief excursion into the almost impenetrable forests and over the hills and mountains he would quickly perceive that along the river alone exist the conditions necessary to sustain life throughout the year. The small rivulets of the interior, and the vast swampy plains covered with snow for seven or eight months of the year, are only visited by the trapper and hunter when the skins of the marten, mink, and musk-rat are in their prime. Where the mountains are higher along the upper courses of the Yukon and the Tennenah game is more abundant and the inhabitants are less dependent upon the river and its fish.

In the past the staple food during the winter was the meat of the reindeer, which animal was then abundant throughout the whole Yukon section, but the first introduction of breech-loading arms among these native tribes caused an indiscriminate slaughter and the almost total disappearance of this animal from the immediate vicinity of the river. At that time the moose was found only high up the river, and the mountain sheep was rarely even heard of. At present the reindeer is again gradually making its appearance here and there, but the moose, though hunted constantly and energetically, seems to be increasing in numbers, and has advanced down the river and spread all over the delta between the Yukon and the Kuskokvim.

American enterprise has already taken hold of the fur-trade of this region to its full extent, and rival firms have lined the banks of the Yukon with trading-stores from Bering sea to the eastern boundary.

The shrill whistle of the steamboat is welcomed annually by thousands along the river banks at the breaking up of the ice, and it is echoed by the hills and mountains of the far interior, where the Hudson Bay Company once reigned supreme.

Foxes of all shades, from the highly-prized silver-gray and black to the fiery red and the snow-white fox of the Arctic, furnish the staple fur of the Yukon region. The martens and the land-otters come next in numbers, and the black and the brown bear constitute but an insignificant item of trade, while the mink of the tundras and the river delta, though exceedingly numerous, are next to valueless. The moose- and deer-skins are nearly all consumed by the natives themselves for clothing and bedding.

The total value of furs shipped from this vast region to the American and European markets does not probably exceed \$75,000 per annum, and the profits of this traffic are divided by two incorporated California companies, with fifteen or twenty trading-stations along the river. The fiercest competition has caused high prices of furs, and it frequently occurs that one or the other of the firms carries on its operations for a season at a loss.

No mineral deposits in paying quantities have yet been discovered as far as the Yukon flows within our boundaries. Prospectors have been at work for many years along its upper course, but only on the Tennenah have traces of gold been found in quantity sufficient to pay a laborer's wages during the brief summer season.

Rich as the river is in fish and the forest in game, the supply does not seem to be equal to the demands of the native population. There is an annually-recurring period of famine during the later months of winter and spring, and nearly all the money received from the traders is expended for flour, tea, and sugar, the shipment of these articles to the Yukon region increasing in quantity every year. Happily, nature affords better protection to fur-bearing animals than to game, and there does not appear to exist any danger of exterminating the former.

Much has been said and written by travelers who passed during a brief Arctic summer through the Yukon valley with its high temperature, rank vegetation, and brilliant flora (and by others who never saw the river) of

the great agricultural region here awaiting development in the near future. The real facts do not warrant any such expectation. The whole valley of the Yukon lies within a few degrees of the Arctic circle, the soil, where it is level, is always swampy, and even the slopes of hills and mountains are never drained of their superabundant moisture. The heat of summer has no effect beyond an astonishingly rapid growth of native grasses and weeds and the bringing into life of dense clouds of mosquitoes all over the country.

There is no doubt that a few vegetables will come to maturity here during the summer, and traders, tired of an uninterrupted diet of animal food, have made many experiments in this line. In no single instance has there been a continued success in these ventures, heavy frosts at the end of July having, as it were, frequently nipped in the bud the growing hopes of the traders of reaping a scanty harvest of potatoes, turnips, and radishes. Even if the interior valleys of the Yukon were as well adapted to the production of cereals as are the Saskatchewan and the Red River valleys, which they are not, there would still be the difficulty of finding a market for produce from such an inaccessible region. Their only artery of trade would be, of course, the Yukon, and that is not open to navigation until the month of July, closing again at the end of September. No sea-going craft can enter the river at all, and transshipments of cargoes would be necessitated at some point on the coast away from its mouth.

For hundreds of miles from the sea the Yukon river flows through low, level tundras, or mossy morasses, resting upon a foundation of clay. The shifting current of the river eats away the shores on either side with astonishing rapidity; the dull thud of caving banks is constantly heard by the traveler, and whole reaches change their aspect entirely within a single season. Stepping upon the shore, the explorer must jump from hummock to hummock or wade around from knee to waist deep. In many places the ice never disappears within a few inches of the surface, being protected from the rays of the sun by a non-conductive carpet of sphagnum. Wherever there is a slight elevation of ground in all this watery waste the wretched natives have located their villages, the dwellings consisting of excavations in the ground roofed over with mounds of sods. Here they fish during the summer and hunt the mink and the moose in the winter. Millions of geese and ducks visit this region in the breeding season, but comparatively few of them fall victims to the InnuIt hunter, who is but an indifferent shot, and powder is dear. The capture of a large species of seal called "maklak" is considered a great windfall by the hunter, and if three or four of them succeed in slaying a snow-white beluga, or grampus, the village at once becomes the scene of festivity and rejoicing. Milk and honey cannot be said to flow at any time in this region, but oil does occasionally, lending a decided "luster" to the life of the InnuIt and all his surroundings.

The observations of the temperature in the Yukon division have not been extensive, and of only two points in the interior have we a series of temperature readings. Nulato is a trading-station and Indian village, situated at about the central point of the Yukon River valley. Here the mean annual temperature, according to the observations of the Western Union Telegraph exploring parties, appears to be but $6^{\circ} 8'$ above zero. It must be remarked, however, that the warmest months of the year are not included in this series of thermometrical readings. From fort Yukon, at the junction of the Yukon and the Porcupine rivers, we have a complete set of readings for a whole year, from which we deduce an average for the summer temperature of 56° , and for the winter of -23° , with an annual mean of $+16^{\circ} 84'$.

We insert the following table, as published by the United States coast survey in the *Pacific Coast Pilot* of 1879:

TEMPERATURE OBSERVATIONS AT NULATO, ALASKA.

Months.	1866-1867.						
	9 a. m.	1 p. m.	8 p. m.	Mean.	Max.	Min.	Range.
January	Deg. -18.5	Deg. -16.3	Deg. -18.3	Deg. -17.7	Deg. +15	Deg. -40	Deg. 64
February	-15.5	-10.4	-12.9	-12.9	25	-51	70
March	+11.5	+19.6	+13.5	+14.9	38	-40	78
April	19.2	+34.4	25.0	26.5	49		40
May	40.9	56.1	42.3	46.4	74	+22	52
June							
December	-11.2	-8.0	-10.2	-9.8	22	-56	78
Whole period	+3.4	+10.9	+5.8	+6.8	+74	-50	130

TEMPERATURE OBSERVATIONS AT FORT YUKON, YUKON RIVER, ALASKA.

Month.	Mean.	Max.	Min.	Range.
1869.				
August	Deg. 66.3	Deg. 77	Deg. 58	Deg. 19

TEMPERATURE OBSERVATIONS AT FORT YUKON, YUKON RIVER, ALASKA—Continued.

Months.	Daily mean.	Mean at 1 p. m.	Monthly max.
1870.	<i>Deg.</i>	<i>Deg.</i>	<i>Deg.</i>
January	-26.85	27.58	17
February	-26.44	-23.55	10
March	-11.16	- 0.94	28
April	12.66	19.43	52
May	41.24	48.81	70
June	53.49	62.00	
July	65.75	74.84	76
August	59.90	70.94	80
September	38.66	52.73	69
October	21.60	9.49	50
November	- 8.28	- 5.40	28
December	-18.43	- 5.30	22
Spring	14.60	22.71	70
Summer	56.73	69.28	86
Autumn	17.37	26.03	69
Winter	-23.80	-22.70	22
Year	14.58	23.89	86

From Mr. E. W. Nelson's report to the Chief Signal Officer on the meteorology of Saint Michael and vicinity I extract the following:

During the past four years the first mush-ice has begun to form in the bays from the 15th to the 18th of October, and the bays have been frozen over so as to bear a man from the 25th to the 28th of October, with the exception of the year 1878, when a strong wind took the ice out, and it did not freeze again until the 10th of November. Up to the 15th of October vessels could enter here without danger of meeting ice. In the spring much more uncertainty exists, as to a great extent the date of open water depends upon what the prevailing winds may be. Long-continued north winds, following a severe winter, as in 1880, may keep the ice-barrier in until the 20th of June, and it has even remained until nearly the 1st of July; but these late dates are exceptional. As a rule, the ice will be thoroughly broken up and a strong vessel may enter Norton sound through the ice by the 10th of June (in 1875 a vessel reached this port May 25, but it was in the hands of an experienced ice-pilot). Vessels have reached here for the past four years between the 20th of June and the 1st of July; these may be called safe dates for any vessel except in an unusual season, as during a large part of June fine weather prevails. There is usually but little risk in entering the ice at that season.

TEMPERATURE.

The range of the thermometer during the past seven years has been from 76° to -55° or 131°; though for the past four years the average yearly variation has been but 71.2°. The maximum variation of the past four years was in 1877 and 1878, when the highest extremes were respectively 75° and -50°, and 73° and -52°, amounting to a range of 125°. The smallest range in 1879 was 100°, from 68° to -32°; the average of the mean monthly temperature, made up from the daily average of three observations for the years 1877, 1878, 1879, and 1880, is as follows:

	Degrees.
January	- 5.0
February	- 6.5
March	9.5
April	22.1
May	32.8
June	45.2
July	53.1
August	52.1
September	43.3
October	28.0
November	8.3
December	8.9

The minimum averages for any single month are -23.7° for February, 1877, and -19.8° for January, 1880. The highest monthly means are 54.5° and 53.4° in July and August, 1877, respectively. The mean annual temperature for the four years is 25.5°. The highest mean for one year is 26.8°, in 1879, and the lowest 23.9°, in 1880. January and February rank as the two coldest months, and July and August are the warmest.

TIDES.

The ordinary tides are small and give a rise and fall of only about 2 or 3 feet, but the winds from either north or south produce a striking variation. A long-continued and heavy gale from the south raises the water of Norton sound at least 10 feet above ordinary tide-mark and overflows large stretches of the low coast to the southward. Some of the heaviest of these gales occur during the winter, and frequently the sea, covered with heavy ice, sweeps over the low coast-lands between the Yukon and the Kuskokvim rivers for miles, and whole native villages have been thus destroyed with many of their inhabitants within the last few years. As the tide falls the ice, 3 or 4 feet thick, is left stranded on the low land. A light south wind is sufficient to raise the tide from a few inches to several feet above the ordinary extent. North winds affect the tides in proportion to their strength exactly in the inverse ratio of the south winds. When long-continued and strong gales from this direction occur (most frequently in autumn) the shallow bays are laid bare, long reefs are exposed, and a general fall of the water of about 8 feet occurs. It is to the high tides and south winds of spring or early summer that this region is indebted for the drift-wood which, emerging from the Yukon, is cast upon the beach, and furnishes the only fuel and building material here.

VEGETATION.

The whole coast in this part of the country is bare of any kind of timber, and a few patches of scraggy alder on sheltered southern hill-slopes, with the Arctic willows creeping over mossy ground, are almost the only bushes to be found. The ground is covered with a soft layer of decaying vegetable matter and mosses, which hold water like a sponge. In addition, a varied and hardy sub-Arctic flora manages to thrive everywhere except on the northern slopes of the hill-tops, where only lichens grow or total sterility prevails. As soon as the warm days begin the hardier plants start up and by the first of June shade the country with green in sunny spots, making a pleasant contrast to the gray and russet elsewhere; a few days later, and the southern hill-slopes are thickly dotted with flowers.

GARDENING.

Repeated attempts to raise garden vegetables have been made, but with poor success, as turnips, radishes, and lettuce appear to be the only vegetables from which any adequate return may be expected, and even in these cases the trouble far exceeds the reward.

ATMOSPHERIC PHENOMENA.

For the four years preceding April 30, 1880, the average proportion of cloudiness during the year has been as follows:

The average number of totally cloudy days.....	182.2
The average number of partially cloudy and fair days.....	131.5
The average number of clear days.....	50.5

The average number of days during which rain or snow fell at Saint Michael during the last four years was:

January.....	9.0
February.....	5.7
March.....	8.2
April.....	16.2
May.....	11.2
June.....	9.8
July.....	14.2
August.....	19.5
September.....	17.7
October.....	16.0
November.....	10.0
December.....	9.7

Or an annual average of 147.5 days on which rain or snow fell. The average annual precipitation equals 18.36 inches.

The number of days on which rain or snow fell appears very disproportionate, but this is readily explained by the character of the precipitation. In but a single instance during four years have I seen a hard down-pour of rain, such as is common in lower latitudes, but either fine showers of short duration or long misty rains, which at times fall for a day or two, leaving scarcely a measurable quantity of moisture in the rain-gauge, though every exposed object becomes saturated like a water-soaked sponge. The snow usually bears the same character and falls in fine amorphous flakes, rarely showing perfect crystalline forms and as rarely falling in large flakes.

ELECTRICAL PHENOMENA.

Thunder showers are said to be quite common in some parts of the Yukon River valley during the summer, but in the vicinity of Saint Michael flashes of lightning, accompanied by thunder, have been observed on two occasions during the four years. Probably the low temperature and the high relative humidity combine to lessen such displays here. During the coldest weather in winter, nearly always after a snow-fall, the air is in a highly-charged condition, and at such times a passing stroke upon any loose fur causes the hairs to stand up, so fully charged that by presenting the finger to a single hair-tip the snap of a spark may be heard 3 feet away; and in the dark a train of sparks follows the hand in stroking any fur.

MIRAGES.

During the fine weather, from the last of February until the latter part of July, most of the clear days are accompanied by more or less mirage, which is generally strongest on cold, clear days in March and in fine, warm days in May and June. The coast hills and capes, 30 to 75 miles away, are lifted up and contorted into the most fantastic shapes, which constantly assume new forms with protean rapidity, until the whole landscape appears but a form of air, the least change in one's altitude producing a disproportionate change in the scene. I have seen a tall, pinnacled hill, apparently hundreds of feet high, melt away and totally disappear under the horizon by descending about 15 feet from my first point of view, and the changes in outline are equally abrupt and surprising. During the entire year upon pleasant days the air is constantly vibrating more or less appreciably to the eye, but during the clear, intensely cold days in the latter part of winter these vibrations are so energetic that everything on or near the surface of the ground becomes at a distance of about two miles blended into an indistinct, tremulous blur.

CHANGE OF SEASON.

As in most other places under high latitudes, there is no long gradation from season to season, but instead we have two well-marked periods—a long winter of about seven months, extending from October until well into May, and five months of summer. The winter is by far the best, as there are long periods of beautifully clear days, which are welcomed in spite of the usually accompanying intense cold. The summer is rendered very disagreeable by a large number of cold, misty rains, and the low overhanging stratum, which appears to shut down all about like a leaden covering. As noted in the first part, no slush-ice forms in the bays with the water at a temperature of 30.5°; and, in addition, the whole surface of the sea, if calm, appears covered with large oily-looking patches, which slowly increase in size, and as the temperature reaches 30° the slush begins to unite. In the oily-appearing spots the water, on close examination, has a milky shade, and is seen to be full of extremely fragile laminae of ice floating with their edges vertical. These plates, when ground and broken, form the slush-ice along the shore. Many of these plates are an inch or more in diameter, but are so fragile that a breath dissolves them. Ice forming in this way is always rough, but a rapid and extended fall of temperature directly after the oily spots appear sometimes throws a thin sheet of glassy ice over the sea for many miles in a single day.

MIGRATION OF BIRDS.

The earliest arrival in spring is generally a solitary goose or two. In the last days of April, and from then on until the first of June, birds continue to arrive, the main migration falling between the 15th and the 25th of May. The common barn-swallow comes May 20; the water-fowl, geese, and ducks begin nesting on the last of May. The autumn migration of birds passing southward begins on the last of July, and only a few of the hardier water-fowl remain at the end of September.

FISH

The arrival of fish depends largely upon the date of open water along the shore. Herring generally arrive from the 5th to the 20th of June. The delicious king-salmon come from the 15th to the 25th of the month, and the inferior species of salmon in July and the month of August.

In 1868 Mr. William H. Dall made a report upon the agricultural resources of Alaska, which was published by the commissioner of agriculture. From this official document I make the following extract:

The character of the country in the vicinity of the Yukon river varies from rolling and somewhat rocky hills to broad and marshy plains, extending for miles on either side of the river. The underlying rocks in great part are Azoic, being conglomerate, syenite, and quartzite. The south shore of Norton sound and portions of the Kadiak peninsula are basalt and lava. There is on the northeast shore of Norton sound an abundance of sandstones and clay-beds containing lignite. Sandstone is also abundant on the Yukon, alternating with the azoic rocks. The superincumbent soil differs in different places. In some localities it is clayey, and in such situations is quite frequently covered with sphagnum, which always impoverishes the soil immediately beneath it. In others it is light and sandy, and over a large extent of country it is the richest alluvial, composed of very fine sand, mud, and vegetable matter, brought down by the river and forming deposits of indefinite depth. * * * The soil is usually frozen at a depth of three or four feet in ordinary situations. In colder ones it remains icy to within eighteen inches of the surface. This layer of frozen soil is six or eight feet thick; below that depth the soil is destitute of ice, except in very unusual situations.

The mean temperature of the Yukon region, as given by Mr. Dall with reference to the point of Saint Michael, in latitude 63° 28'; the mission of the Greek church on the Yukon river, in latitude 61° 47'; Nulato, on the Yukon river, in latitude 64° 40', and fort Yukon, on the same river, in latitude 67° 10', is exhibited in the following table:

	Saint Michael.	Greek church mission.	Nulato.	Fort Yukon.
	<i>Deg.</i>	<i>Deg.</i>	<i>Deg.</i>	<i>Deg.</i>
Mean for spring.....	+29.8	+19.62	+29.3	+14.22
Mean for summer.....	+53.0	+59.32	+60.0	+69.67
Mean for autumn.....	+26.3	+36.05	+36.6	+17.37
Mean for winter.....	+ 8.6	+ 0.95	-14.0	-23.80
Mean for year.....	+29.3	+26.48	+27.8	+16.92

The temperature as exhibited in the above table would not seem to afford much encouragement to the agricultural immigrant, even without reference to the existence of frozen soil throughout the year within a short distance of the surface as mentioned above.

Incomplete and unsatisfactory as our information is on this subject, the data given would appear to be conclusive as to the adaptability of the Yukon River valley for agricultural pursuits. From various points on the river traders report a temperature of from 50° to 67° below zero, a common occurrence during the winter; and, though travelers in and residents of this region complain of oppressive heat during the summer, severe frosts frequently occur in the months of June and August, and one instance is recorded of a heavy frost at Nuklukaiet on the 27th of July, which destroyed a promising vegetable garden planted there in the summer of 1879.

Two Roman Catholic missionaries, Bishop Charles Seghers, S. J., and Father Mondard, his assistant, passed the winter of 1877-'78 in the central Yukon region. They suffered much from severe cold during the winter, and when at last the ice disappeared, and the snow melted away from forest and from tundra, the contrast between winter and summer was so great that the pious missionaries were filled with delight, and warming their bodies, chilled through the eight months of constant cold, in the genial rays of the sun of July, they grew enthusiastic over the warm climate of the Yukon and its "fertile valley" that might support millions of agriculturists. These good missionaries evidently had no experience in farming or husbandry, and had never attempted to sink a spade into the matted, elastic covering of the Yukon tundra. The plague of the Arctic, the mosquito, alone would drive any but the most energetic and desperate settlers from the country.

In the apparent absence of precious minerals in paying quantities we must base our hopes for the future of the Yukon region upon its furs and fish alone.

The dreary coast-line of this division, washed by the shallow waters of Bering sea, is inhabited by a hardy race of seal and walrus hunters, who have planted their villages at every point where it is possible for a few families to eke out a living. A few points on this coast-line from cape Prince of Wales to cape Rumiantzof require special mention. Port Clarence, just south of cape Prince of Wales, offers fine harbor accommodations, and three or four Innuvit villages are located here. King's island, called "Oukivok" by the natives, is a small, high island about 30 miles southeast from the Diomed islands. This island is about 700 feet in height, with almost perpendicular cliffs and deep water on all sides, is composed of basalt, is exceedingly rugged in outline, and is barren of tree

or shrub. The most remarkable feature of the island is the village, composed of winter houses, about forty in number, excavated into the side of the cliffs, and built on a steep declivity, which rises from the sea at an angle of about 45°. On small projections from the face of the cliff the inhabitants erect their summer houses, consisting of rude tents of walrus and seal hide. The natives of this Arctic Gibraltar live almost entirely by walrus and seal hunting, the skins of these animals being manufactured into roofs of houses, coverings for their kaiaks, clothing, straps, lines, and other articles. The flesh of both the walrus and the seal is their chief article of food, and the ivory of the former is sold to passing traders for rum, breech-loading arms, ammunition, tobacco, and a few trifles. The skins of the seal ("lavtak") form an article of trade with the natives of the mainland, America, and Asia. This isolated community seems to be very prosperous.

Proceeding down the coast, and entering the vast estuary of Norton sound, we find on its northern coast a deep indentation, Golovin sound. Here indications of lead and silver have been found, and the ubiquitous prospector has already visited the spot with his pick and shovel. The results of the enterprise, however, have not thus far been made definitely known.

The most important locality, however, on this coast is the trading-post of Saint Michael, where rival firms have established their depots for the Yukon River and Arctic trade. At this place each firm has its managing agent for the district, who is supplied once a year with a cargo of goods from San Francisco. The station-keepers from the interior come down to the coast at the end of June or the 1st of July, and each receives his allotment of goods to take back with him in sail-boats and bidars during the few months when navigation on the river is not impeded by ice. The vessels supplying this depot can seldom approach the anchorage of Saint Michael before the end of June on account of large bodies of drifting ice that beset the waters of Norton sound and the straits between Saint Lawrence island and the Yukon delta.

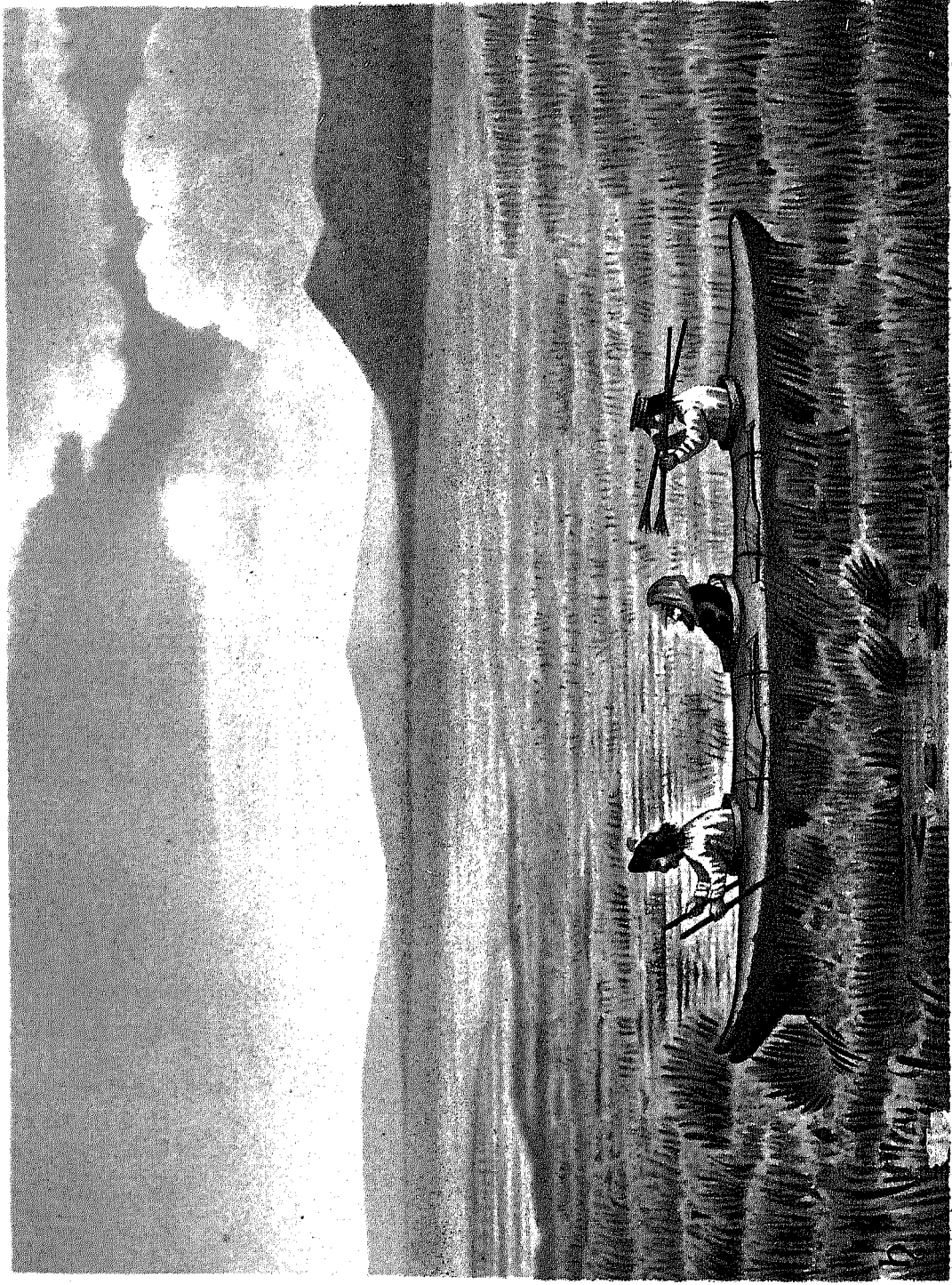
In the description of this division we must include the island of Saint Lawrence. This island originally had a population of about 1,000, but during the winter of 1878, on account of the failure to lay in supplies during the hunting season, a period of general starvation occurred, which caused the death of at least 400 men, women, and children, principally the latter two classes. There are several villages on the island inhabited by a tribe of Asiatic or western Eskimo. They are tall, straight, and muscular, are generally good looking, and subsist principally upon the walrus and the seal, generally taking only as much as is actually needed for their immediate wants, without providing for the future. They make houses, boats, clothing, etc., of the skins of the walrus, and sell whalebone and ivory to traders for rum and breech-loading arms. Living directly in the track of vessels bound to the Arctic for the purpose of whaling and trading, this situation has been a curse to them; for as long as the rum lasts they do nothing but drink and fight among themselves, and whenever they collect a few furs, instead of exchanging them for provisions or clothing, they refuse to sell them for anything but whisky, breech-loading arms, and ammunition.

There is a chapel at Saint Michael, but the headquarters of the Greek Catholic church, which has the only established mission in this division, is at Ikogmute, on the Yukon river, just opposite the point where the Kuskokvim portage comes over. Here there is a church with several church buildings under control of an ordained priest, whose influence over these people is very small. On paper he lays claim to having 3,000 parishioners, but I was unable at any settlement to recognize his title, even approximately. The worthy priest abounds in faith, however, and, in addition to his first-cited claim, also reports that he holds 600 more "nearly persuaded", as if it were a mere question of time to gather them in finally.

The people of the United States will not be quick to take to the idea that the volume of water in an Alaskan river is greater than that discharged by the mighty Mississippi; but it is entirely within the bounds of honest statement to say that the Yukon river, the vast deltoid mouth of which opens into Norton sound of Bering sea, discharges every hour one-third more water than the "Father of Waters". There is room for some very important measurements to be made in this connection, which I hope will soon be made. We know the number of cubic feet of water which the Mississippi rolls by New Orleans every day, but we do not possess authority concerning the volumes of the flood discharged by the Yukon. Entering the mouth, or rather any one of the mouths, of this large river, we are impressed first by the exceeding shallowness of the sea 50 miles out from it, varying in depth from 2 to 3 fathoms; and, second, by the mournful, desolate appearance of the country itself, which is scarcely above the level of the tide, and which is covered with a monotonous cloak of scrubby willows and rank grasses. The banks, wherever they are lifted above the reddish current, are continually undermined and washed away by the flood, and so sudden and precipitate are these land-slides at times that traders and natives have barely escaped with their lives. For 100 miles up through an intricate labyrinth of tides, blind and misleading channels, sloughs, and swamps we pass through the same dreary, desolate region, until the higher ground is first reached at Kusilvak, and until the bluffs at Andreievsky and at Chatinakh give evidence of the fact that all the land in Alaska is not under water. It is watered, however, here, there, and everywhere, and impresses one with the idea of a vast inland sea; which impression holds good even as far up the river as 700 or 800 miles, where there are many points, even far in the interior, at which this river spans a breadth of 20 miles from shore to shore. As we advance toward its source we are not surprised, when we view the character of the country through which it rolls, at the vast quantity of water in its channel. It would seem as though the land itself drained by the river on either side within Alaska were a sponge, into which



PLATE VII



ALASKA PHOTOGRAPHIC CO. S. E. CORNER BUREAU

YUKON TUNDRA IN SUMMER

all rain and moisture from the heavens and melting snow are absorbed, never finding their release by evaporation, but conserved to drain, by myriads and myriads of rivulets, the great watery highway of the Yukon. I noticed a striking evidence of the peculiar non-conductive properties of the tundra mosses, or swale, last summer in passing through many of the thousand-and-one lakes and lakelets peculiar to that region, where the ice had bound up the moss and overhanging water-growth at the edges of the lakes. In the breaking up and thawing out of summer that ice failed to melt, and the renewed growth of the season of vegetation, reaching out in turn from this icy border, will again prevent thawing, and so on until shallow pools and flats are changed into fixed masses of ice hidden from view.

The borders of the bed of this river alternate from side to side, with flats here and low hills there, the river shifting from one to the other. The hills above the mission as well as the rolling uplands are all timbered, while the flats are covered with rank grasses and willow thickets. This river is bound by ice in October and is not released until the sun of June exerts its power. A very remarkable occurrence in connection with this annual event took place in the summer of 1880, by which a famine ensued at the mouth of the Yukon, and the people thereof were obliged to repair for food to neighboring settlements far to the northward or on the Kuskokvim. The ice came down the Yukon in such masses and in such profusion that it grounded in the deltoid mouth in the month of July, so as to form a barrier against the running of the salmon.

A list of settlements and stations in the Yukon division with their respective population is here appended, as follows:

YUKON DIVISION.

Settlements.	Location.	Total.	White.	Creole.	Athabas-kan.	Eskimo.
Total.....		6, 870	18	19	2, 557	4, 276
Cape York.....	Bering sea.....	24				24
Stniogamute.....	Port Clarence.....	36				36
Kaviazagamute.....	Lake Imorook.....	200				200
Nook.....	Cape Douglas, Bering sea.....	36				36
Ookivagamute.....	King's island, Bering sea.....	100				100
Aziak.....	Sledge island, Bering sea.....	50				50
Small village opposite on mainland.....	Bering sea.....	10				10
Oo-innakhtagowik.....	North coast of Norton sound.....	10				10
Ayacheruk.....	North coast of Norton sound.....	60				60
Chitnaashuak.....	North coast of Norton sound.....	20				20
Imokhtagokshuk.....	North coast of Norton sound.....	30				30
Okpiktolik.....	North coast of Norton sound.....	12				12
Tup-ka-ak.....	North coast of Norton sound.....	15				15
Chlookak.....	North coast of Norton sound.....	15				15
Ignituk.....	North coast of Norton sound.....	100				100
Atnuk.....	North coast of Norton sound.....	20				20
Nubviakheluguluk.....	North coast of Norton sound.....	30				30
Kvikh.....	North coast of Norton sound.....	30				30
Ogowinagak.....	North coast of Norton sound.....	20				20
Scattered villages.....	Head of Norton bay.....	20				20
Oonaktolik.....	East coast of Norton sound.....	15				15
Shaktolik.....	East coast of Norton sound.....	60				60
Tup-hamikva.....	East coast of Norton sound.....	10				10
Oonalakleet.....	East coast of Norton sound.....	100				100
Igawik.....	East coast of Norton sound.....	8				8
Kegokhtowik.....	East coast of Norton sound.....	20				20
Ketchumville.....	East coast of Norton sound.....	5	3	2		
Saint Michael and Tachik village.....	East coast of Norton sound.....	109	4	5		100
Pikmiktalik.....	East coast of Norton sound.....	10				10
Pastoliakh.....	East coast of Norton sound.....	80				80
Kotlik.....	Yukon delta.....	8				8
Fetkina.....	Yukon delta.....	30				30
Village (name unknown).....	Yukon delta.....	6				6
Ingechuk.....	Yukon delta.....	8				8
Kashutuk.....	Yukon delta.....	18				18
Chefokhlagamute, 1st.....	Yukon delta.....	15				15
Chefokhlagamute, 2d.....	Yukon delta.....	5				5
Chefokhlagamute, 3d.....	Yukon delta.....	6				6
Iglagagamute.....	Yukon delta.....	10				10
Askinuk.....	Yukon delta.....	175				175
Kashunok.....	Yukon delta.....	125				125
Kaialigamute.....	Yukon delta.....	100				100
Ookagamute.....	Yukon delta.....	25				25
Oonakagamute.....	Yukon delta.....	20				20
Village (name unknown).....	Yukon delta.....	15				15
Kwigathlogamute.....	Yukon delta.....	30				30
Nunochogamute.....	Yukon delta.....	40				40

YUKON DIVISION—Continued.

Settlements.	Location.	Total.	White.	Creole.	Athabas- kan.	Eskimo.
Nanvogalokhlagamute.....	Yukon delta.....	100				100
Villages on Big Lake region.....	Yukon delta.....	166				166
Coast between Pastoliakh and cape Rumiantzof...	Yukon delta.....	300				300
Komarof's Odinothka.....	Yukon river.....	13		1		12
Alexeief's Odinothka.....	Yukon river.....	16		1		15
Eliseief's Barabara.....	Yukon river.....	20				20
Chatinakh.....	Yukon river.....	40				40
Andrievsky Rödoute.....	Yukon river.....	14	1	1		12
Starikvikhpak.....	Yukon river.....	90				90
Razboinik.....	Yukon river.....	151				151
Ooglovia.....	Yukon river.....	102				102
Ingahamé.....	Yukon river.....	63				63
Single house.....	Yukon river.....	10				10
Staric Selenie.....	Yukon river.....	55				55
Ikogmute, mission.....	Yukon river.....	148		5		143
John's station.....	Yukon river.....	37	1	1		35
Rybnia.....	Yukon river.....	40				40
Pogoreshapka.....	Yukon river.....	121				121
Single house.....	Yukon river.....	9				9
Paimute.....	Yukon river.....	89				89
Askhomute.....	Yukon river.....	30				30
Ignokhatskamute.....	Yukon river.....	175				175
Makeymute.....	Yukon river.....	121				121
Anvik station and village.....	Yukon river.....	95	1		94	
Single house.....	Yukon river.....	20			20	
Single house.....	Yukon river.....	12			12	
Single house.....	Yukon river.....	15			15	
Tanakhokhaiaik.....	Yukon river.....	52			52	
Single house.....	Yukon river.....	15			15	
Chageluk settlements.....	Chageluk slough and Innok river.....	150			150	
Khatnotoutze.....	Yukon river.....	115			115	
Kaiakak.....	Yukon river.....	124			124	
Kaltag.....	Yukon river.....	45			45	
Nulato, station and village.....	Yukon river.....	168	2	3	163	
Koyukuk settlements.....	Koyukuk river.....	150			150	
Terentief's station.....	Yukon river.....	15			15	
Big Mountain.....	Yukon river.....	100			100	
Single house.....	Yukon river.....	10			10	
Sakatalan.....	Yukon river.....	25			25	
Yukokakat.....	Yukon river.....	6			6	
Melozikakat.....	Yukon river.....	30			30	
Mentokakat.....	Yukon river.....	20			20	
Soonkakat.....	Yukon river.....	12			12	
Medvednaia.....	Yukon river.....	15			15	
Noyokakat.....	Yukon river.....	107	1		106	
Kozma's.....	Yukon river.....	11			11	
Nuklnkalet.....	Yukon river.....	29	2		27	
Rampart village.....	Yukon river.....	110			110	
Fort Yukon.....	Yukon river.....	109	2		107	
Fort Reliance.....	Yukon river.....	83	1		82	
Gens de Large.....	Yukon river.....	120			120	
Fetoutin (David's people).....	Yukon river.....	106			106	
Tennanah villages.....	Tennanah river.....	700			700	
Saint Lawrence island.....	Bering sea.....	500				500

The Russian mission on the Yukon river claimed in the year 1880 that 2,252 of the natives were professors of Christianity, but personal observations lead me to believe that this estimate is exaggerated, comprising as it does quite a number of individuals in distant settlements to which this zealous missionary can show no title beyond a wholesale sprinkling of the village during a hurried visit. In 1880 there was no school in existence within the jurisdiction of this mission, but steps were being taken by the bishop for the location of an educational establishment at Ikogmute.

The trade of the Yukon division has been thus far confined altogether to the barter with the natives for furs, seal-oil, and some walrus-ivory along the coast. The importations of goods and provisions in payment of these native productions are quite large, amounting in the year 1880 to 150,000 pounds of flour, 100 chests of tea of 52 pounds each, 150 half-barrels of brown sugar, and 50 half-barrels of white sugar. The consumption of flour alone foots up 25 pounds for each man, woman, and child in the district, and the demand for this article is increasing annually. The dry goods, hardware, etc., imported, together with this large quantity of provisions, represented in 1880 a value of nearly \$20,000.

The furs obtained in exchange for these provisions numbered 27,356, of all kinds, divided as follows:

Wolf	32
Lynx	310
Beaver	3,781
Silver fox	206
Cross fox	800
Red fox	5,000
White fox	1,791
Beaver	3,200
Marten	2,000
Mink	7,774
Bear	152
Musk-rat	2,000
Land otter	310
Total	<u>27,356</u>

The market value of these skins was between \$75,000 and \$80,000.

The superficial area of the Yukon division is 176,715 square miles, which, with a total population of 6,870, would indicate a density of population at the rate of 1 inhabitant to 25 $\frac{3}{4}$ square miles, the number of whites and creoles (19 and 18 respectively) being too small to be taken into consideration in this connection.

THE KUSKOKVIM DIVISION.

The third geographical division is named after the river next in size to the Yukon among Alaskan streams, and comprises the whole of the Kuskokvim valley, with all its tributaries, and two other rivers, the Togiak and the Nushegak, also emptying into Bering sea.

The length of the main artery of this division is not known, the headwaters of the Kuskokvim having thus far been untouched by the explorer or trader. We have the statements of natives to the effect that the upper Kuskokvim river flows sluggishly through a vast plateau or valley, the current acquiring its impetus only a short distance above the village of Napaimute. From this point down to the trading-station of Kalmakovsky and to the southern end of the portage route between this river and the Yukon the banks are high and gravelly, and chains of mountains seem to run parallel with its course on either side. This section of the Kuskokvim valley is but thinly populated, though apparently the natural advantages are far greater than on the corresponding section of the Yukon. The soil is of better quality, and is sufficiently drained to permit of a more luxuriant growth of forest trees, shrubs, and herbs.

Such indications of minerals as have been found here are the most promising of those in any portion of western Alaska, consisting of well-defined veins of cinnabar, antimony, and silver-bearing quartz.

Game and fur-bearing animals do not abound in this section of the river valley, as it is an old hunting-ground, and has been drained by constant traffic for more than half a century. The principal business of the traders at Kalmakovsky is derived from the almost unknown headwaters of the river, where the beaver, marten, and fox are still plentiful.

From the headwaters down to Kalmakovsky the people belong to the interior Indians, or Athabaskans, and for some distance below this point there seems to be a mixed race of Innuits and Indians; but from the village of Okhogamute down to the coast of Bering sea the Eskimo alone appear on both banks of the Kuskokvim, peopling also the section of the delta between cape Vancouver (Nelson island) and the mouth of the river and the island of Nunivak, lying off the coast. This triangular section, having for its apex the above-mentioned village, teems with population. Villages dot the banks of the river at intervals, the distance between them gradually decreasing toward the sea-coast, while on the delta the lakes and sluggish streams are lined with numerous settlements.

According to our standard the people of the lower Kuskokvim river and of the tundras are very poor indeed, their country offering nothing but seals in the sea and the river, myriads of minks, some foxes, the brown bear, and a few moose. Among these animals the hair-seal is of the greatest importance, furnishing oil and lavtaks (dried seal hides), the chief articles of trade with the white and native traders on the upper river. The skin of the mink is of so little value that traders often refuse to buy unless in very large quantities. Altogether these people would be in a sorry plight indeed were it not for the abundant supply of salmon during the summer. They all flock together on the banks of the Kuskokvim, and fairly line the river with fish-traps and drying frames, or poles, and from the beginning of June to the month of August the traps are constantly emptied and filled again. The quantity of fish secured during the season is very great, even in proportion to the number of inhabitants; but when we consider the wasteful practice of drying the fish until only a small fraction of the original substance remains, it cannot astonish us to hear the natives complain of an insufficient supply. Over 4,000 people lay in the winter supply for themselves and for their dogs during a few months of summer, but it is safe to state that with a more economical mode of preserving the fish four times the number could live in comfort within the same space.

A glance at the map will show a very conspicuous broad opening through which the strong current and turbid waters of the Kuskokvim are discharged into Bering sea. The tides in this capacious estuary run with a surprising velocity and an enormous vertical rise and fall.

At the village of Agaligamute I saw a mound, the apex of which was over 50 feet above the level of the sea at low water, totally submerged by the flood-tide, assisted by a southwesterly gale. This extraordinary change in tide-level extends up into the mouth of the river beyond the point where the trading-schooners discharge their cargoes at Shineyagamute.

At each succeeding flood-tide a traveler in his bidarka can pass over willow thickets of large size and groves of poplar, while at low water he finds himself sunk between high banks of bottomless mud, shutting him out from all view of the interior. The aspect of the country here, as far as it lies under the direct influence of the changing tide, is strikingly desolate and forlorn. The settlements along the banks and the tributary swamps of this river are located on little patches or narrow dikes only just above high water, and from here across to the hills to the eastward extends a great swale or watery moor of from 40 to 60 miles in width. Hummocks and ridges afford a path to the hunter here and there, and when the river is at its ebb the great flats of mud and slimy ooze are bare. A rank and luxuriant growth of coarse water-grass, reeds, and rushes covers the whole expanse, with little clumps of dwarf-willows and poplar along the elevated tide-rim.

The native villages are ranged close together, each occupying all the dry land in its immediate vicinity. It is difficult even to find sufficient dry ground outside of the houses upon which to pitch a tent, and at low tide it is almost impossible to pass between the village and the water's edge, a mile or more away, separated as they are by an almost impassable mud.

On the western bank of the lower Kuskokvim the land is also low and swampy, and the settlements are more widely separated from each other. In the lower part of this stream, in the vicinity of Good News bay, where one bank can no longer be sighted from the other, there exists a group of low bars or islets, upon which both the common seal and the maklak are said to "haul up" to breed. This statement has not, however, been definitely established, and it is probable that here, as elsewhere, these marine mammals bring forth their young on the ice; certain it is that large numbers of seals are killed on and in the immediate vicinity of these banks. The whole domestic economy of the natives here seems to be founded upon the maklak and the beluga, and the oil procured from them is the currency with which they purchase some necessaries and a few luxuries of life. Their clothing, manufactured of the skin of the ground-squirrel, or yeveashka, is purchased with oil, and the few garments of cotton drill and gaudy prints to be found among them have been obtained in the same manner.

The density of population, as portrayed in the list of settlements on the river mouth and the country immediately adjoining, is such that in their active and energetic fishing for their own consumption they seem to absorb the greater part of the salmon run—at least the natives on the upper river complain quite frequently of the scarcity of this fish. This state of affairs may, however, be ascribed partly to the fact that not only do the Kuskokvim people proper fish here, but large numbers come annually from the lower delta of the great Yukon, where the run of salmon occasionally proves a total failure on account of ice grounding in the shallow channels and keeping the fish from ascending.

For many years one trading-station belonging to one of the wealthy San Francisco companies seemed to absorb the whole trade of the Kuskokvim river. Two years ago, however, a rival agency was established, and at present there seems to be traffic enough to afford to each firm a moderate profit. The most valuable skins shipped from this region are those of martens and of foxes, procured from the roving tribe of Koltchanes inhabiting the *terra incognita* about the headwaters of the Kuskokvim.

There is another feature in this country which, though insignificant on paper, is to the traveler the most terrible and poignant infliction he can be called upon to bear in a new land. I refer to the clouds of bloodthirsty mosquitoes, accompanied by a vindictive ally in the shape of a small poisonous black fly, under the stress of whose persecution the strongest man with the firmest will must either feel depressed or succumb to low fever. They hold their carnival of human torment from the first growing of spring vegetation in May until it is withered by frosts late in September. Breeding here as they do, in the vast network of slough and swamp, they are able to rally around and to infest the wake and the progress of the explorer beyond all adequate description, and language is simply unable to portray the misery and annoyance accompanying their presence. It will naturally be asked how do the natives bear this? They, too, are annoyed and suffer, but it should be borne in mind that their bodies are anointed with rancid oil; and certain ammoniacal vapors, peculiar to their garments from constant wear, have a repellant power which even the mosquitoes, bloodthirsty and cruel as they are, are hardly equal to meet. When traveling, the natives are, however, glad enough to seize upon any piece of mosquito-net, no matter how small, and usually they have to wrap cloths or skins about their heads and wear mittens in midsummer. The traveler who exposes his bare eyes or face here loses his natural appearance; his eyelids swell up and close, and his face becomes one mass of lumps and fiery pimples. Mosquitoes torture the Indian dogs to death, especially if one of these animals, by mangle or otherwise, loses an inconsiderable portion of its thick hairy covering, and even drive the bear and the deer into the water.

The second river system belonging to this division is that of the Togiak, a stream emptying into the western portion of the coast indentation between capes Newenham and Constantine. The course of this river is brief, the distance between the high plateau from which it springs and the sea-coast being not much over 100 miles, but it is broad and has many lake-fed tributaries, and its banks are lined with populous villages.

This whole region is poor in such natural products as white men desire, and one of the results of this poverty is that no white trader has ever thought it worth his while to visit these people. The Togiak Eskimo seem to live by hundreds and even thousands in an almost primitive state, without craving for any of the white man's possessions, with the sole exception of tobacco, an article they have received from surrounding tribes, and which they have learned to appreciate. They seem to live without any tribal authority or organization, and have no chiefs, each family managing its own affairs, coming and going with perfect freedom, without any regard for the wishes of other members of the community. Whole families and communities leave their winter houses or subterranean dwellings as fancy takes them, select some point on the tundra or on the river bank, and pass two or three months with no other shelter than that afforded by their upturned kaiaks and a water-proof shirt made of deer-entrails and bladders stretched over paddles and spears. As the wind changes they shift this unsatisfactory shelter about, seemingly caring for nothing beyond a small space to lay their heads where they are not exposed to the pelting rain or snow.

Brown bears (*Ursus Richardsonii*) are plenty in the swampy river bottom during the fishing season, and are boldly attacked by the men with spears and lances; but when the salmon disappears the populace migrate inland to the hills and devote a month or two to the ardent pursuit of the ground-squirrel to replenish their stock of clothing. The skins of minks and foxes alone are from time to time taken down to a small trading-post on the sea-coast and exchanged for tobacco by one or two courageous individuals who act as middlemen.

In the winter herds of moose are said to visit the Togiak River valley, and, being easily hunted and overtaken in the deep snow, afford a welcome change of diet to the natives. Along the mountain range extending between the Kuskokvim and the Togiak rivers, and impinging upon the sea at cape Newenham, reindeer are plenty, and are hunted constantly by the natives on both sides of the divide. Of the country between the headwaters of the Togiak and the Kuskokvim nothing is known, but it is safe to conclude that it is not permanently inhabited.

Turning away from these populous villages with their mound-like, grass-grown dwellings, upon the apex of which the natives are wont to perch, gazing out to sea or into vacancy, recalling the aspect of a village of prairie-dogs on an enlarged scale, we leave behind us the most primitive among the native Eskimo south of Bering strait.

In the Nushegak district, named after the third river comprised in the Kuskokvim division, we find everywhere traces of long and intimate intercourse with the Russians, who made this valley and a series of lakes their highway of trade, connecting Bristol bay with Kalmakovsky R doute and Saint Michael.

The houses in all of this district outside of the missionary settlement of Nushegak are much the same as in the other northern divisions, and may be described as follows: A circular mound of earth, grass-grown and littered with all sorts of household utensils, a small spiral coil of smoke rising from the apex, dogs crouching upon it, children climbing up or rolling down, stray morsels of food left from one meal to the other, and a soft mixture of mud and offal surrounding it all. The entrance to this house is a low, irregular, square aperture, through which the inmate stoops and passes down a foot or two through a short, low passage onto the earthen floor within. The interior generally consists of an irregularly-shaped square or circle twelve or fifteen or twenty feet in diameter, receiving its only light from without through the small smoke-opening at the apex of the roof, which rises, tent-like, from the floor. The fire-place is directly under this opening. Rude beds or couches of skins and grass mats are laid, slightly raised above the floor, upon clumsy frames made of sticks and saplings or rough-hewn planks, and sometimes on little elevations built up of peat or sod. Sometimes a small hallway with bulging sides is erected over the entrance, where by this expansion room is afforded for the keeping of utensils and water-vessels and as a shelter for dogs. Immediately adjoining most of these houses will be found a small summer kitchen, a rude wooden frame, walled in and covered over with sods, with an opening at the top to give vent to the smoke. These are entirely above ground, rarely over five or six feet in diameter, and are littered with filth and offal of all kinds, serving also as a refuge for the dogs from the inclement weather.

In the interior regions, where both fuel and building material are more abundant, the houses change somewhat in appearance and construction; the excavation of the coast houses, made for the purpose of saving both articles just mentioned, disappears and gives way to log structures above the ground, but still covered with sod. Living within convenient distance of timber, the people here do not depend so much upon the natural warmth of mother earth.

The coast between the Togiak and the Nushegak is very sparsely peopled, but a few small villages are located in the large bays of Ooalikh and Kulluk. The inhabitants of these settlements derive their sustenance from both sea and land, making long journeys in their kaiaks to islands and banks on the sea, the resort of the seal and the walrus, while on the land they hunt the brown bear, the wolf, the fox, and the reindeer. For their clothing they depend upon the ground-squirrel, and occasionally the traveler sees a parka or shirt-like garment made of the breasts of sea-fowls, cormorants, gulls, and other birds living in millions on the steep, rocky coast.

On the upper Nushegak river and around the numerous lakes from which its waters flow a greater variety of fur-bearing animals and game exists, the marten, mink, wolverine, beaver, land-otter, wolf, and bear, and three varieties of the fox being still found here in ample numbers. It is owing chiefly to the indolent habits of the people, who are much given to festive assemblies, where singing and dancing are freely indulged in, that the quantity of furs secured from this district is quite small. A single trading post at Alexandrovsk's R doute has drained all

this extensive interior region for years past, and the trader stationed there asserts that he did as much business in walrus-tusks from the coast as in furs from the interior.

The salmon family, the great feeder of all the Alaskan people, frequent in astonishing numbers the Nushegak and other streams emptying into Bristol bay. The facilities for building traps and weirs are also extraordinary, and American fishermen have for some years been engaged here every season in reaping a rich harvest and shipping the fish, salted in barrels, to market. Hundreds of barrels have been filled with a single clean-up of the trap. The only drawback to this business is the short period over which the run extends, necessitating the employment of a very large number of hands while it lasts. On the Igushek river, entering Bristol bay from the westward, not more than 40 natives gather their winter store of dried fish on the river.

The walrus, above referred to, are killed only when they leave their natural element and resort to the secluded sandy beaches and bars during the breeding season.

For the temperature of the Kuskokvim division I have but very unsatisfactory data. In the whole valley of the Kuskokvim no observations have been taken, but at Alexandrovsk station, on the Nushegak river, I succeeded in obtaining a set of monthly means of temperature covering the period from September, 1879, to August, 1880, inclusive. These observations were taken by Mr. J. W. Clarke, the agent of the Alaska Commercial Company at that place, as follows:

	Deg. F.
September, 1879.....	45.1
October, 1879.....	32.0
November, 1879.....	24.8
December, 1879.....	11.5
January, 1880.....	1.5
February, 1880.....	14.2
March, 1880.....	21.2
April, 1880.....	26.5
May, 1880.....	36.3
June, 1880.....	46.5
July, 1880.....	54.1
August, 1880.....	53.0

The observer remarked that the winter of 1879-'80 had been unusually severe. Another set of mean temperatures, covering the winter months, is as follows:

	Deg. F.
November, 1878.....	26.1
December, 1878.....	26.6
January, 1879.....	20.7
February, 1879.....	10.0
March, 1879.....	23.7
April, 1879.....	29.1
May, 1879.....	35.8

I append a tabulated list of the villages and stations in this division, with their population, as follows:

KUSKOKVIM DIVISION.

Settlements.	Location.	Total.	White.	Creole.	Aleut.	Athabas-kan.	Eskimo.
Total.....		8,911	3	111	255	500	8,036
Nuaivak Island.....	Bering sea	400					400
Tanunak.....	Nelson island	8					8
Kallookhlogamute.....	Nelson island	30					30
Kashigalagamute.....	Nelson island	10					19
Nulakhtolagamute.....	Yukon delta	25					25
Agiukchugamute.....	Yukon delta	35					35
Chichinagamute.....	Yukon delta	6					6
Chalitmute.....	Yukon delta	60					60
Anogogmute.....	Yukon delta	75					75
Kongiganagamute.....	Yukon delta	175					175
Koolvagavigamute.....	Yukon delta	10					10
Kinagamute.....	Kuskokvim river	60					60
Village at headwaters.....	Kuskokvim river	50				50	
Napalmute.....	Kuskokvim river	60				60	
Roaming Koltchane.....	Kuskokvim river	25				35	
Kalmakovskiy Bédonte.....	Kuskokvim river	12	2	2		3	5
Kokhlokhtokhpagamute.....	Kuskokvim river	51					51
Toolooka-anahamute.....	Kuskokvim river	59					50
Okhogamute.....	Kuskokvim river	130		3			127
Kaitkhagamute.....	Kuskokvim river	106					106
Oogovigamute.....	Kuskokvim river	266					206

KUSKOKVIM DIVISION—Continued.

Settlements.	Location.	Total.	White.	Creole.	Alout.	Athabas- kan.	Eskimo.
Single house.....	Kuskokvini river.....	10					10
Tookhlagamute.....	Kuskokvim river.....	92					92
Single house.....	Kuskokvim river.....	10					10
Kwigalagamute.....	Kuskokvim river.....	314					314
Tuluksak.....	Kuskokvim river.....	150					150
Akkiagamute.....	Kuskokvim river.....	175					175
Paimute.....	Kuskokvim river.....	30					30
Kik-khtagamute.....	Kuskokvim river.....	232					232
Kuljkhlagamute.....	Kuskokvim river.....	75					75
Koogamute.....	Kuskokvim river.....	215					215
Mumtrekhtagamute station.....	Kuskokvim river.....	29					29
Mumtrekhtagamute village.....	Kuskokvim river.....	41					41
Napaskiagamute.....	Kuskokvim river.....	196					196
Napahaiagamute.....	Kuskokvini river.....	98					98
Lomawigamute.....	Kuskokvim river.....	81					81
Taghlaratzoriamute.....	Kuskokvim river.....	52					52
Naghikhlavigamute.....	Kuskokvim river.....	193					193
Akooligamute.....	Kuskokvini river.....	162					162
Kakhuiyagamute.....	Kuskokvim river.....	8					8
Shovenagamute.....	Kuskokvim river.....	58					58
Kik-khuigagamute.....	Kuskokvim river.....	9					9
Apokagamute.....	Kuskokvim river.....	94					94
Chimiagamute.....	Kuskokvim river.....	71					71
Iliutagamute.....	Kuskokvim river.....	40					40
Kuskokvagamute.....	Kuskokvim river.....	24					24
Shineyagamute.....	Kuskokvim river.....	40					40
Quinehahamute.....	Kuskokvim bay.....	83					83
Agalligamute.....	Kuskokvim bay.....	120					120
Takikotagamute.....	Kuskokvim bay.....	21					21
Kl-changamute.....	Kuskokvim bay.....	18					18
Mumtrahamute.....	Good News bay.....	162					162
Tzuhavagamute.....	Bering sea bay.....	48					48
Aziavigamute.....	Aziviatiak river.....	132					132
Togiagamute.....	Togiak river.....	276					276
Ikaliukha.....	Togiak river.....	192					192
Tuumiakhpuk.....	Togiak river.....	137					137
Kassiamute.....	Togiak river.....	615					615
Nulatok.....	Togiak river.....	211					211
Kissaiakh.....	Togiak river.....	181					181
Annugannok.....	Togiak river.....	214					214
Togiak station.....	Bering sea.....	24		4	2		18
Oonliikh.....	Bering sea.....	68					68
Kulluk.....	Kulluk bay.....	65					65
Igushak.....	Igushak river.....	74					74
Anagnak.....	Nushegak river.....	87					87
Nushegak (Alexandrovsk).....	Nushegak river.....	178	1	86			91
Kanulik.....	Nushegak river.....	142					142
Kakuak.....	Nushegak river.....	104					104
Akulvikchuk.....	Nushegak river.....	72					72
Agivivak.....	Nushegak river.....	52					52
Kalignak.....	Nushegak river.....	91					91
Molchatna villages.....	Molchatna river.....	180				180	
Akuliakhpuk.....	Lake of same name.....	83					83
Ekuk.....	Bristol bay.....	112					112
Kogglung.....	Kvichak river.....	29					29
Kashinakh.....	Kvichak river.....	119					119
Chikak.....	Ilyamalake.....	51				51	
Ilyamna.....	Ilyamna lake.....	49		13		36	
Kichik.....	Kichik lake.....	91				91	
Paugvik (two villages).....	Naknek river.....	192					192
Ik-khagamute.....	Lake Walker.....	162					162
Igagik.....	Aliaska peninsula.....	120		2			118
Oogashik.....	Aliaska peninsula.....	177		1	176		
Oonangashik.....	Aliaska peninsula.....	37			37		
Mashikh.....	Aliaska peninsula.....	40			40		

The superficial area of the Kuskokvim division is 114,975 square miles, and its total population 8,911. These figures would indicate a proportion of 1 inhabitant to every 13 square miles. The number of whites and creoles in this division (114 in all) is too small to take into consideration in this connection.

THE ALEUTIAN DIVISION.

Before proceeding eastward along the continent of Alaska in our brief survey of the geographical divisions of the territory, we turn our attention to the Aleutian division, comprising the Aleutian islands, from the Shumagin group, in the east, to the island of Attou, in the extreme west, and also a small section of the Aliaska peninsula at its southern extremity. The islands appear to be a mere continuation of the main Alaskan range of mountain groups. Many of these islands contain volcanic peaks, and some of them are still in a state of moderate activity. Slight shocks of earthquake are common throughout the chain, but many years have elapsed since the occurrence of violent phenomena traceable to volcanic action. All the islands are mountainous, and many of them exhibit snow-covered peaks of from 4,000 to 8,000 feet in height. The entire division is treeless, dwarfed specimens of creeping willow being the nearest approach to timber found anywhere on the islands or mainland. The soil consists of vegetable mold, clays, volcanic detritus, and here and there a light calcareous loam. Grasses of all kinds grow in great abundance, except in the interior valleys and plateaus, where a lack of drainage has allowed dense masses of sphagnum to prevail over the perennial grasses natural to the soil. The surface of the soil everywhere, even where very tall grasses seem most luxuriant, is cut up into hummocks to such a degree that to travel on foot is exceedingly difficult and tiresome.

No mineral has been found in this division with the exception of its eastern extremity, where on the island of Ounga deposits of coal have been discovered, and thoroughly prospected through a long series of years. The quality of the coal was such, however, as to make competition with other coal regions of the Pacific coast impossible.

The abundance of grass throughout this region would naturally lead to the conclusion that it might be adapted to cattle-breeding or the dairy industry, especially since the mean temperature is not at all low; but the winters are sufficiently prolonged to necessitate the feeding of cattle with hay for six or seven months of the year, and the dampness of the climate makes the curing of hay very uncertain and laborious. Under the auspices of the Russian government a weather average of seven years was obtained and recorded by the missionary Veniaminof. This has the remarkable showing of 53 clear days, 1,263 cloudy days, and 1,230 days with snow, rain, or hail. At Oonalashka, the only place where cattle are now kept by the priest and by the traders, hay can be obtained from San Francisco cheaper than it can be cut and cured on the spot. Potatoes have not thus far been successfully grown in any part of this division; but whether this be due to the quality of the soil or to the climate, or to lack of proper attention to the subject, I am not in a position to decide. I merely note the fact.

The people inhabiting this district, though distinct in language and, to a certain extent, in habits, are undoubtedly of Eskimo origin. They were the first tribe subjugated by the Russian adventurers who invaded this region about the middle of the last century, and, having maintained ever since that time the most intimate relations with their conquerors, their individuality as a race or tribe has almost completely disappeared.

In their connection with the Russian church the people of this division are divided into two parishes and one independent church organization. The parishes are Belkovsky, in the east, comprising the Shumagin group of islands and the settlements on the southern extremity of the Aliaskan peninsula, and Oonalashka parish, in the west, comprising all the islands from Avatanok to Attou. The parish churches are located at Belkovsky and Oonalashka or Iliuliuk village, but nearly every settlement contains a small chapel, where prayers are read by unpaid native subordinate members of the clergy. An independent organization exists on the seal islands, where the natives maintain a priest and his assistant at their own expense, and with some assistance on the part of the lessees of the islands have erected a fine church.

The easternmost permanent settlement of this division is situated in Belkovsky parish, on Delarof bay, on the island of Ounga, one of the Shumagin group. The Ounga settlement has a population of nearly 200 souls, principally creoles, and presents quite an imposing appearance, owing to quite a number of neat frame buildings erected by prosperous sea-otter hunters. The most important industry of this and the adjoining settlements is the chase of the sea-otter, of which about 600 are secured every year from a range extending over the whole Shumagin group. The outlying islands and rocks, especially those of Simeonof, Nagai, and Vosnessensky, are the favorite hunting-grounds. The native hunters have been re-enforced here by fifteen or twenty white men, who, in order to circumvent the letter of the law, which requires that none but natives shall hunt fur-bearing animals in Alaska, have married native women, and by the special authority of the Secretary of the Treasury are admitted to the same privileges as the people of the country. Being more energetic, and at the same time more reckless, in their pursuit of these valuable animals, these white men have been very successful, and many of them have built or purchased smart little sailing-vessels, enabling them to continue their hunting at all seasons of the year, even when the Aleut is kept at home by the gales and storms of winter. The final effect of this indiscriminate hunting must, of course, be extermination. Limited quantities of fox-skins of various shades are also secured on the island of Ounga.

The coal-veins existing not far from the Ounga settlement on Humboldt bay have already been referred to.

On the adjoining island of Korovinsky there is a small settlement inhabited altogether by creoles, whose ancestors had formed an agricultural colony under the auspices of the Russian Fur Company. Up to the transfer of

the territory these people were not allowed to hunt, and were compelled to maintain themselves by the cultivation of potatoes and turnips and by keeping a few head of cattle, but since that time they have gradually abandoned most of their agricultural pursuits and turned their attention to the more profitable pursuit of the sea-otter.

On Popof island there is a station of fishermen in the employ of a San Francisco firm engaged in the cod-fishery on the Shumagin banks. The fishing is done to a great extent in small boats on the more shallow banks within a short distance from shore, and the fish are carried to San Francisco in schooners. The number of fish taken annually varies between 500,000 and 600,000.

The trade of Ounga is divided between two rival companies, who have established permanent stores, and many private traders, who pay occasional visits in schooners and sloops.

The next settlement to the westward, named Vosnessensky, is situated on the small island of Peregrebnoi. The population of this village does not exceed 50 souls, but they secure between 60 and 70 sea-otter skins every year, and live in comparative affluence.

One of the most important points in the Aleutian division is the settlement of Belkovsky, situated on the southern end of the Aliaska peninsula. This is a village containing 300 inhabitants, a fine, new church, and many good log and frame buildings. The houses are perched on the summit of a bluff clinging to the flanks of the mountains. There is no sheltered harbor here, or even a safe anchorage for ships, and the gales and storms sweep over the settlement with uninterrupted fury, but the hardy sea-otter hunters select this spot as the one most convenient for setting out upon their expeditions to the outlying rocks and cliffs within a circuit of 50 miles or more. The sole industry of this place is, of course, the chase of the sea-otter. The large number of from 1,900 to 2,000 of these rare and costly skins are annually sold at the three trading-stores located in the village.

Under some civilizing influence or home restraint this ought to be, comparatively speaking, a wealthy community, but, as the case now stands, every cent of their surplus earnings that is not gathered in for the support of the church by the priest is squandered by the people in dissipation and for useless luxuries. The best and most costly styles of ready-made clothing are in common use, and only when at sea on their hunting expeditions do the natives wear home-made water-proof garments.

Some 50 or 60 miles to the southward of Belkovsky lies the island of Sannakh, the richest hunting-ground of this whole division. Numerous hunting parties from the islands and the mainland to the east and west can be found here at all times of the year, encamped in tents or rude turf and sod shelters, watching for the rare intervals of weather sufficiently fine to allow them to put out to sea in search of their quarry. The trading companies have established here small depots of supplies, in order to take from the hunters every excuse for leaving the island and neglecting their business until they have collected a sufficient number of skins to warrant their departure for localities affording better opportunities to spend their money. In many instances these parties remain at Sannakh from three to five months at a time, and consist chiefly of men, with one or two women to do camp duty and to provide a few comforts for the drenched, chilled, and exhausted hunter when he returns from the surf-beaten reefs and rocks.

Just north of Belkovsky is the small village of Nikolaievsky, containing less than 50 inhabitants, while to the southward, but still on the mainland of the peninsula, there is the larger settlement of Protassof, or Morshevoi. The latter place contains nearly 100 people, who are successful sea-otter hunters, securing an average of 500 skins every year. These people are equally as opulent and extravagant as their neighbors at Belkovsky, and are even more dissolute. In spite of an average annual revenue of nearly \$1,000 to each family, the whole place presents an aspect of great poverty, misery, and debauchery, which has put its stamp more firmly and more shamefully upon the people of this place than elsewhere in all Alaska.

Near this village, less than half a mile away, there is a series of warm sulphur springs and ponds, which would afford the sickly natives partial or permanent relief could they only be induced to bathe therein; but, while there is not one man, woman, or child in the village free from cutaneous disease of some kind, not one of them can be induced to make the exertion necessary to try the efficacy of the waters.

The natural food resources of this whole region—fish, berries, seal, etc.—are abundant and varied. Not far from Morshevoi walrus can be secured with but little difficulty, and large herds of reindeer formerly came down at regular intervals from the upper peninsula to its westernmost point, and even crossed the strait to Oonimak island, but of late, for some cause unknown, they have ceased to make their appearance. The old men and youths not absorbed by the sea-otter parties trap foxes all over the mountains and rolling plains and shoot a bear occasionally, while the women are busily engaged in collecting drift-wood and brush, the only fuel found in the country.

Passing to the westward from Belkovsky the traveler first notices the snow-covered peaks of two volcanoes on Oonimak island, of which the larger is Mount Shishaldin, rising to a height of 8,000 feet. Smoke rises constantly from the crater of this mount, and shocks of earthquake occur very frequently. The island is uninhabited, and has been in that condition for the greater part of the present century, though it is richer than many other islands of the Aleutian chain in natural means of sustaining life.

Foxes are quite plentiful here, and sea-otters frequent the reefs and points, but ever since, nearly one hundred years ago, almost all the inhabitants of four or five populous villages were massacred by the Russian promyshleniks, a superstitious dread seems to prevent the Aleutian from making a permanent home at Oonimak.

Three small islands intervene between Oonimak and Oonalashka islands—Avatanok, Akoon, and Akutan—with a small settlement of sea-otter hunters on each.

Oonalashka island, next in size to Oonimak, is the point of greatest importance in this division, having at its principal village (Iliuliuk) the parish church, a custom-house, with the port of entry for all western Alaska, two large trading establishments, wharves, and other commercial facilities. Nearly all the sea-otters secured from the Shumagins in the east to Attoo island in the west are collected here and shipped to San Francisco.

The bay of Oonalashka, or Captain's harbor, is completely land-locked, and is free from ice at all times of the year. Cod-fish and halibut are plentiful throughout the bay, and herring and salmon crowd its waters in each season. It would seem easy for a small community to exist here on the natural resources alone, but the people of Iliuliuk are all sea-otter hunters, going as far as Sannakh and other distant hunting-grounds upon expeditions extending over many months. As these men are generally successful the settlement is nearly as prosperous, financially, as that of Belkovsky, but they find themselves in a better condition, owing to the moral influence of the parish priest located here and the example of quite a number of the whites of a better class who have here congregated. The wharves and shipping afford a constant source of revenue to those of the natives who are able and inclined to labor, and nearly all the families are enabled to dispense with the laborious process of gathering drift-wood and small brush for heating and cooking purposes, buying cord-wood imported from Kadiak and coal shipped from British Columbia or San Francisco.

A school, in which both English and Russian are taught, is maintained by one of the trading firms, but the attendance is at best irregular. Nearly 50 per cent. of the adults of Iliuliuk, however, are able to read and write in the Aleutian language and a few in the Russian.

The same firm that maintains the school also employs a physician and keeps a well-stocked dispensary, where natives are treated free of charge. This island and the fur-seal islands are the only localities in all Alaska where medical attendance can be obtained.

Experiments in vegetable gardening in Oonalashka island have not been attended with success. From eight to ten cows are kept, but, as already explained above, their sustenance during the winter is obtained with great difficulty.

When first discovered by the Russians this island contained many populous villages, but of these but four remain to day outside of the harbor settlement. The villages of Makushin, Koshigin, and Chernovsky in the west and Borka in the east are all inhabited by sea-otter hunters, who spend but a small portion of the year in fishing and trapping black and red foxes. Altogether there are between 700 and 800 people on the island of Oonalashka, of which about 25 are white.

As they live here to-day, in their more than semi-civilized condition, each family generally inhabits its own hut or barabara. They have long since ceased to dress themselves in skins or their primitive garments made from the intestines of marine mammals, save at a few points where extreme poverty compels them to wear bird-skin parkas and other garments handed down from ancient times. The visitor to any one of these Aleutian settlements will find its people dressed in "store-clothes", and on Sundays will notice a great many suits of tolerably good broadcloth. The women of the "wealthy" families dress in silks on great occasions, but generally in gowns of cotton fabrics made up with special reference to the latest fashion brought up from San Francisco. Although in their hunting excursions, and frequently when about the village, they still wear the ancient "kamleyka", or water-proof shirt, made from intestines, as also moccasins or boots made of the throats of seals and soled with the tough flippers of the sea-lion, they all dress up on Sundays and on the church holidays in calfskin boots and ladies' kids and slippers, shipped from San Francisco. Broad-crowned caps with a red band are still much in vogue among the male exquisites, evidently a legacy of former times, when Russian uniforms were seen on these shores. As a rule, however, the males dress soberly, with but little attention to display, color, or ornamentation, though they lavish some skill and taste in trimming their water-proof garments used in the chase or in traveling; as also the seams of the "kamleikas", the skin-boots, and other water-proof covers, including those of their canoes and bidarkas, the latter being frequently embellished with tufts of gaily-colored sea-bird feathers and delicate lines of goose-quill embroidery.

The women have a natural desire for bright ribbons and flashy jewelry, such as the traders supply them with; and the extent to which they deck their persons with gewgaws and trifles of this kind is only limited by their means. With the exception of a few whose lords have been exceptionally fortunate in capturing sea-otters they seldom wear bonnets or hats; but around their houses or at church they have handkerchiefs of cotton or silk tied over their heads, the married women, after the Russian peasant fashion, drawing them tightly about the head in the shape of a turban, almost completely hiding the hair from view, while the unmarried girls tie them loosely over the top of the head. The hair, when attended to at all, is put up in braids and tied up behind.

The interior of Oonalashka island consists of a labyrinth of ravines and gulleys with steep, grass-grown hillsides and masses of volcanic rock and lava, deeply indented and cut in every direction by sparkling streams. Deep snow in winter and a dense growth of vegetation in summer make traveling across the island exceedingly difficult; and it is safe to assert that scarcely one in a hundred of the inhabitants ever penetrates to within a mile of the sea-shore.

The volcano Makushin, situated between the village of that name and Iliuliuk, though smoking occasionally, has had no eruption during the present century.

The next settlement to the westward is that of Nikolsky, on the southwest coast of Oumnak island. When the Russians first arrived in this vicinity this island was the site of no less than eleven Aleutian villages and settlements, and the people, who at first welcomed their unknown visitors in the most friendly manner, became subsequently enraged at the treatment received at their hands and offered a stubborn resistance. The struggle here, as elsewhere, resulted in an almost total extermination of the original inhabitants, and Nikolsky, with its 120 inhabitants, is all that is left to-day of a once numerous people. What these people have lost in numbers they have gained in prosperity, selling every year, as they do, their 120 or 150 sea-otter skins to the rival trading firms at excellent prices. Black, cross, and red foxes are quite abundant, and the straits on both sides of the island contain excellent cod-fish and halibut banks. Immediately back of the village, and connected with each other, there are several fresh-water lakes, with an outlet to the sea through a shallow, meandering stream that passes down through the settlement, and at certain seasons of the year trout and salmon run up in such numbers, and with so much persistency, that they fairly crowd themselves out upon its banks, leaving nothing for the native to do but to stoop down and pick them up. The characteristics of the natives are the same as those described in the review of Oonalashka. They support their chapel, as in other villages, and have their prayers read by one of their own number. Drift-wood is less plentiful here than in other districts, and this scarcity involves additional labor on the part of the women, who must gather the "chiksha", or creeping tendrils of the empetrum. The men of Oumnak must also make long journeys to other islands to capture sea-lions and seals, and on that account are not so well supplied with bidarkas.

In the year 1878 the island was disturbed by a volcanic eruption, and a small mud volcano arose between the prominent volcanic peak near the southern end of the island and the village. In 1880 both the old and the new peaks were still smoking, and the latter was sputtering. During the shaking and trembling connected with these phenomena the fish seemed to have left the shores, and the inhabitants were for a season obliged to go to adjoining islands to lay in their winter supply. Quite a number of young fur-seals are secured here annually by the natives, these animals passing down from the waters of Bering sea into the northern Pacific ocean during the autumn and early winter. The flesh of these animals is greatly prized, and the skins make excellent clothing and bedding.

The next settlement in order as we proceed westward is the village of Nazan, on Atkha island. The people of this island have always spoken and still speak a dialect differing considerably from that of the Oonalashka people. This difference was deemed sufficiently important by Veniaminof, the missionary of these islands, to have translations made into it of the principal books of prayer and portions of the New Testament used in the church services; and it is interesting to observe how families which have been separated for generations from their kindred on the fur-seal islands, or in the Oonalashka district, or even on the Aliaska peninsula, have preserved their distinct idiom and transmitted it to their children, who to-day speak both dialects distinctly and are proud of the accomplishment.

The village of Nazan contains 230 inhabitants, who are lodged in houses or barabaras of rather respectable appearance. They have a well-preserved little church, and give every indication of being a thrifty and prosperous community. Between 175 and 200 sea-otter skins are annually sold at the two trading-stores.

Removed as they live from the evil influences of "too much civilization", the men of Atkha constitute perhaps the finest body of sea-otter hunters in the country. They make long journeys from their home, being carried on sailing-vessels with all their hunting paraphernalia, bidarkas, etc., to distant islands, where they establish temporary camps and scour the outlying reefs and points, where their experience teaches them to search for the shy sea-otter. These hunters remain in camp, engaged in the chase for periods of many months at a time, until, in accordance with previous agreement with the traders, the vessels that carried them out return to take them back. On the return of the party the hunters tally their skins, settle all outstanding obligations, make their donations to the church, and speedily spend the surplus upon the outer and the inner man.

The island of Atkha possesses also other natural resources. Those of the male population who do not go out with the sea-otter parties secure quite a rich harvest of fox-skins, the black, cross, and red fox being quite numerous; and even the blue fox (*Vulpes lagopus*), now confined to but few localities throughout Alaska, is still found here.

The women of Atkha are quite expert in the manufacture of fine grass cloth and grass ware, and for this purpose they gather the grasses, dry and prepare them with the greatest of care, and spare no amount of labor and unlimited patience in the execution of their designs, which take the form of cigar-cases, baskets, mats, and the like. There is something exceedingly tasteful and exquisite in the delicate blending of colors and patterns which the grass-workers of Atkha employ in the production of their wares, and an instance is known to me of a work-basket being made to order for a trader by an old native woman as the very best evidence of her skill. She was engaged upon the work six years, and it is unnecessary to say that the basket was a remarkable exhibition of beautiful handicraft.

Formerly the people now located at Nazan lived at Korovinsky bay, on the north side of the island, where the first church was established as early as 1826; but a few years ago, when both fish and drift-wood were becoming

scarce, in order to better themselves, they removed to their present village-site. Where they are now the Alaska mackerel is quite abundant, and quantities of this palatable fish are salted in barrels and shipped to California.

At one time under the Russian *régime* Atkha was quite an important place: it was the central depot of the western district, the jurisdiction of which extended westward as far as the Kurile islands, and the Aleuts now on the Russian seal islands of Bering and Copper, off the Kamchatka coast, are all descendants of natives of Atkha. The Russians introduced cattle and goats here as an experiment in those days. The latter became very unpopular with the timid Aleuts on account of their pugnacious disposition and a morbid propensity for feeding upon the grasses and flowers that grew on the earthen roofs of the barabaras, frequently breaking them in or causing serious leaks. Though there is an abundance of nutritious grasses all over the island, the stock-raising experiment was allowed to lag, and finally, a short time after the transfer of the country to the United States, the last of the bovine race found its way into the soup-kettle and to the tables of the traders.

The numerous islands lying between Atkha and Oumnak in the east and Atkha and Attoo in the west are uninhabited, though nearly all show evidence of ancient settlements. At the present time they are each visited in succession by the sea-otter hunting parties of Atkha.

The extreme western settlement of the United States, or of North America, is located on the island of Attoo. This was the first land made and discovered by the Russians as they navigated eastward from the Commander islands, on the coast of Kamchatka. Nevodchikof, a trader and navigator, landed here first in 1747. At that time the adjoining island of Agatoo was also inhabited by the Aleutians, but to-day the only settlement is a village of little over one hundred inhabitants at the head of the land-locked harbor of Chichagof. These people are pecuniarily perhaps the poorest of the whole Aleutian race, the sea-otter, upon which they depend entirely for the means of purchasing such articles of dress and food as they have learned to regard as necessaries, having dwindled down to a mere fraction of the number formerly found on the hunting-grounds. The able-bodied men of the village now secure an annual average of only 20 or 25 sea-otter skins. Though the volume of their trade with white men is exceedingly limited, nature supplies them with a profusion of food, and ample supplies of drift-wood to serve as building material and fuel. Cod, halibut, and Alaska mackerel occur here in great abundance, and a small species of salmon ascends the shallow streams every year. The women and children gather large stores of eggs of the aquatic birds that breed along the cliffs and rocky shores, and for many years the most provident among the villagers have caught wild geese alive, clipped their wings, and domesticated them. Their present hunting-grounds extend over outlying rocks and islets some distance to the eastward and southward, but in spite of this disadvantage they are strongly attached to the place of their birth, and have declined many offers made by traders to remove them to more favorable localities for hunting the sea-otter. Large numbers of sea-lions are killed annually in the immediate vicinity, and nearly every particle of these huge animals can be put to some use. Of the skins they make boat-covers and boots, and also use them in repairing the roofs of their houses; the intestines are made into water-proof garments, the sinews taking the place of thread, while the meat is a very palatable article of diet. Though poor, these people impress the visitor in many respects more favorably than their wealthier and better situated brethren in other parts of the Aleutian chain. The chief of the village, or "toyon", acts in the triple capacity of trader, leader in the chase, and leader in the church. Naturally the consumption of flour, sugar, tea, and woolen and cotton goods by this community is limited by the causes above referred to, and for clothing they have recourse to a great extent to the primitive bird-skin parkas and other skin dresses and garments such as were made and worn by their ancestors.

On account of the scanty supply of sea-otters the natives have turned their attention to the protection and preservation of the blue fox, and of these they now kill about 200 annually, with every prospect of increasing their stock in hand. The island itself supplies them with nothing except a great abundance of berries in their season, principally the salmon berry and the *Empetrum nigrum*. The grasses found on all these islands seem to grow here, with exceptional excellence, as high as the waists and even the heads of the people, and are used largely by the people in the manufacture of mats, rugs, screens, etc., adding very much to their domestic comfort; they also weave or plait a great many handsome specimens of grass-work in the shape of baskets.

The islands of the Pribylof group comprising the breeding-grounds of the fur-seal, now occupied by a wealthy trading firm under lease from the United States government, are four in number, only two of which are frequented by the seals. Saint Paul and Saint George contain all these so-called rookeries, while Otter and Walrus islands are never visited by the millions of these animals playing in the waters about them. The subject of the fur-seal industry and its commercial and physical aspects has been fully discussed in a monograph written by Mr. H. W. Elliott, under the direction of the Superintendent of Census, and it only remains to say here that the business has been so thoroughly worked up and systematized as to bring it to a par with a well-conducted cattle ranch on a large scale—with this difference, perhaps, that greater care is lavished upon the seals, and greater caution with reference to their comfort than is generally bestowed by farmers upon their cattle.

The people now classed as natives of the islands are in reality natives and descendants of natives of the various islands of the Aleutian division, a majority having sprung from Atkha and Oonalashka. When the Russian navigator Pribylof discovered the islands, toward the end of the last century, he found them uninhabited, and in order to slay and skin the vast numbers of seals and sea-otters then found there it was necessary to import laborers

from the more populous districts. Under the Russian *régime*, when these sealers were lodged in wretched subterranean hovels and were fed upon seal meat and blubber the year round, it was considered a hardship to be stationed there, and the managers of the Fur Company found it necessary to relieve their force from time to time. Since the islands have fallen under the direct management of the United States government the condition of the people has been improved to such an extent as to stop all applications for removal from the islands and to create a great demand on the part of the people of other islands to be transplanted there. Under the terms of the lease the lessees have erected comfortable cottages for all the families, and provide them throughout the year with fuel and an abundant supply of salted salmon free of charge. In addition to this, each family derives from the compensation paid by the lessees for the labor of killing and skinning the seals, which is done upon a co-operative plan devised by the natives themselves, a cash income of from \$350 to \$450.

Many other opportunities arise at various times during the year for adding to their income by labor of various kinds at a good rate of wages. Whatever necessities, comforts, and luxuries the sealers may desire to procure from the stores are sold to them at very reasonable rates. Were it not for the strong propensity for gambling existing among them every sealer would have his bank account, but even now there is quite a respectable list of names upon the books of the company of those who annually draw interest from deposits in the savings banks of San Francisco. A school on each island, maintained by the lessees, under direct supervision of the special agents of the Treasury Department stationed on the islands, exerts its beneficial influence among the younger members of these isolated communities. Many of the boys and girls can exhibit quite respectable specimens of penmanship, and even composition in the English language. These were produced at school, and under great pressure; but if the visitor attempts to address one of these youngsters in English the reply will be a grin and a shake of the head. They have not thus far learned to apply the knowledge acquired. The average attendance at the school on Saint Paul is 69, and at that on Saint George 23, out of a total population of 390.

The islands are of volcanic origin, and almost entirely barren, with the exception of a scant covering of coarse grass on sheltered slopes, and as the climate is exceedingly rigorous and the atmospheric conditions very unfavorable no cultivation of the soil can ever be thought of. There is an abundance of fish in the waters about the islands, but as soon as the ice disappears the seals come, and where millions of these animals, each of which can devour from 15 to 20 pounds a day, are feeding, there cannot be much left for the human beings on shore.

On Saint George only there is quite a large supply of birds' eggs in the breeding season, and these, with a few walrus secured from Walrus island, are the only additions that nature makes to the larder of the islanders.

Blue foxes have been transplanted to these islands, and have been carefully protected and preserved from deterioration by the admixture of white foxes that sometimes reach the islands over the ice. At present about 600 of these animals are killed annually, making another addition to the revenues of the community.

I append a tabulated list of the villages and stations in this division, with their population, as follows:

ALEUTIAN DIVISION.

Settlements.	Location.	Total.	White.	Creole.	Aleut.
Total.....		2,451	82	479	1,890
Attoo.....	Attoo island.....	107	1	32	74
Nazan.....	Atkha island.....	236	2	14	220
Nikolsky.....	Oumnak island.....	127	2	8	117
Iliuliuk.....	Oonalashka island.....	406	14	162	230
Makushin.....	Oonalashka island.....	62	1	30	31
Koshigin.....	Oonalashka island.....	74	1		73
Chernovsky.....	Oonalashka island.....	101	3	4	94
Borka.....	Oonalashka island.....	140	1	6	133
Akutan.....	Akutan island.....	65	2		63
Akoon.....	Akoon island.....	55	1		54
Avatanok.....	Avatanok island.....	19			19
Saint Paul.....	Pribylof island.....	298	14		284
Saint George.....	Pribylof island.....	92	4		88
Belkovsky.....	Aliaska peninsula.....	268	11	89	168
Nikolaievsky.....	Aliaska peninsula.....	43			43
Protassof.....	Aliaska peninsula.....	100	2	21	77
Vosnessensky.....	Vosnessensky island.....	22	1		21
Ounga.....	Ounga island.....	185	15	69	101
Korovinsky.....	Korovin island.....	44		44	
Pirate cove.....	Popof island.....	7	7		

The superficial area of the Aleutian division is 14,610 square miles, and the total population 2,451, indicating a proportion of 1 inhabitant to 6 square miles, 1 white to 178 square miles, 1 creole to 30½ square miles, and 1 Aleut to 7¾ square miles.

THE KADIAK DIVISION.

This division comprises the south side of the Alaskan peninsula as far west as the narrow isthmus between Port Moller and Zakharof bay, the Kadiak group of islands, the Kenai peninsula, and the coast of the mainland eastward to Mount Saint Elias. Its western and northern boundary is the main Alaskan chain of mountains and lake Ilyamna and the continuous mountain groups of the peninsula.

From the head of Bristol bay, where the Kvichak river discharges the waters of the inland sea of Ilyamna down to Port Moller, the settlements are small and widely scattered. The sea along this whole coast is very shallow, and sandy bars extend far into the ocean. Being of the same continental Eskimo stock with the inhabitants of the Kuskokvim division, the people here live very much in the same manner.

The huge walrus frequents the coast at nearly all seasons of the year, providing the inhabitants with ample stores of food and canoe material, in addition to their tusks, the latter the common currency of this region. As already mentioned above, these marine mammals are generally killed on shore outside of their natural element, but the more venturesome among the natives go out to sea in parties of from five to ten canoes and boldly attack the whales frequenting these waters with their young.

The country between Bering sea and the alpine chain of mountains extending along the eastern shore is a gradually-ascending plain, dotted with lakes fed from the glaciers and eternal snows in the east, and having their outlets in the west. In the northern portion of the peninsula a belt of timber reaches down in the center to the vicinity of lake Bocharof, but beyond this the forest disappears, and only the deep ravines exhibit a stunted growth of creeping willow and alder brush. The reindeer browses and herds all over this region, retreating during the summer up to their inaccessible retreats among the snowy peaks of the mountain range, where they are often seen by the traveler below as a moving line of black dots winding around the summits. During the autumn and winter they seek the vicinity of the lakes and scatter over the tundra, where they are hunted with comparative ease. Foxes, land-otters, martens, and minks are plentiful throughout this section, and the gigantic brown bear of continental Alaska rivals the native fishermen in the wholesale destruction of the finny inhabitants of lake and stream.

The people of Port Moller and Oogashik are of the Aleutian tribe, which in former years made warlike expeditions along this coast, extending as far to the northward as the Naknek river and lake Walker. At the village situated on one of the feeders of the latter lake the present inhabitants still tell the story of the night attack made by the "bloodthirsty" Aleuts long years ago, when every soul in the place was dispatched without mercy, with the exception of one man, who hid himself under a waterfall close by, and thus survived to tell the tale.

The peculiar formation of this country led to the discovery at an early date of several easy portage routes across the peninsula. The Russian promyshleniks first made their way to Bristol bay and Nushegak across the peninsula from Kadiak, and found abundant evidence to show that this route of communication had been an intertribal highway for ages past.

During the early years of the Russian-American Company's sway in these regions a large proportion of their traffic was carried on in this way from Kadiak to Bristol bay, and thence to the Kuskokvim and Yukon rivers and Saint Michael. This was a tedious and expensive mode of transporting merchandise, but it was long preferred to the risk and uncertainty of sending sailing-craft around to Saint Michael through the shallow and stormy waters of Bering sea. On the eastern side of the peninsula the mountains rise abruptly from the sea, a short day's climbing transplanting the traveler from tide-water into the midst of glaciers and eternal snows and scenes of alpine grandeur and solitude.

The group of islands of which Kadiak is the largest is, perhaps, at the present day the most important section of this division, being the central depot and station of the several firms engaged in the fur-trade. Kadiak island was discovered by the Russian traders as early as 1762, but was abandoned, owing to the hostile disposition of the natives, who were then quite numerous, and it was not until twenty years later that a permanent foothold was gained by Shelikhof, the founder and organizer of the Russian-American Company. For many years after Kadiak was the headquarters of that powerful corporation and the residence of the governor of all the Russian colonies on the northwest coast of America, until Baranof's ambition drove him to the eastward along the coast, where he met with English and American traders among the islands of the Alexander archipelago, and there established himself, claiming Russian sovereignty over the coast to the southward far beyond the present boundary of Alaska.

The first missionary establishment of the Russian church on these shores also landed on Kadiak island, and from here a few courageous apostles set out to regions then totally unknown to preach the gospel among the savage tribes. A century of uninterrupted presence of christianizing influences among them has so transformed these natives that not a vestige of their former fierce and savage nature can now be found, and their settlements will compare favorably in neatness and domestic comfort with most of the fishing villages of northern Europe. The climatic conditions of the island are more favorable than in most other sections of Alaska, the cultivation of potatoes and turnips and the rearing of cattle being among the general industries of the people. At the creole



A. Hoen & Co. Lith. Baltimore.

LAKE WALKER, ALASKA PENINSULA. — MT KAKHTOLINAT.

settlement of Afognak there is quite an extensive acreage, fenced in, under cultivation; and at the village of Saint Paul, on Wood island, and on Spruce island these farming operations are extending every year. The crops are by no means abundant, and cannot be counted upon as a certainty every year; but there is enough to add much to the comfort of life and a pleasant and wholesome variety to the dietary of the people. Experiments in sheep-raising have also been made with encouraging results, so far as the quality of the wool is concerned; but the increase in lambs is much less than in Oregon or California, and is still more diminished by the ravages of eagles and ravens. As the northern portion of the island of Kadiak and the smaller islands to the northward are timbered, the people here have facilities for ship or boat building, of which they avail themselves to the fullest extent. One or more small crafts can always be found in process of construction, principally upon orders from the prosperous white sea-otter hunters of the Shumagin islands or for the trading firms and private traders. A deputy collector of customs stationed at Kadiak has quite a respectable list of small craft built and registered in the district.

Sea-otter parties are fitted out in nearly every village, and are frequently taken to distant hunting-grounds in sloops and schooners. The old men and youths remain at home and employ their time profitably in hunting bears and trapping foxes, principally of the black and the cross variety. The salmon fishery is increasing in volume with astonishing rapidity, and furnishes labor for numerous hands, whites as well as native males and females. Cod-fish is found nearly everywhere in the shallow soundings of the coast, and forms a great staple of food with the people, but at present it is not exported.

The parish priest of the Russian church located at Kadiak village has under his spiritual jurisdiction nearly the whole of this division, with the exception of the western coast of the Alaska peninsula and the upper portion of Cook's inlet, the latter section being confided to the care of a missionary monk located at Kenai, on the R doute Saint Nicholas.

On the coast of the peninsula opposite Kadiak island coal has been found, together with many indications of the existence of petroleum; but if other mineral deposits are hidden within the recesses of the mountains they have thus far escaped the searching eye of the prospector and explorer.

The settlement of Katmai, in this vicinity, was once the central point of transit for travel and traffic across the peninsula. Three different routes converged here and made the station a point of some importance; now Katmai's commercial glory has departed, and its population, consisting of less than 200 creoles and Innuits, depend upon the sea-otter alone for existence. The men could have reindeer in plenty by climbing the mountains that rear their snow-covered summits immediately behind them, but they prefer to brave the dangers of the deep and to put up with all the discomfort and inconvenience connected with sea-otter hunting, and in case of success purchase canned meats and fruit from the trading-store, leaving the deer on the mountain undisturbed.

The people of two villages across the divide, in the vicinity of lake Walker, come down to Katmai to do their shopping and to dispose of their furs, undertaking a very fatiguing tramp over mountains and glaciers and across deep and dangerous streams in preference to the canoe journey to the Bristol Bay stations. Only at long intervals a small party will proceed to Nushegak to visit the Russian missionary stationed there, to whose spiritual care they have been assigned without regard to locality or convenience.

Of the creoles embraced in the parish of Kadiak 103 are reported by the church authorities as being able to read and write in the Kadiak and a small proportion of them in the Russian language.

Northward from the Kadiak group we find a deep indentation of the coast, bounded by a lofty mountain range, with which several volcanic peaks in the westward and the peninsula in the east form the great estuary known as Cook's inlet.

When the Russian traders first penetrated into the recesses of this region under the lead of two rival companies, in 1787 and 1789, they made war upon each other. Scenes of piracy and bloodshed were enacted in swift succession for ten long years, until Baranof, with his iron will and hand, settled all disputes by sending the disputants to Siberia for trial and punishment. Historically this whole region is one of the most interesting in all Alaska. It is also interesting to the ethnologist, from the fact that here are found the only instances of the interior Indian tribes of the Athabaskan family impinging upon the coast. The people known as Kenaitze (Kinnats or Tinnats) are strongly defined; but they are a separate people from the Eskimo inhabiting Kadiak and the sea-coast adjoining. The height of the male of the Kenai tribe is greater than that of the Eskimo, and a full-grown man of less than 5 feet 8 inches is rarely encountered. They are slim, lithe, and sinewy; the eyes are set straight in the head; the nose is prominent, frequently aquiline; the mouth is large, with full lips, the chin frequently receding; the skin is very perceptibly darker than that of the Eskimo; they wear their hair, which is thick and coarse, much longer than the natives of Kadiak; and the males gather it into a thick, stubby braid, hanging down the back, thickly smeared with grease and sometimes powdered over with feathers and down.

At the head of the inlet and on the rivers emptying into it from the north we find these people more primitive in their manners and customs, dressing in buckskin shirts and trowsers, the men and women almost alike. Many of their hunting shirts and breeches are tastefully embellished with porcupine quills and grass braiding, bead embroidery and fringes, while both nose and ears of the men are pierced for the insertion of the white shells of the dentalium, or hyqua, here called "sukli". This shell was formerly in general demand among the Indian tribes of

the territory, but now this seems to be the only section where there is a steady call for the article. The women are treated well and kindly, but they have much heavier burdens laid upon them in the line of manual labor than those imposed upon their wives by the Kadiak or Aleutian natives. The Kenaitze travel a great deal by land, and the women serve as pack-animals. In their domestic architecture and economy they also differ much from the Eskimo, their houses being always erected above the ground with logs and roofed with bark, the under side of each log being hollowed out, so as to fit down tightly over the round surface of the one beneath. They build their roofs with regular rafters, pitched sufficiently to shed the rain and melting snow, and a fire-place is reserved in the center, with a small aperture directly above it in the roof. The door to this structure is a low, square hole at one end large enough to admit a stooping person, and a bear-skin is usually hung over it, or a plank is placed before it. The floor is generally the natural earth, while around the sides of the room, a foot or two from the ground, and wide enough to allow the people to stretch out upon at night, is erected a rude stage. On this staging they lay grass mats and skins for bedding and covering. This is the most primitive style of dwelling. Those among them who have had frequent intercourse with the trading-posts and villages farther down the inlet have added to their houses wings, or small box-like additions, tightly framed together, with an entrance only from the interior of the larger structure. These little additions, used as sleeping apartments and sometimes as bath-rooms, are furnished with the luxury of a plank floor, and in many instances have a small window of transparent bladder or intestine.

On all the principal hunting-grounds, or along the trails most frequented by the Kenaitze, are found structures similar to those above mentioned, with additions built very compact and low, which serve as places of refuge for the hunter and traveler in times of snow-storm and excessive cold. A party of hunters can retire into one of these shelters and keep up quite a high degree of temperature with their own animal heat for hours, and even days, if the storm should be prolonged, and they are safe from the cold, though the air they breathe may not be of the best.

The Kenaitze are in disposition much more taciturn than their Innuït neighbors and are more dignified in demeanor; but they are ardent hunters, spending most of their time and energy in the chase on land, where the fur-bearing animals peculiar to the country are numerous, varied, and valuable, and often make long journeys into the interior, up and through mountain defiles, and even over summits and glaciers, erecting at every convenient camping-ground the temporary shelters above referred to. At localities where tribes or families meet for traffic or hunting they build up somewhat larger structures, consisting of two open sheds, with sloping roofs facing each other, allowing the inmates to warm themselves by one and the same fire. These people along the rivers and the northern portion of the inlet build birch-bark canoes, but when they get down to the sea-board or to the Innuït settlements of the lower peninsula they buy bidarkas or skin-canoes for the purpose of fishing or navigating in salt water. Wooden canoes or dug-outs are not known west of the mouth of the Copper river.

The Kenaitze are expert fishermen, and certainly enjoy an abundance of piscatorial food, salmon of fine size and quality running up their rivers, and trout crowd the hundreds of lakes in their country, where they are found all through the winter and caught through the ice. The fishermen descend to tide-water only when king-salmon, or "chavitcha", come up from the sea in dense masses, or when schools of white whales or grampus follow up the "eulachan", or candle-fish, until they are left high and dry by the receding tide and fall easy victims to the natives. The variety of native mammals is very great. Bears both brown and black—the former of great size and ferocity, frequently from 10 to 12 feet in length, strongly suggestive of the grizzly—are killed in large numbers by the hunters every year. The deer found here is apparently a larger cousin of the reindeer, the woodland caribou. Moose, single and in family groups, can be found feeding through the low brush-wood and alder swamps, and mountain sheep inhabit the higher mountains, feeding upon the nutritious grasses and moss found in the clefts of mountain tops and rocky ledges. The fleece of this sheep (or goat?) is surprisingly long and coarse, their skins making a favorite bedding of the natives. These natives trap the beaver on streams and lakes, the land-otter, not only in the interior, but on the sea-shore, and kill the porcupine, the whistling marmot, wolves, black and gray, the lynx, the wolverine, the marten, mink, musk-rat, and a small white weasel, called here "ermine" by courtesy. Of wild fowl they have the grouse (both the white ptarmigan and the ruffed grouse), wild geese and ducks in millions during the breeding season, and the blue sand-bill crane and white swan in flocks.

From the Kenai settlements on the eastern shore of the inlet and the Kustatan village opposite, southward, the men are also sea-otter hunters, going down to Anchor point and the Barren islands in parties, or to the reefs of Chermaboura and cape Douglas. The Kenaitze population proper is all located north of a line drawn from Anchor point to the Iyanna portage of the west coast of the inlet, south of the deep indentation of the Kenai peninsula called Chugachik or Kuchekmak gulf. This country is settled by Innuïts, who have peopled the east coast of the peninsula, and from there eastward along the mainland nearly to the Copper river. Two of the trading-stations in the Kenai district are located among these Innuïts at English bay and Seldovia. Three more stations, consisting each of two rival stores, are located at Kenai (Rédoute Saint Nicholas), on the river Kinik, and the village of Toyonok, or West Foreland.

The central point of all this region is Kenai, once the site of the earliest permanent settlement on the inlet, the remnants of which can still be seen. A Russian missionary is located here, and a new church is nearly completed.

At the time of the transfer of the territory Kenai was still a fortified place, with a high stockade and octagonal bastions at the salient points. Both stockade and bastions, with their primitive armament of 1½-pound falconets, have disappeared since then, but a number of new buildings have sprung up, and a thrifty colony of creoles has taken to the cultivation of potatoes and turnips on a larger scale than had ever been attempted before. Perhaps ten or twelve acres are planted here now, and several of the families keep cattle. Some of the choicest salmon of the territory is salted here, and is barreled and shipped to San Francisco. The hunting-grounds in the immediate vicinity do not yield their former abundance of valuable furs, but the presence of the missionary establishment causes a concentration of natives from all parts of the inlet at least once a year and brings considerable trade to this old station. It was on the river Kaknu, or Kenai, that the Russian mining engineer Doroshin reported the existence of surface gold in paying quantities. After laboring with a numerous party in the mountains for two seasons, at great expense to the Russian-American Company, he returned with a few ounces of the precious metal, but he could present no inducement to the corporation to proceed any further in this enterprise. Since that time American prospectors have passed years in this region following up the Russian's tracks, but not one of them has thus far found gold enough to warrant him to work the find. In former years Kenai was also the site of a large brick-yard, the only establishment of the kind in the colony, from which all stations and settlements were supplied with the material for the old-fashioned Russian ovens or heaters.

About 30 miles down the coast from Kenai there is another settlement deserving at least a passing notice. A number of "colonial citizens", or superannuated employés of the old Russian company, were ordered to settle some fifty or sixty years ago at Ninilchik, and their descendants live there still. Each family has quite a large garden patch of turnips and potatoes, yielding enough to allow the owners to dispose of a large surplus to traders and fishermen. They have quite a herd of cattle, and the women actually make butter; but they are not sufficiently advanced in farming lore to construct or use a churn, and the butter is made in a very laborious manner by shaking the cream in bottles. They also raise pigs and keep poultry, but on account of the hogs running on the sea-shore digging clams and feeding upon kelp, and the chickens scratching among fish-bones and other offal, both their poultry and their pork are fishy to such an extent as to be made unpalatable. The young men of the settlement go out to hunt the sea-otter at Anchor point, or even lower down the coast.

The whole region about Cook's inlet is wooded, the forest being here and there interspersed with marshy tundras; but everywhere along the coast the timber is small and stunted, being of larger dimensions only in the interior.

In the vicinity of Anchor point, on Kuchekmak gulf, and on Graham's or English harbor, extensive coal-veins appear along the bluffs and come to the surface. The Russian-American Company jointly with a San Francisco firm worked here for years to develop the mines and obtain a product good enough for the use of steamers and engines, but after sinking a large capital the enterprise was abandoned before the transfer of the territory took place. A few remnants of the extensive buildings erected in connection with these mining operations still remain on the north shore of English bay.

The easternmost section of this division comprises the coast bordering upon the gulf of Chugatch, or Prince William sound, and from there to Mount Saint Elias this is essentially an alpine region. The whole coast between cape Saint Elizabeth in the west and the mouth of Copper river in the east is deeply indented with coves and fiords, and towering peaks rise abruptly from the sea. Nearly every valley and ravine has its glacier, some of the latter being among the most extensive in the world. In Port Valdez, at the northern extremity of the sound, a glacier exists with a face 15 miles in length at the sea-shore, while its downward track can be traced almost to the summit of the alps. Huge icebergs drop off its face with a thundering noise almost continually and drift out to sea, and the whole extensive bay is covered with small fragments, making it inaccessible to even boat navigation, and consequently a safe retreat for seals, which sport here in thousands. Port Fidalgo in the east and Port Wells in the west also have tremendous glaciers, and another glacial formation forms the portage route between Chugatch bay and Cook's inlet. Though covered with a dense forest to a height of 1,000 feet from the sea-level, these mountains are comparatively poor in animal life, and support in small settlements only a very limited population scattered along the coast and islands. The timber is nearly all spruce, some of it of extraordinary size, but no practical use has been made of this material since Baranof established a ship-yard in Resurrection bay, on the Kenai peninsula, and with the aid of English shipwrights constructed a few small vessels. One of these crafts was a three-master, and boasted the title of frigate, though it measured only 100 tons.

Traces of the Russian woodman's ax are still plainly visible along the western coast of the sound and on Montague island, and the huge logs still lie where they were felled in anticipation of an industry that was not developed.

The principal fur-bearing animals of this section are the black and the brown bear, otter, marten, and mink, but on the eastern side of Nuchek island there is quite an extensive sea-otter hunting-ground, which supports two large trading-stores on that island. Whales are plentiful in these waters, but the natives are not bold enough to attack them. Cod-fishing banks exist in a few localities, and all the rivers and streams have their annual run of salmon. In the early times of the Russian régime Nuchek, which was then called Rédoute Saint Constantine, was

quite an important trading center, being visited by Thlinket tribes from the coast to the eastward as far as Bering bay, and also by the Copper River Indians of the Tinnel family. This traffic, to a certain extent, still exists, but not in the old dimensions. There is every reason to believe that the Copper River people have much decreased in numbers, and that they find other outlets for their trade to the northward on the Yukon or the Tennaiah.

Under the protection of the Russians the Eskimo race here occupied the coast as far eastward as Kaiak island and Comptroller bay, but in late years the Thlinket have gradually advanced westward, first mixing with the Eskimo and then absorbing and superseding them, until at the present day they are established in predominant numbers even west of the mouth of the Copper river.

The number of sea-otters sold at the Nuchek stores every year does not exceed 150, and are all killed between the islands of Nushegak and Kaiak. The whole Eskimo population of this secluded district is only about 500, and, as they are poor, they will most probably remain in this seclusion, which is broken but once or twice a year by the arrival of the trading-schooner. They have food in plenty such as it is, consisting of seal-blubber, salmon, the meat of the marmot, porcupine, and bear, varied occasionally by the welcome addition of mountain sheep, an animal that is found over all this alpine region, and is as persistently and skillfully hunted by the natives as is the chamois in Switzerland and the Tyrol. The meat of this mountain sheep, or goat, is in every way equal to the finest tame mutton, but by the time one of the native hunters brings a carcass down from the mountains to the sea-coast or the trading-store the meat is sadly bruised and lacerated, and presents rather an uninviting appearance. Foxes, of course, are plentiful here, as everywhere in Alaska, in two or three varieties, some very fine specimens of silver-gray being brought down to the coast by the Copper River Indians. No mineral deposits have been discovered in these mountains, with the exception of pure native copper, specimens of which have been secured from Copper river ever since the Russians first made their appearance there, but repeated attempts by Russians, and later by Americans, to locate the source from whence these specimens came have always resulted in failure. An American prospector who lived with those Indians for two years reports that he failed to discover copper or gold in paying quantities anywhere in that region, but his individual opinion is not sufficient to deny the existence of copper deposits, of which so many specimens have been procured; and the ultimate location of these deposits is only a question of time and energy.

Of the features of the coast between Copper river and Mount Saint Elias but little is known, but it is evidently a narrow table-land between the high mountains and the sea, well timbered, and traversed by numerous shallow streams that take their origin in the glaciers and eternal snows. The natives describe it as an excellent hunting-ground. The island of Kaiak is undoubtedly the point where Bering first approached the North American continent, and upon the southern point of which he bestowed the name of cape Saint Elias. It is not permanently inhabited, but hunting parties from the mainland sometimes remain here for many months at a time.

The Eskimo of this section partake of the same characteristics with the people of Kadiak and the peninsula.

Timber exists here in the greatest abundance. The dwellings of the people are generally under ground, according to Innuut custom, but where the Thlinket or Kolosh race has mixed with them and gained supremacy the mode of architecture changed at once to substantial log structures entirely above ground, generally with a plank platform running along the entire front, on which the inmates assemble in fine weather, and sit upon their haunches, wrapped in greasy blankets, smoking and staring stupidly into vacancy. At Nuchek there is a Russian chapel, but it is eight or nine years since a priest has made his appearance there. A creole reads prayers every Sunday in the chapel, which is kept in excellent repair with the aid of donations from all the surrounding villages. It is touching to observe the constancy and faith of these poor people, who have gathered at this central point from a circuit of one hundred miles every spring for the last nine years in the expectation of seeing a priest come at last to give them his blessing and to solemnize the marriages that have been contracted during this long interval. Baptism can be performed by the church reader under the rules of the Russian church.

I append a tabulated list of the settlements and the population of the entire peninsula division, as follows:

KADIAC DIVISION.

Settlements.	Location.	Total.	White.	Creole.	Eskimo.	Athabas-kan.	Thlinket.
Total.....		4,352	34	917	2,211	804	826
Mitrofanja	Alaska peninsula	22		22			
Kadiak	Alaska peninsula	30		1	29		
Sutkboon	Alaska peninsula	25			25		
Kuyakak	Alaska peninsula	18			18		
Katmai	Alaska peninsula	218		37	181		
Kakak	Alaska peninsula	37			37		
Ashivak	Cape Douglas	46		6	40		
Saint Paul	Kadiak island	288	20	258	15		
Lezenova	Wood island	157	2	56	99		
Yelevoi	Spruce island	78		78			
Ouzinkie	Kadiak island	45		45			

KADIAC DIVISION—Continued.

Settlements.	Location.	Total.	White.	Creole.	Eskimo.	Athabas-kan.	Thlinket.
Afognak (two villages).....	Afognak island.....	339		195	144		
Ooganok (two villages).....	Kadiak island.....	78			78		
Ooiak.....	Kadiak island.....	70			76		
Karluk.....	Kadiak island.....	302	1	24	277		
Akhiok.....	Kadiak island.....	114			114		
Ayakhtalik.....	Kadiak island.....	101		4	97		
Kaguiak.....	Kadiak island.....	109	1	6	102		
Three Saints bay.....	Kadiak island.....	7		4	3		
Old harbor.....	Kadiak island.....	160		5	155		
Orlova.....	Kadiak island.....	147		8	139		
Chiniak village.....	Kadiak island.....	24			24		
Killuda.....	Kadiak island.....	36			36		
Alexandrovska.....	Kenai peninsula.....	88	1	12	75		
Yalik.....	Eastern coast Kenai peninsula.....	32			32		
Seldovia and Ostrovki.....	Kenai peninsula.....	74		38	36		
Linda.....	Kenai peninsula.....	29				29	
Ninilehik.....	Kenai peninsula.....	53		53			
Kasslof.....	Kenai peninsula.....	31				31	
Chkituk and Chernilla.....	Kenai peninsula.....	50		10		40	
Silialak.....	Kenai peninsula.....	44				44	
Kenai Redoute.....	Kenai peninsula.....	44	2	42			
Titukisk and Nikishka.....	Kenai peninsula.....	57				57	
Kultuk.....	Kenai peninsula.....	17				17	
Knakatnuk.....	Kinik river, Cook's inlet.....	57	1	1		55	
Ziluiat.....	Kinik river, Cook's inlet.....	16				16	
Nitakh.....	Kinik river, Cook's inlet.....	15				15	
Kinik.....	Kinik river, Cook's inlet.....	46				46	
Sushetno (1st village).....	Cook's inlet.....	44				44	
Sushetno (2d village).....	Cook's inlet.....	46				46	
Toyonok station and village.....	Cook's inlet.....	117	2	6		109	
Kustatan.....	Cook's inlet.....	65				65	
Chenege.....	Prince William sound.....	80			80		
Kanikhluk.....	Prince William sound.....	54			54		
Tavikhek.....	Prince William sound.....	73			73		
Nuehek.....	Prince William sound.....	74	3	11	60		
Ikiak and Alaganu.....	Mouth of Copper river.....	117			117		
Cape Martin.....	Mouth of Copper river.....	7	1				6
Atnah villages.....	Copper river.....	250				250	
Chilknaat villages.....	Comptroller bay.....	170					170
Yektak villages.....	Foot of Mount Saint Elias range.....	150					150

The superficial area of the Kadiak district is approximately 70,884 square miles; the inhabitants, numbering 4,352, would give us a ratio of 1 inhabitant to 16½ square miles. The ratio of civilized population (white and creole) is 1 to 74½ square miles.

THE SOUTHEASTERN DIVISION.

The narrow strip of coast-line from Mount Saint Elias to Portland canal, a strip that was patched upon the solid body of the Russian possessions on this continent through the ambition of Baranof, differs in all its characteristics from the bulk of Alaska, partaking essentially of those of the coast of British Columbia and the islands adjoining. Though Baranof, or rather the company which he represented, at the beginning of the present century was powerful enough not only to establish but to maintain possession of the narrow belt between the mountains and the sea, he was never able to extend the Russian possessions into the interior where the outposts of the Hudson Bay Company were already located, and as the successor of the Russians the people of the United States have shut off the British possessions from the sea-coast for a distance of nearly 500 miles.

This whole division is densely wooded and exceedingly mountainous in its formation; the coast is deeply indented with bays and fiords, and for two-thirds of its length is sheltered by the numerous islands of the Alexander archipelago. The forests, impinging as they do upon the sea-coast everywhere, are easily accessible, and will be of the greatest value in the future either as fuel or as building material. The Alaska spruce is the prevailing forest tree, but in the southern section of the division the yellow cedar, the most valuable of all the northern trees, exists in considerable quantities. The wood of this tree has always been an article of export to a limited extent, and it is purchased by the cabinet-makers of the Alaska coast at the present day; but the extent to which this industry might be developed is not yet known. Large bodies of this timber are found farther south in the adjoining British possessions. Coal has been discovered on many of the islands and on the mainland, but no practical use has thus far been made of the discoveries. An extensive vein of bronze-copper was opened

on Prince of Wales island by a British Columbian firm, but for some reason unknown the enterprise languishes. Discoveries of gold-bearing quartz have been made on Baranof island, in the immediate vicinity of Sitka, only since the transfer of the territory, and for a time quite an excitement was created; but now these ledges are scarcely worked at all, being simply held by the owners for further developments, or until some process can be discovered for working with profit the peculiar grade of ore existing there. In the meantime surface gold was discovered on the peninsula between the inlets of Takoo and Chilkhat. The mining population of Sitka, and, to a great extent, that of the Wrangell and the Cassiar country, was drawn away to the new discoveries, where they are now engaged with apparent success. Veins of quartz have also been located in the same locality; and with the undaunted prospector throughout all this region, in a few years more the mining resources of southeastern Alaska will be fully known.

Next in importance to the mining industry stands the fur-trade, once the sole foundation of the country's prosperity. From the silver and the black fox, the marten, and the land-otter the most valuable furs are secured by the natives, together with skins of the black and the brown bear, a limited quantity of beaver, and a few sea-otter. Owing to excessive competition the prices paid for these furs are abnormally high, and the profits from the trade must be correspondingly small.

Salmon, halibut, and herring crowd all the waters of the sea-coast as well as those of the interior channels of the archipelago, and two or three canning and salting establishments have been in operation for some years. The oil procured from herring and dog-fish and shark finds a ready market. A few small saw-mills furnish rough lumber for local consumption, and a few small craft, including one steamer of 80 tons burden, ply over the sheltered inland waters and as far north as Bering bay on the open coast. The natives on many of the islands make quite a profitable business of killing hair-seals for their hides and the oil rendered from the blubber.

The climate of this division, especially from Cross sound to the southern boundary, is very peculiar. The temperature is not as low as might be expected in this latitude, thermometrical observations extending over nearly fifty years presenting a minimum of only 4° below zero, while the maximum reached $+87^{\circ}$; this, however, occurred but once during the period mentioned. The mean annual temperature derived from all these observations is $43^{\circ} 28'$.

The rainfall statistics, extending over the same period, show a mean annual precipitation of over 80 inches, and several of the annual records are above 90, while one reaches 103. The number of days on which rain fell during the periods referred to averaged 165 per annum, and of snow-fall 33; but during several years the rainy days numbered as high as 250 and even 264 a year. The highest number of days on which snow fell here was 47. This enormous precipitation makes it plain that, in spite of the comparatively high temperature, the climate of southeastern Alaska cannot be called an agreeable one, or one that would hold out a prospect of success to agricultural emigrants. Vegetable gardens, however, have been successfully cultivated all over this district, wherever white men settled who were willing to bestow the necessary labor upon this way of ameliorating their daily fare. Potatoes were found among the natives of this region by the very first English and American visitors, especially among the Hyda tribes, and at present they are freely offered for sale by the natives wherever white people congregate for mining or trading. Owing to the rugged and mountainous formation of the country, and the thick undergrowth making the forest almost impenetrable, the keeping of cattle is surrounded with great difficulties, and hay is not easily cured during the few sunny days of which this section can boast.

Nearly all the natives inhabiting the southeastern division are of one kin—the Thlinket tribe, or “Kolosh” as they were called by the Russians. Only at the southern portion are found a few settlements of the Hyda tribe from British Columbia. When the Russians first came to the Alexander archipelago the natives offered a stubborn resistance to their permanent establishment. The first block-house or station erected by Baranof, at old Sitka, was taken by surprise and all the inmates put to death by the combined Sitka and Stockin tribes, and about the same time the Thlinket of Bering bay or Yakutat fell upon the settlement established there, killing the inhabitants and carrying off a few women into captivity. About this time, also, two large sea-otter hunting parties, consisting of Innuits, under the leadership of Russians, were surprised and almost annihilated by the Kolosh.

Undaunted by these disasters Baranof drove the native warriors from their fortified position on the site of the present town of Sitka and established himself there, making that point the headquarters of the great Russian Fur Company. From that time forth the Thlinket only indulged in an occasional robbery or murder of isolated hunters, but no cordial intercourse was ever established between them and their conquerors. The business between them was carried on in a cautious manner, highly suggestive of a state of siege. The Russian priests made very little impression upon the warlike pagans, who only occasionally for the consideration of a present consented to submit to the ceremony of baptism.

As late as 1855 the Sitka Indians attacked the Russian fortifications, an action of several days resulting, during which quite a number were killed and wounded on both sides, but the difficulty was finally settled by treaty.

At that time the town of Sitka was thoroughly fortified with numerous bastions and batteries mounting between sixty and eighty cannon of various calibers. The most important of the batteries was located about the mansion of the chief manager of the Russian-American Company, which was perched upon a steep, rocky elevation,

and is still known as "the castle". Here seventeen cannon (12- and 24-pounders) were planted and kept constantly loaded. Every male inhabitant of the Russian settlement of Sitka had his station assigned to him in case of attack by the natives, and all employés were drilled occasionally in the manual of arms, etc. The military garrison, consisting of 180 soldiers of the Siberian battalion, mounted guard regularly, with sentries stationed at the various gates in the stockade.

For nine years after the transfer of the Russian possessions to the United States a military post was maintained here, consisting at first of nearly 250 men, but the number was gradually diminished, and the last troops were withdrawn in 1876. A few difficulties arose during this time between the troops and the Indians of Sitka and one or two of the more distant tribes, but they were generally adjusted by arbitration and a mere display of readiness to fight. A United States man-of-war now (1880) does police duty at Sitka, patrolling occasionally the interior channels of the Alexander archipelago. It is safe to predict that the mere presence of some armed force in this section will always be sufficient to keep in check the naturally warlike and arrogant Thlinket.

Since the transfer of the territory the town of Sitka has continued to be considered as the most important point in Alaska, and whatever display there has been of military or civil power on the part of the United States was made here. The collector of customs for the district of Alaska resides at Sitka, and is unable to communicate with his deputies in the west except by way of San Francisco.

For thirty or forty years previous to the acquisition of Alaska by the United States the Sitka settlement contained a number of schools and churches—the latter comprising the cathedral of the diocese, two smaller Russian chapels, and a Lutheran church for the use of Germans, Swedes, and Finlanders in the employ of the Russian company. Of the schools one was for the sons of the higher officers of the company, under the ambitious name of "Colonial Academy", one a boarding-school for girls of the same class, and two other schools for the children and orphans of the lower grades of employés and laborers.

For some time Sitka was also the site of a theological seminary of the Russian church. All these establishments, with the exception of the cathedral, have been discontinued, and at present the only efforts in the field of education are made by missionaries and teachers sent out by the Presbyterian board of missions, with some pecuniary assistance of the naval authorities at Sitka. Mission schools have been located at Chilcoot, Hoonyah, Wrangell, and at Shakan, on Prince of Wales island. At Wrangell there is also an industrial home for native girls, maintained by the Presbyterians, and the chapel and the parsonage of the Roman Catholic church. Concerning these missionary establishments, the Rev. Sheldon Jackson, D.D., has furnished the following statistics:

The first school at Wrangell was established in 1877, and placed in charge of a lady teacher. In 1878 a home for girls was added to the establishment; and in the season of 1880 and 1881 this latter establishment contained 30 inmates, while the school had an average attendance of 60.

At Sitka a school was opened in April, 1878, and kept open with varying success until in April, 1880. An attendance of 130 (grown people and children) was reported.

One of the naval officers stationed at Sitka introduced upon his own responsibility a system of compulsory education, appointing regular truant officers; each child was labeled, and if found on the streets during school-hours was arrested, and the head of the household to which he or she belonged was fined or imprisoned. This extraordinary and arbitrary measure worked so well that the "average attendance" was suddenly forced up to between 230 and 250—one day reaching 271—a result highly gratifying to the Presbyterian teachers, whatever objections the public at large may have to this *modus operandi* on constitutional grounds. The school above mentioned was for the Indians alone. For the benefit of the creole children a school was established in 1879, with the assistance of the naval authorities, who furnished a teacher and interpreter in the person of an educated creole lady, who was rated as an "able seaman". This school had an average attendance of from 45 to 55 children, who were instructed in the English language and primary branches.

In the summer of 1880 a Christian Indian woman of the Tongas tribe was sent to open a school among the Chilkhats at the head of Lynn channel, and here, later, buildings were erected at that point by the Presbyterian board of missions, and a competent teacher installed, who reports an average attendance of 75 pupils.

A school was also established among the Hoonyah tribe on Cross sound; the teacher reports 70 pupils.

At the southern end of Prince of Wales island, on Cordova bay, a chief presented a house to the Presbyterian mission and a school was opened, with an average attendance of 80 pupils.

At Shakan, on the north end of Prince of Wales island, a small school has been opened and placed in charge of a native teacher and his wife, both former pupils of the Wrangell school.

We append a tabulated list of the settlements and population of the southeastern division, as follows:

SOUTHEASTERN DIVISION.

Settlements.	Location.	Total.	White.	Creole.	Thlinket.	Hyda.
Grand total.....		7,748	293	230	6,437	788
NATIVES.						
<i>Chilkhat tribe.</i>						
Yondestak.....	Chilkhat river and bay.....	988			171	
Kutkwutlu.....	Chilkhat river and bay.....				125	
Kluekquan.....	Chilkhat river and bay.....				565	
Chilcoot.....	Chilcoot river.....				127	
<i>Hoonyah tribe.</i>						
Koudekan.....	Chichagof island.....	908			800	
Klughuggue.....	Chichagof island.....				108	

SOUTHEASTERN DIVISION—Continued.

Settlements.	Locations.	Total.	White.	Creole.	Thlinket.	Hyda.
<i>Khootznahoo tribe.</i>						
Augoon.....	Admiralty island, Hood's bay.....	666			420	
Scutskoon.....	Admiralty island, Hood's bay.....				246	
<i>Kekik tribe.</i>						
Klukwan.....	Kuprianof island.....	568			261	
Village.....	Kuprianof island.....				82	
Village.....	Koo island.....				100	
Village.....	Port Houghton.....				50	
Village.....	Seymour's channel.....			75		
<i>Auk tribe.</i>						
Village.....	Stephens passage.....	640			290	
Village.....	Admiralty island.....				300	
Village.....	Douglas island.....				50	
<i>Takoo tribe.</i>						
Tokeatl's village.....	Takoo river and inlet.....	269			26	
Chitklin's village.....	Takoo river and inlet.....				113	
Katlany's village.....	Takoo river and inlet.....				106	
Fotshou's village.....	Takoo river and inlet.....				24	
<i>Stakhin tribe.</i>						
Shustak's village.....	Etholin island.....	317			38	
Kash's village.....	Etholin island.....				40	
Shakes' village.....	Etholin island.....				38	
Towayat's village.....	Etholin island.....				82	
Kohltsene's village.....	Stakhin river.....				28	
Hinanahan's village.....	Stakhin river.....				31	
Kadishan's village.....	Stakhin river.....				27	
Shallyany's village.....	Stakhin river.....				24	
<i>Prince of Wales Island tribe.</i>						
Kouyou.....	Prince of Wales island, west coast.....	587			60	
Hanega.....	Prince of Wales island, west coast.....				500	
Klawak.....	Prince of Wales island, west coast.....				27	
<i>Tongas tribe.</i>						
Village.....	Island mouth Portland canal.....	273			173	
Cape Fox.....	Prince of Wales island.....				100	
<i>Sitka tribe.</i>						
Sitka, Indian village.....	Baranof island.....	721			540	
Silver Bay.....					39	
Hot Springs.....					26	
Indian River.....					43	
Old Sitka.....					73	
<i>Yakutat tribe.</i>						
Scattered villages between cape Spencer and Bering bay.....	Coast of mainland.....	500			200	
Yakutat.....	Bering bay.....				300	
<i>Hyda tribe.</i>						
Kassan and Skowl.....	Prince of Wales island.....	788				173
Kluquan.....	Prince of Wales island.....					125
Koianglas.....	Prince of Wales island.....					62
Howakan.....	Prince of Wales island.....					287
Shakan.....	Prince of Wales island.....					141
Total native.....		7,225			6,437	788
WHITES AND CREOLES.						
Wrangell.....	Etholin island.....	106	105	1		
Shuck.....	Stephens passage.....	10	10			
Soundun.....	Holkhan bay.....	10	10			
Shakan.....	Prince of Wales island.....	8	5	3		
Old Sitka.....	Baranof island.....	6	6			
Sitka.....	Baranof island.....	376	157	219		
Kassan.....	Prince of Wales island.....	7		7		
Total white and creole.....		523	293	230		

The superficial area of this island division is, as nearly as it can be computed from the limited data at my command, about 28,980 square miles. This would give a density of population of 1 inhabitant to nearly 4 square miles. The ratio of civilized (white and creole) population was, in 1880, 1 to 55½ square miles. This element is now probably three times as numerous, or 1 to 19 square miles. The Thlinket and Hyda, however, are very susceptible of civilization, and are rapidly advancing in their social status, thanks to the efforts of missionaries and the contact with Caucasian miners and traders.

RECAPITULATION OF THE POPULATION OF ALASKA.

Divisions.	Total.	White.	Creole.	Eskimo.	Aleut.	Athabas-kan.	Thlinket.	Hyda.
Total	33,426	480	1,756	17,617	2,145	3,927	6,763	788
Arctic	3,094			3,094				
Yukon	6,870	18	19	4,276		2,557		
Kuskokvim	3,911	3	111	8,036	255	506		
Aleutian	2,451	82	479		1,890			
Kadiak	4,852	34	917	2,211		804	326	
Southeastern	7,748	298	280				6,487	788

The earliest actual count of any Alaskan people now on record was made by Delarof (an agent of the Shelikhof Company) in the year 1792. This count comprised all the villages on Kadiak island and the settlement of Yukatmak (Katmai), on the Aliaska peninsula. The number then given was 6,510 of both sexes, as against Shelikhof's estimate of 50,000, made only six years before that date. Four years later, in 1796, Baranof counted 6,200 inhabitants on Kadiak island and the opposite coast of Aliaska peninsula.

On the Aleutian islands Panof, a trader, claimed to have counted 1,900 inhabitants as early as the year 1781, but this was only a verbal statement transmitted by others. In 1792 Captain Sarychef, of the Billings exploring expedition, who had been instructed to enumerate the natives, reported the population of the Aleutian islands as 2,500 of both sexes, but the result of an actual count made by order of the imperial chamberlain, Rezanof, resulted in the number of 1,942, approximating closely the estimate of Panof, made over twenty years before.

At the time of Baranof's retirement from the management of the Russian colonies in America, his temporary successor, Captain Hagemeister, of the Russian navy, ordered an enumeration of the natives. This count included, of course, only those tribes over whom the Russian-American Company had absolute control. Of this partial census we have two returns, differing slightly in the totals. One was first published in the report of an imperial inspector Kostlivtsof, who dated it 1818, which reads as follows:

NATIVE POPULATION OF RUSSIAN COLONIES IN AMERICA IN 1818.

Districts.	Total.	Males.	Females.
Kadiak	3,430	1,484	1,769
"		142	35
Aliaska peninsula	869	402	467
Kenai (Cook's inlet)	1,471	723	748
Chugach (Prince William sound)	477	172	188
Oughalentsæ (Prince William sound)		51	66
Mednovtze (Copper river)	567	294	273
Fox islands (Aleutian)	1,469	463	559
Pribylf islands (Aleutian)		188	191
Aleutian		42	26
Total	8,293	3,961	4,322
Russians	354	344	10
Creoles	256	147	109
Aggregate	8,893	4,452	4,441

No estimate of the Thlinket or Kolosh accompanied this document.

The other return of the same enumeration was published by Tikhménief in his *Historical Review*, and dated 1819. It is as follows:

NATIVE POPULATION OF RUSSIAN AMERICA IN 1819.

Districts.	Total.	Male.	Female.
Kadiak district	3,252	1,483	1,769
Aliaska peninsula	869	402	467
Chugach (Prince William sound)	477	172	188
Oughalentsæ (Prince William sound)		51	66
Fox islands (Aleutian)	1,748	464	559
Pribylf islands (Aleutian)		185	191
Aleutian laborers at Sitka		235	61
Kenai (Cook's inlet)	1,471	723	748
Mednovtze (Copper river)	567	294	273
Total	8,384	4,062	4,322
Russians	391		
Creoles	244		
Thlinket or Kolosh (estimate)	5,000		
Aggregate	14,019		

The discrepancies between these two returns are small, and are easily accounted for by the difference in date.

Three years later, in 1822, another return placed the native population under control of the company at 8,286.

Next in chronological order comes a population return of the Russian colonies in America, forwarded by chief manager Baron Wrangell, under date of January 1, 1825, as follows:

Islands.	Total.	Males.	Females.
Total	8,481	4,102	4,379
Kadiak island.....	2,810	1,351	1,458
Aliaska, coast opposite	190	99	91
Ookamok island.....	88	51	37
Chugach, Prince William sound.....	1,568	782	781
Kenai, Cook's inlet.....	1,209	636	663
Nushegak, Bristol bay.....	671	306	365
Iliuliuk, Oonalashka island.....	333	152	181
Chernovsky, Oonalashka island.....	43	21	22
Borka, Oonalashka island.....	27	11	16
Oumnak island.....	137	62	75
Oonalgia island.....	11	3	8
Akutan island.....	36	18	18
Akoon island.....	139	59	80
Avatanok island.....	43	22	21
Tigalda island.....	52	24	28
Oogamok island.....	49	19	30
Aliaska, adjoining coast.....	207	118	89
Oonimak island.....	99	45	54
Sannakh island.....	101	43	58
Ounga island.....	50	25	25
Atkha island.....	130	68	67
Chugal island.....	62	29	33
Adakh island.....	193	104	89
Amchitka island.....	42	14	28
Attoo island.....	97	45	52

This count also includes only the natives under control of the company, ignoring the Thlinket, and must be ascribed to Veniaminof during the first year of his sojourn on the Aleutian islands. According to this statement the aggregate of Aleutian tribes was then 1,850 of both sexes, while that of Kadiak and the adjoining coast of the Aliaska peninsula was 3,097, figures which do not agree with a comparative statement of population of these two sections published in 1830, and also ascribed to Veniaminof, as follows:

Years.	Kadiak and Aliaska.	Years.	Aleutian islands.
1792.....	6,510	1781.....	1,900
1806.....	3,944	1806.....	1,898
1817.....	4,193	1813.....	1,508
1821.....	3,649	1825.....	1,478
1825.....	3,396	1830.....	1,460

From this it will be seen that the aggregate population of the two districts in 1825 was nearly the same as that given in the preceding table of Wrangell, though the distribution differs somewhat.

In the year 1831 the same priest, Veniaminof, made a careful count of the Aleutian people, which may be considered as authentic. The result of his investigations was a tabular statement, arranged by villages and islands, giving also the number of houses and canoes in each settlement. I cannot do better than republish it in full:

CENSUS OF OONALASHKA DISTRICT IN 1831.

Islands.	Villages.	INHABITANTS.			Houses.	Canoes.
		Male.	Female.	Total.		
Oonalashka.....	Iliuliuk.....	90	106	196	27	16
Do.....	Natnikinsk.....	6	9	15	2	2
Do.....	Peatriakof.....	18	21	39	5	4
Do.....	Vesselovsky.....	7	8	15	3	3
Do.....	Makushin.....	15	20	35	6	5
Do.....	Koshigin.....	18	23	41	8	9
Do.....	Chernovsky.....	20	24	44	4	10
Do.....	Imagnak.....	15	17	32	4	2
Do.....	Kalekhta.....	6	8	14	2	2
Do.....	Bobrovskaia.....	21	20	41	4	6
Total Oonalashka (ten villages).....		216	256	472	65	58

CENSUS OF OONALASHKA DISTRICT IN 1831—Continued.

Islands.	Villages.	INHABITANTS.			Houses.	Canoes.
		Male.	Female.	Total.		
Oumnak	Recheshnaia	38	45	83	13	12
Do	Tulik	11	15	26	3	6
Total Oumnak (two villages)		49	60	109	16	18
Akoon	Artelnaia	16	16	32	7	9
Do	Recheshnaia	19	18	37	5	8
Do	Srednaia	7	9	16	2	4
Total Akoon (three villages)		42	43	85	14	21
Pribylot	Saint George and Saint Paul	88	94	182		
Borka	Sidanak	17	27	44	6	7
Oonalga	Oonalga	10	18	28	3	4
Avatanok	Avatanok	24	25	49	5	9
Akutan	Akutan	6	7	13	2	1
Tigalda	Tigalda	38	50	97	6	14
Oonimak	Shishaldin	38	53	91	2	4
Ounga	Delarof	52	64	116	13	15
Total small islands (nine villages)		278	342	615	37	54
Alaska peninsula	Morshevoi	16	29	45	7	6
Do	Belkovsky	49	53	102	10	16
Do	Pavlovsk	28	31	59	8	9
Total Alaska peninsula (three villages)		93	113	206	25	31
Scattered at Sitka and elsewhere		10	18	28		
Grand total of district		683	832	1,515	157	182

This table gives us the proportion of nearly ten inhabitants to each house, 8 inhabitants to every canoe, and 1 canoe to between 3 and 4 male inhabitants (about 1 canoe to every 2 adults). The excess of females over males was nearly 10 per cent.

In the year 1835 the same priest, then stationed at Sitka, made a close estimate of the Kolosh or Thlinket of southeastern Alaska, which seems remarkably accurate in its total, though some of the villages enumerated by Veniaminof are not known to us now. He divided the Thlinket into sixteen villages or clans, as follows:

ESTIMATE OF KOLOSH IN 1835.

1. Yakutat village	150
2. Ltunia or Avetzk	200
3. Icy strait (Cross sound)	250
4. Chilkat (Lynn canal)	200
5. Akut (Auk)	100
6. Sitkha	750
7. Takoo	150
8. Hootznoo	300
9. Kehk	200
10. Kuyutzk	150
11. Henu (Hunyah or Hanega?)	300
12. Stakhin	1,500
13. Tongass	150
14. Kaigan (Hydan)	1,200
15. Chassin	150
16. Sanakhan	100
Total	5,850

In 1839 Veniaminof made another estimate, including the total population of the country now called Alaska. He wrote as follows:

The northwestern part of America, from Bering strait to the meridian of Mount Saint Elias, or 141° west of Greenwich, and all the islands situated along the coast of America farther to the eastward, and a portion of the mainland, to a distance of 50 versts from the sea-shore, down to longitude 130° and latitude 50°, belongs to Russia, and is bounded in the east by the British possessions. Our America

is peopled by a multitude of tribes and races, the number of which is, of course, unknown to us, but as far as the names of tribes in our part of America have been ascertained, they are as follows:

1. The Kolosh, inhabiting the islands and the narrow strip of the American continent at the extreme south-eastern limits of the Russian possessions, whose number is now about	5,000
2. The Oughalentze, living near Mount Saint Elias, numbering not more than	150
3. The Mednovtze, who live on Copper river, to the number of	300
4. The Kolehane, living far away in the interior of the continent, near our boundaries; their number is unknown.	
5. The Chugach, living on the gulf of the same name, numbering now	471
6. The Kenaitze, living on the shores of the gulf of Kenai, numbering	1,628
7. The inhabitants of the southern shore of the Aliaska peninsula, numbering	1,600
8. The Aglegmute, on the northern shore of Aliaska peninsula, numbering	402
9. The Kadiaks or Koniagi, living on the island of Kadiak, numbering	1,508
10. The Oonalashkans or Aleuts, inhabiting the Fox islands and a portion of the Aliaska peninsula, numbering	1,497
11. The Atkhans, or Atkha Aleuts, inhabiting the Andreicof of islands, numbering	750
12. The Kuskokvims, living on the river Kuskokvim, which empties into Bering sea, numbering about	7,000
13. The Kvikhpaks, Kiatentze, Malegmute, and other tribes inhabiting the shores of Bering sea and the rivers emptying into the same, and also the coast of the Northern ocean, whose number cannot be less than all those above mentioned together.	
To this native population of Russian America we must add Russians living in the various settlements, to the number of	706
Creoles—that is, the offspring of Russians from native American mothers—who form the foundation for a class of American citizens of Russia, numbering	1,295

Consequently our total population in America may be given as follows:

Known and counted	10,313
Known, but not counted	12,500
Estimated only	17,000
Making a total of	<u>39,813</u>

Though objection may be made to certain details of this estimate as incorrect, the total comes sufficiently near to our latest data to convince us that Veniaminof had then a better conception of the population of Russian America than the compilers of the official reports of the Russian-American Company exhibited during many succeeding years.

Next in chronological order we find an enumeration of the Thlinket and Hyda tribes of Alaska, made under the auspices of Sir James Douglas, of the Hudson Bay Company, in the year 1839, when the latter firm had obtained from the Russian-American Company a ten years' lease of the continental coast between Lynn canal and the southern boundary. This document was never printed, but has been preserved in the archives of the Hudson Bay Company and in Sir James Douglas' private papers. Its figures are somewhat in excess of Veniaminof's estimate; but approach more closely to our most recent enumeration. The names of tribes and clans, as given by Douglas, cannot all be identified now, but the whole table, circumstantial as it is in its classification of adults and children of both sexes and even of slaves, bears the imprint of authenticity. Subjoined I give it in full as copied from the manuscript journal:

CENSUS OF NATIVE TRIBES OF RUSSIAN AMERICA BETWEEN LATITUDE 59° AND 54° 40' N., EXCLUSIVE OF THE SITKA TRIBE ON BARANOF ISLAND, IN 1839.

Traders' names of tribes.	Native tribal names.	Locations.	Total.	ADULTS.		CHILDREN.		SLAVES.	
				Men.	Women.	Boys.	Girls.	Male.	Female.
Total			7,190	2,125	1,996	1,238	1,201	295	335
Chilcat	Chilkhaat	Lynn canal	498	167	118	71	66	42	36
Cross sound	Hoonyah	Cross sound	782	258	234	108	98	40	54
Anke	Anke	North of Takoo river	203	72	61	35	31	2	2
Tako Samdan	Tako, Samdan, Sitka	Takoo river, Sitka river	498	127	110	71	66	50	60
Hoochenoo	Hootnoo	Hood's bay	729	247	240	85	76	40	41
Hanega	Henega	Prince of Wales island	269	82	80	29	27	27	24
Kake	Kehk	Kehk archipelago	393	109	106	70	64	24	20
	Stakhin:								
Stikeen	Liknaahntly	Stakhin river	118	31	24	30	27	2	4
Do	Ta-ee-teeton	do	93	38	29	10	9	3	4
Do	Kvaskagnatee	do	135	59	41	10	6	6	13
Do	Kukatu	do	234	97	67	36	32	2	..
Do	Naaniagh	do	390	83	117	60	46	32	52
Do	Talgnatee	do	169	52	51	27	33	2	4
Do	Kiksatee	do	99	31	21	21	18	4	4
Do	Kadi-ettee	do	172	61	60	20	19	4	8
Port Stuart	Ahialt	Port Stuart	186	50	45	42	49	..	..
Tourgass	Kitahoonet	Clarence strait	315	85	90	60	65	6	9

CENSUS OF NATIVE TRIBES OF RUSSIAN AMERICA BETWEEN LATITUDE 59° AND 54° 40' N.—Continued.

Traders' names of tribes.	Native tribal names.	Locations.	Total.	ADULTS.		CHILDREN.		SLAVES.	
				Men.	Women.	Boys.	Girls.	Male.	Female.
Cape Fox	Lukhseele	Cape Fox	177	45	50	39	43	.....	.....
Kalgani	Yonahno	Prince of Wales archipelago	234	68	70	44	52	.....	.....
	Chickass	do	417	98	105	102	112	.....	.....
	Quiahanness	do	148	30	35	42	41	.....	.....
	Howguan	do	458	117	121	113	107	.....	.....
	Shaaguan	do	229	53	61	54	61	.....	.....
	Chachini	do	249	65	62	59	63	.....	.....

From this time forward the biennial reports of the Russian-American Company to the imperial ministerium of commerce gave the population of the Russian possessions in America as from 56,000 to 70,000. No authority for these statements existed, but they were repeated again and again until the sale of the country to the United States, though in the meantime several enumerations were made showing a very different result.

The first enumeration of the tribes on Norton sound and on the lower Yukon, or Kvikhpak, was accomplished by Lieutenant Zagoskin, of the Russian navy, during an exploration of that region in the years 1842, 1843, and 1844. It is, of course, impossible at this date to recognize all the names of villages given by Zagoskin, but as far as I can trace his count to personal observation, it appears to have been accurate. His exploration took place just after the whole region traversed by him had been depopulated by small-pox. In the table which is here reproduced, Zagoskin's division of the people into Christians and pagans has been omitted:

ENUMERATION BY LIEUTENANT ZAGOSKIN, I. R. N., OF NATIVES OF NORTON SOUND AND LOWER YUKON IN 1842, 1843, AND 1844.

Tribes and villages.	Houses.	People.	Total.	Tribes and villages.	Houses.	People.	Total.
KANG-YULIT PEOPLE [INNUIT].				Tsonagogliakhten village			
<i>Chnagmute tribe, Norton sound.</i>				1 11			
Oonalaklik village	2	13		Taogliakhten village	1	7	
Nigvilnuk village	1	5		Khotilkakat village	4	65	
Kikhtaguk village	3	28		Oonilgachtkhokh village	2	17	
Tachik village	3	19		Nulato village	1	13	
Atkhvik village	4	57		Total Yunnakakhotana	23	289	289
Tikmiktalik village	4	45		<i>Inkilit tribe, Kvikhpak river.</i>			
Pashotlik village	7	116		Kunkhogliak village	2	11	
Total Chnagmute	24	283	283	Oolukak village	4	25	
<i>Kvikhpagmute, Kvikhpak river.</i>				Tuttago village	2	32	
Kavlanagmute village	1	11		Kakagokhakak village	1	9	
Nigikligmute village	1	18		Khutulakakat village	2	16	
Kanigmute village	4	45		K-khaltat village	1	9	
Ankachagmute village	6	122		Khogolinde village	4	60	
Takchagmute village	3	40		Takaniak village	7	81	
Iknagmute village	6	180		Khulkakat village	1	11	
Nukhluagmute village	4	60		Total Inkilit	24	264	264
Ihogmute village	5	92		<i>Tlegonkhotana, Tlegon river.</i>			
Ikalgivigmute village	3	45		Innoka village	3	44	
Patmute village	5	123		Ttalitui village	3	45	
Total Kvikhpagmute	38	681	681	Total Tlegonkhotana	6	89	89
<i>Kuskokvigmute, Kuskokvim river.</i>				<i>Yugelnut, Kvikhpak, and Kuskokvim rivers.</i>			
Khalkagmute village	5	120		Inselnostlende village	2	33	
Ookhagmute village	4	61		Khuingitakhten village	3	37	
Tulukagmute village	5	90		Iitenleiden village	6	100	
Kvigimpainagmute village	4	89		Tlegoshitno village	3	45	
Total Kuskokvigmute	18	360	360	Khulligichakat village	5	79	
Total Kang-yulit	80	1,324	1,324	Kvigimpainagmute village	3	71	
TTYNNAI PEOPLE [TINNEH].				Vashchagat village	5	80	
<i>Yunnakhotana, Kvikhpak river.</i>				Anvig village	5	129	
Noggai village	1	10		Makki village	3	44	
Minkhotliatno village	3	46		Anilukhtakpak village	8	170	
Total Yunnakhotana	4	56	56	Total Yugelnut	43	770	770
<i>Yunnakakhotana, Koyukuk river.</i>				<i>Goltzane, interior.</i>			
Notaglitla village	3	37		Khunanilinde village	1	9	
Tlialikakat village	3	27		Tochofno village	1	9	
Tashoshgon village	2	30		Total Goltzane	2	18	18
Tok-khakak village	1	6		Total Ttynnai	103	1,486	1,486
Nok-khakak village	3	50		Total Kang-yulit	80	1,324	1,324
Kakhiakhiakak village	2	26		Grand total	183	2,510	2,510

The importance of Zagoskin's population statistics is altogether of a relative nature. He simply counted those whom he came in contact with, and made no estimates of people living away from his line of progress; hence I can make no comparison between his data and mine. But from this partial return it is seen that, then as now, the villages in the vicinity of the sea-coast were more populous than those of the interior, and that the houses of the Tinneh tribes must be of almost the same capacity as those of the Innuut. Of the former Zagoskin counted 1,486, living in 102 houses, making an average of nearly 15 inmates to each dwelling, while the Innuut counted by him numbered 1,324, in 80 houses, an average of a little over 15 to each dwelling. Among the Innuut the average number of dwellings in each village is nearly four, while the Tinneh villages average less than three.

From this time forward until the year 1860 no population returns of Russian America were published, with the exception of the fictitious total of 56,000, contained in the brief biennial reports of the Russian-American Company, referred to above.

In 1860 the holy synod, the highest ecclesiastical authority in Russia, published in its annual report a census of Christians in Russian America, as furnished by the priests and missionaries stationed in the colonies. This included nearly all the natives under immediate control of the company, and was as follows:

CHRISTIANS IN RUSSIAN AMERICA IN 1860, EXCLUSIVE OF RUSSIANS.

Tribes.	Total.	Males.	Females.
Total	10,868	5,455	5,213
Creoles	1,876	853	823
Aleut (including Kaniags).....	4,391	2,206	2,185
Kenaitze	937	430	507
Chugach	456	226	230
Mednovtze	18	17	1
Magmute	19	18	1
Aglomute	39	19	20
Aziagmute	206	105	101
Kuakokvims.....	1,395	755	640
Kvikhpaks.....	379	226	153
Agumute	39	19	20
Ingalik	476	263	213
Koltchan	190	97	93
Koloshians	447	221	226

In 1861 Lieutenant Wehrman, of the Russian navy, but then in the employ of the Russian-American Company, compiled a census of the Kolosh or Thlinket tribes by settlements. Wehrman gave the number of free males and females and male and female slaves separately. The appended reproduction of Wehrman's table will show plainly that he obtained only the totals at each place and divided them subsequently:

THLINKET (KOLOSH) POPULATION IN 1861.

Villages.	Total.	FREE.		SLAVE.	
		Males.	Females.	Males.	Females.
Sitka villages.....	1,344	715	535	51	43
Khutznoo villages	600	280	280	20	20
Chilkhat villages	1,616	728	728	80	80
Kake villages.....	445	210	210	13	12
Takoo villages	712	335	337	20	20
Hoonyah villages.....	411	195	197	10	9
Tongass villages	333	154	154	13	12
Cross Sound villages.....	331	154	154	18	10
Assan Harbor villages.....	118	56	56	3	3
Kuyntzk villages.....	262	126	126	5	5
Stakhine villages	697	308	308	41	40
Kaigan villages.....	758	280	280	90	99
Ltula villages	590	265	267	29	29
Yakutat villages	380	163	168	25	24
Total	8,597	3,969	3,800	422	406
Total free.....	7,769				
Total slave.....	828				

If the totals of the above table be correct there appears to have been no increase or decrease in the numbers of Thlinket during the twenty years intervening between the count of Wehrman and that of Sir James Douglas, the latter having arrived at a total of 7,190 exclusive of the Sitkan clan, which numbers 1,344 in Wehrman's table.

During the last few years of the Russian-American Company's existence the population returns made by various colonial and inspecting officers appear very much confused. Thus we have two counts dated January 1, 1862, showing the same total, but differing very much in distribution. Both counts are incomplete, ignoring the Thlinket and nearly all the northern natives. One enumerates the people by race and tribe, the other by districts; they were printed by Tikhmenief in his *Historical Review*, as follows:

Russians	577
Foreigners	6
Creoles	1,892
Aleut (including Kadiaks)	4,752
Kenaitze	927
Chugach and Atnah	719
Kuskokvims	1,283
	<hr/>
	10,156
	<hr/>
Sitka district	988
Kadiak district	5,985
Oonalashka district	1,359
Atkha district	972
Kurile district	253
Northern district	545
Kenai district	54
	<hr/>
	10,156
	<hr/>

In Tikhmenief's work no explanation is given that might enable us to analyze these puzzling figures. For instance, the 1,283 Kuskokvims could only be counted with the northern district, but the total of that district is given in the other list as only 545.

In 1863, in the second volume of his work, Tikhmenief published a table with the following heading: "Population statistics of inhabitants of Russian America dependent upon and actually counted by the Russian-American Company," as follows:

January 1, 1830	10,327
1831	10,423
1832	10,493
1833	10,800
1834	10,670
1835	10,867
1836	10,939
1837	11,022
1838	10,313
1839	8,070
1840	7,574
1841	7,580
1842	7,470
1843	7,581
1844	7,896
1845	7,224
1846	7,783
1847	7,874
1848	8,707
1849	8,892
1850	9,081
1851	9,273
1852	9,452
1853	9,573
1854	9,514
1855	9,660
1856	9,725
1857	9,792
1858	10,075
1859	9,902
1860	10,121
1861	10,136
1862	10,156
1863	10,125

This list ought to agree with the number of Christians reported by the holy synod, but in the year 1860, for instance, the priests and missionaries reported 547 Christians in excess of the "total counted" of the Russian-American Company. The above table is of importance chiefly as showing the effects of the small-pox epidemic, which appeared in the Russian colonies in 1837. During the first two years the loss was nearly 3,000, and the population gradually decreased from 11,022, in 1837, reaching its lowest point, 7,224, in 1845. During the second year of the epidemic the mortality was greatest, over 2,000; but it must be remembered that these figures relate only to those natives under the immediate control of the company and accessible to medical treatment and vaccination. If the mortality in these favored sections was 20 per cent., it is safe to assume that in the remote regions of the north, in the densely-peopled districts of the Yukon, Kuskokvim, and Bristol bay, it must have been fully 50 per cent., if not more. This assumption is borne out fully by the evidence of native tradition and ruins of depopulated and abandoned villages still in existence. The abandoned village-sites in the Yukon and Kuskokvim valleys far outnumber the settlements now inhabited, and whole populous villages were converted into cemeteries by the burial of the dead in their own dwellings. Such funereal towns are still frequently met with in the whole coast region of Alaska west of Mount Saint Elias. Among the Thlinket tribes, who practice cremation, the losses must have been equally great, but with them no traces of the universal calamity of nearly half a century ago remain, except in the blind and pox-marked persons of the few aged of both sexes.

We have still another count of inhabitants of Russian America, published in 1863 by a special inspector of the imperial government, Kostlivtsof, as follows:

INHABITANTS OF RUSSIAN AMERICA JANUARY 1, 1863.

Tribes.	Males.	Females.	Total.
Creoles.....	925	971	1,896
Aleut.....	1,286	1,192	2,478
Kenaitze.....	430	507	937
Kadiaks.....	1,115	1,102	2,217
Chugach.....	226	280	456
	3,982	4,002	a 7,984
To this Kostlivtsof added an estimate of Atnahs or Copper River natives.....			2,500
And Kolosh or Thlinket.....			20,000
Making a total of.....			80,484

a This is 2,101 less than the company's total for the same year, but the Russians and northern natives were omitted.

About as good an estimate as Veniaminof made over twenty years previously, if we except the classification. By reducing his estimate of Atnahs to 500, and that of Thlinket to 8,000, and classing 14,000 as northern natives, Kostlivtsof would have been nearer the truth and still within his own estimate of the total population of the present Alaska.

To show the extravagant estimates of the population of Alaska made at the time of its acquisition by the United States, I quote the following tables from the reports of Major-General Halleck, United States army, and of Rev. Vincent Collyer, both made in the year 1868:

MAJOR-GENERAL HALLECK'S ESTIMATE OF POPULATION OF ALASKA.

Koloshians: Hydas	600
[Thlinket]:	
Henegas	500
Chatsinas [?]	500
Tongass	500
Stickeens [Stakhin]	1,000
Kakes [Kehk]	1,200
Kous [?]	800
Koutznous	800
Awks	800
Samdam Takos	500
Chilkahits	2,000
Hoodsnahoons	1,000
Hunias	1,000
Sitkas	1,200
Hyaks	15,000
Kenaians [Athabaskans]	25,000
Aleutian	10,000
Eskimo	20,000
Total	82,400

The Rev. Vincent Collyer, in his report to the commissioner of Indian affairs, reproduced General Halleck's wild estimate, and added a special estimate of the number of Kolosh or Thlinket, furnished by a trader, Mahoney, who certainly ought to have been better informed:

MAHONEY'S ESTIMATE OF THLINKET.

Bering bay:	
Yakutat	300
Stilkine	1,200
Tongass	800
Admiralty island:	
Ank	750
Cross sound:	
Whinega [?]	500
Whinega (interior)	800
Chilkaht inlet:	
Chilkaht	2,500
Anega [?]	300
Stephens passage:	
Takos	2,000
Sitka	1,000
Admiralty island:	
Hoodsinoo	1,000
Kake	750
Total Thlinket	<u>11,900</u>

General Halleck's table, in addition to a general overestimate, contains such duplications as "Koutznoo" and "Hoodsnahoo", both the same tribe; "Kakes" and "Kooos" also the same, and 15,000 "Hyaks", an imaginary tribe.

A single glance at any map of southern Alaska will reveal the utter absurdity of the Collyer-Mahoney estimate.

EDUCATION.

On the subject of education in Alaska but little is to be said. Under the administration of the Russian-American Company schools were maintained at various stations, under the personal superintendence of the trader or agent, in which children of both sexes were taught during the winter season. Many competent copyists, clerks, and book-keepers were furnished from these district schools. At Sitka these establishments were conducted on a more pretentious scale, with competent teachers (generally selected from naval and petty officers), scientific apparatus, and facilities for studying navigation. This was a great step in advance from the first primary class established on Kadiak island in 1784, by Grigor Shelikhof and his wife; but from the beginning to the end of the Russian company's rule that corporation, while apparently complying to the letter with the requirements of its charter relative to the maintenance of schools, arranged all educational facilities offered to the natives of Alaska with the sole object of benefiting the business of the company rather than with that of educating the people. Bright youths among the creoles (offspring of Russian fathers and native mothers) were carefully trained in navigation and the mechanic arts, but they were compelled to remain in the company's service for fifteen years after finishing their course of instruction. Competent masters of vessels, mechanics, and book-keepers were thus secured at small expense, and firmly bound to the company's interests, as there was no danger of their leaving the service if dissatisfied. Creole girls in limited numbers were trained to become housekeepers and wives of the employes of the company, who were thus prevented from leaving the colonies. To the masses of the native population, however, educational facilities were not extended, as none of the Russian missionary stations maintained a school except for the training of children of the clergy. There was a seminary at Sitka for several years, in which many of the creole and native priests now officiating in Alaska received their first instruction, but this establishment was subsequently removed to Kamchatka. In the creole settlements of the Kadiak and Aleutian districts parents taught their children to write a little and read the catechism, prayers, and a few chapters of the Bible in the Russian language or one of the native dialects, and this rudimentary education is still found to exist in many of the isolated communities. Nearly all these schools were discontinued some years previous to the transfer of the country to the United States, when the Russian company was endeavoring to relieve itself from the maintenance of schools, churches, and local government.

At present the only schools in all western Alaska where English is taught are on the Pribylof islands, and at Iliuliuk settlement, Oonalashka, both being maintained at the expense of a trading firm. The daily attendance in the seal-island (Pribylof)-schools is kept up to an average of 56 on Saint Paul island and 16 on Saint George, through the constant efforts of government agents stationed on the islands. At Oonalashka, a village of nearly 300 inhabitants, the attendance varies from 10 to 20. Two other schools, where Russian only is taught, are reported at Belkovsky, in the Aliaska peninsula, and at Alexandrovsk, on the Nushegak river, with an average attendance of 6 for each. But in spite of these poor facilities, settlements like Kadiak, Belkovsky, Iliuliuk, Afognak,

where the creole element prevails, furnish an exhibit of from 50 to 75 per cent. of the population able to read and write in Russian or the native vernacular, or both. This is all that can be said concerning education in western Alaska.

In southeastern Alaska quite a different and more promising state of affairs exists. Here the Presbyterian board of missions has done much in the way of establishing schools and furnishing teachers for the same, and under its auspices a school and a home for girls have been maintained at Wrangell. The former institution has a daily attendance of from 60 to 100 pupils, while the home contains 30 inmates.

At Sitka a school was established in April, 1878, also under the auspices of the Presbyterian mission, with two teachers, which school is still in operation, with an average daily attendance of from 100 to 150. With the assistance of the naval commander at Sitka a school was opened there in 1879 for the benefit of the Russian-speaking children, whose parents felt scruples about sending their children to sectarian schools of another denomination. The attendance in this school is reported to average from 45 to 55.

At present the Presbyterian missionaries have schools in operation in the Chilkhat villages, on Lynn canal, at the principal Hoonyah village on Cross sound, and also at Kaigan, on the south end of Prince of Wales island, among the Hyda tribe.

A number of native Alaskan youths have also been received into the United States Indian school at Forest Grove, Oregon, but thus far they have all been selected from the pagan tribes of southeastern Alaska by the Presbyterian missionaries, while the bulk of native Alaskan population, located in the west, has been totally neglected. The natives and creoles all along the coast, from Mount Saint Elias westward, are too strongly wedded to the faith of the Greek Orthodox church (adopted by their forefathers nearly a century ago) to take kindly to sectarian schools of another denomination.

The Russian church claims on its registers 10,950 members, distributed as follows:

Sitka parish	275
Oomalashka parish	1,364
Belkovsky parish	633
Kadiak parish	2,606
Pribylof parish	372
Nushegak mission	2,848
Yukon mission	2,252
Kenai mission	600

Of these numbers at least half of those counted with the northern missions, or 2,500, may be safely stricken off as fictitious; 1,013, the creoles, are semi-civilized, a small percentage being able to read and write, while the remainder are savages to all intents and purposes.

In the discussion of this subject, embodying as it does a vital interest to the people of Alaska, we are brought face to face with many natural and some artificial difficulties. In the first place, the limit to which a savage people, forced by all the pressure of a higher civilization, will progress has been repeatedly marked in the examples recorded of the educational disappointments and successes which have attended the efforts of our government and our clergy to elevate the minds and advance the comfortable living of our own immediate aborigines. If the youth of Alaska are to be lifted above their existing low medium level, in our opinion the government of the United States is the best able, from its position of strict neutrality among religious creeds, to promote the progress of simple elementary education among those people.

The Russian church, which is the dominant ecclesiastical power in Alaska, is of course poor, comparatively speaking, necessarily so, and the great majority of these chapels are in the hands of natives and creoles, who are not members of the clergy. A somnolent organization is their chief constitution, and they drone through the exercises of the church as appointed, preside at its calendar days of festivity, and then retire seemingly exhausted and desirous of repose. If anything can be done to reach these men, to invigorate and stir them up, it must come from the individual supervision and orders of some active, zealous head of the church.

Among the 7,000 or 8,000 members of the Russian church I have found less than 400 able to read and write in either the Russian, the Aleutian, or the Kadiak vernacular, though in the villages where parish churches are located quite 30 per cent. of the people possess these rudiments of education.

Not one of the three missions of the Yukon, Nushegak, and Kenai possesses a school, and in the village immediately surrounding the former (which now has a native missionary) I found but one man outside of the attachés of the church who could even speak the Russian language. The late Bishop Nestor had planned the establishment of a training-school for native boys from all parts of the territory at Oomalashka, but at his death the project was abandoned.

Among the Inuits are found a quickness of apprehension and a lurking spirit of inquiry which point them out as capable of being very much benefited by an intelligent system of educational labor, provided it can be established in their country. They are, if anything, brighter and more desirous of learning than the Aleutians themselves, who appear, as a people, to be degenerating, owing to the hybridization constantly going on in their country.

The natives themselves are quickened into appreciation of the benefits of an education when they observe the advantages which those among their number who are conversant in the method and manner of conducting trade and keeping accounts have over the rest, and see the advancement of these to positions of trust and confidence by the traders. This practical application reaches them fairly and fully, where the most eloquent and cogent advocate of the abstract advantages of education would fail to make the slightest impression or to arouse a passing interest in their minds.

All those who now read and write, principally their own language, among the Aleutians as a class and the Kadiak people, have derived these elementary rudiments of instruction from the Greek Catholic church. The father who can read and write, as a rule, teaches his son, while the exercises of the church keep the lesson somewhat fixed in the juvenile mind.

At the location of all parish churches it is supposed or expected that schools will be maintained by the church authorities, but, as already mentioned, there is much laxity in this respect, and at least 20,000 natives are entirely without the remotest influence of church or school—a fact our boards of foreign missions might take into consideration.

Under existing circumstances the general government could extend educational facilities only through the medium of the Indian bureau, a branch of administration having as yet no foothold in Alaska. The extension of all the complicated and expensive machinery of that bureau would be unwise, indeed, among tribes now entirely self-supporting and occupying no lands attractive to white men; but as an entering wedge, and an earnest of future civilization, fifteen or twenty youths might be chosen from various regions, instructed in some of the Indian schools (such as that at Carlisle, Pennsylvania, for instance), and, if found capable, trained as teachers in some normal school. Care should be taken in the selection of boys, who should be pure natives and not the offspring of traders and native women, in order to insure the desired future benefit.

Quite a large number of Aleutian youths have been, since the transfer, from one cause or another, taken down to San Francisco and the states east of the Rocky mountains, and there educated, and in all instances of which I have knowledge they have invariably returned, if living, to the country of their birth. This is simply natural, and needs no extended explanation.

DISEASES.

Those diseases which are most fatal to life in one section of Alaska seem to be applicable to all the others. In the first place, the native children, as they grow up, have little or no parental supervision or care in regard to clothing, etc., from a purely sanitary point of view; for the little fellows, male and female, for the first few years of their lives are more often naked than clothed at all seasons of the year, though the little girls, as a rule, earliest receive their garments. Exposed as they are in their manner of living to draughts, to insufficient covering, and cold nooks for slumber, they naturally at the outset of their rude lives lay the foundation for pulmonic troubles in all their varied degrees. Consumption is therefore the simple and comprehensive title for that disease which destroys the greatest number throughout Alaska. The Aleut, the Indian, and the Eskimo suffer from it alike; and they all exhibit the same stolid indifference to its stealthy but fatal advancement—no extra care, no attempt to ward it off, protect, or shelter against it, not even until the supreme moment of dissolution. (*a*)

After consumption, perhaps the largest number of deaths may be ascribed to scrofulous diseases, which, taking the form of malignant ulcers, eat into the vitals and destroy them, rendering the people of whole settlements sometimes lepers in the eyes of the civilized visitor; and it is hard to find a settlement in the whole country where at least one or more of the families therein has not the singularly prominent scars peculiar to the disease. Most of this scrofulous complaint being on the surface of the patient's body, as it were, one would naturally look for some care and attention on the part of the sufferer toward the alleviation of his own misery, while with regard to consumption, that being more concealed and less disagreeable both to the native and his associates, they are not likely to notice it in the way of applying remedies; but, so far as I know, the same apathy exists among the natives with regard to the treatment of the latter. It is, of course, immensely aggravated and made more violent by their neglect and filthy habits.

Following these two great sources of disease and death may be enumerated quite a number of other ills, such as paralysis, inflammation of the bowels, a few cases of fits, and a rather abrupt ending of advanced middle-aged life from what is called "general debility"; or, in other words, these people, as a rule, live to no great age, as might be inferred from the method and exigencies of their life. When a man or woman rounds his or her fifty years he or she is a rare example of the tribe; yet if he or she is free from rheumatic troubles, or the death-grasp of disease, it is never without injured vision; for it is a noteworthy fact that eye diseases necessarily arise from the smoky interiors of their barabaras and other places of residence, which, with the snow, so affect the eyes that the middle-aged are rarely without signs of decay, the various stages of granular ophthalmia being most marked.

For the prevention of snow-blindness the Eskimo people use their peculiar goggles, but the greater evil of smoke poison to the ophthalmic nerve is not overcome by any of them. Nearly all of the traders have their medicine-chests, and much relief and real kindness are extended by them to the suffering natives immediately about

a A rather disgusting habit, common to all the uncivilized natives, may perhaps serve to spread the disease. Devoted wives carefully gather in cups or other receptacles the expectorations of their consumptive husbands (blood as well as matter) and swallow them.

them wherever they are; but what they do or can do is a mere drop in the bucket. Hence it will be observed that the natives of Alaska are not a long-lived people as a rule, and when a very old person is found among them he gives evidence of what must have been in youth a magnificent constitution.

The Indian, Eſkimo or Aleut, has not, however, an exalted idea of our pharmacy; in other words, he appreciates only forcible treatment and nothing else will satisfy him. As an example, of Epsom salts the traders are obliged to give, if they give any at all, to a suffering native, a great dose, or there is no effect whatever in the operation. Naturally the traders use only the very simplest remedial agent known to the apothecary. As a rule, however, of internal remedies, a child's dose ordinarily will act readily upon an adult native, while, on the other hand, applications to the skin—tinctures, liniments, etc.—must be of treble strength to produce the desired effect. For instance, tincture of iodine to reduce swelling on an Alaska native's body must be of such a strength that it would blister a Caucasian epidermis.

The natives themselves have no medicine whatever, nor any knowledge, as far as can be discovered, of any medicinal herb whatever—which is a very singular fact. All their lesser and slighter indisposition, arising from any natural cause, they treat by the universal and everlasting sweat-bath. This is their panacea, and this is all, except when they call in the "shaman" to either worry the unhappy patient to death, or to prolong his wretched existence for a period by stimulating perhaps an undue nervous tension, which causes the usually languid and resigned sufferer to rally, as it were, before the flame flickers out.

These people are certainly fatalists and are wonderful in their patience when suffering all the ills that flesh is heir to in their lonely, desolate homes.

In addition to the troubles for which the natives themselves are responsible, dreadful consequences arose from the introduction of small-pox, through Russian intercourse, first in 1838 and 1839. This disease swept like wild-fire up from its initial point at the confines of the southern limits of the Alexander archipelago over the whole length of the Aleutian chain, Cook's inlet, Bristol bay, and Kuskokvim, fading out in the north, until entirely checked by the Arctic cold. It actually carried in its grim grasp one-half of the whole population of Alaska to an abrupt and violent death. In certain places it swept out the entire population, being exceedingly virulent among the Thlinket of the Alexander archipelago. The physician who knows this, however, will readily understand how a people living as they have lived and yet live, with their strange apathy, ignorance of sanitary regulations, will be crushed before the onslaught of this disease. When La Pérouse visited this country, at Lityua bay he found natives (in 1786), to his great astonishment, marked by small-pox, which it seems the savages had contracted from a visit made to the coast to the southward by the Spaniards nine or ten years earlier; yet there is no definite knowledge that this epidemic in those early times even approximated the extent of the ravages of that which we have just cited. In 1843 and 1844 another outbreak of small-pox took place on the Aleutian islands, but the people did not suffer as they had previously done, great numbers of them having been vaccinated by the Russians in the meantime.

Upon this point the only interest or attention which these people have given to our medical practice is manifested; they occasionally ask why the American government does not send out its agents for the purpose of vaccinating their people, as the Russians did—a suggestion which, though late, may be timely.

Syphilitic disease was probably first introduced in Alaska by the Russians, though several writers claim that the scourge already existed in the Aleutian islands when the Muscovite hunters made their appearance there. At any rate, Captain Cook records that several of his crew contracted the disease during their brief stay on Oonalashka island in the year 1778. Syphilis yet exists in all coast settlements, chiefly in the vicinity of stations visited by shipping, and also in the interior where the people have constant intercourse with the sea-board. It is found in all stages and degrees, being entirely neglected by the natives themselves, and only at a few trading centers, where wealthy firms maintain physicians, and perhaps in the towns of southeastern Alaska, is anything done to check its ravages.

Another imported plague among these people is due to the introduction of the measles, a simple trouble with us, but of fatal power with them, assuming, doubtless on account of the exigencies of the climate and the natives' methods of life, the "black" form. It first ravaged Kadiak island and the mainland contiguous, on one or two occasions, and produced a panic also at Sitka. The climate of Alaska renders its treatment very difficult, and it is an exceedingly dangerous complaint there for those even who have the best of care and medical attention. The last extended occurrence of this disease took place during the winter of 1874-'75, principally confined to the Kadiak islands.

Typhoid pneumonia, also, from time to time, has wasted whole settlements, chiefly on the sea-board. The creoles and natives seem to yield at once to this disease, making scarcely any effort to resist its progress. It assumes an altogether epidemic form, its advance being easily traced as it is carried from one village to another by trading-vessels or canoes. During the last few years the number of skilled sea-otter hunters has been reduced nearly one-half by this disease.

In the absence of all vital statistics, the question as to whether the natives of Alaska are increasing or decreasing in numbers is difficult to answer, but as an individual opinion it may be stated that the inhabitants of the Aleutian archipelago, the peninsula, and Cook's inlet are to-day nearly as numerous as they have been at any

time since the destruction in 1838 and 1839 caused by the small-pox plague of that season. All authorities agree in saying that these people have never regained their former strength in point of numbers.

The Eskimo on the Arctic coast and Saint Lawrence island, utterly demoralized by the unchecked importation of spirituous liquors by whalers and traders, are rapidly decreasing under the alternate effects of wild intoxication and of starvation, the latter being the consequence of utter recklessness engendered by the former. Their extermination will probably follow that of the walrus—their staff of life—now being wantonly destroyed by thousands for ivory alone.

With reference to the Athabaskans of the interior and the Eskimo tribes south of Bering strait it may be said that they seem to be as numerous now as they were twenty years ago, and that they probably number as many as the country will support, always bearing in mind their extraordinary wastefulness in seasons of plenty. Were they provident, they might live by tens where a single one exists now.

The Thlinket of southeastern Alaska have perhaps the greatest vitality of any of the Alaskan tribes. At present they are under the influence of Presbyterian missionaries, and we may hope for a gradual amelioration in their mode of life and the introduction of some regard for sanitary measures. Living in more intimate relations, and in constant and universal contact with Caucasians, the Thlinket are subject to the drawbacks as well as the advantages of such an association; but taking everything into consideration, a rapid decrease of native population in this section of Alaska need not be apprehended, and there is possibility of increase in the future.

POLITICAL STATUS.

Alaska is now, and has been since its acquisition by the United States, "a thing which it is not," a territory in name only, without its organization. It is a customs district, for the collection of customs only, with a collector and three deputies separated by hundreds and even thousands of miles. It has no laws but a few treasury regulations, with no county or other subdivisions, and, of course, no capital. The collector of customs and the only representative of police restrictions—a man-of-war with its commander—are located at Sitka, cut off from all communication with the bulk of the territory except by way of San Francisco.

In the strip of country between cape Fox and Mount Saint Elias, 300 miles long by from 30 to 60 miles wide, including islands containing about 29,000 square miles, there are at present possibly 1,500 whites and creoles able to perform the functions of citizenship, and 7,000 wild Indians; about enough for a small county organization.

In all the western region there are 139 white males and 5 females, including 3 boys and 1 girl. Though not speaking English, among the creoles might be found between 400 and 500 sufficiently intelligent to understand what constitutional government means, making an average of less than one possible citizen for every 600 square miles of superficial area, without regard to the fact that many of the men are foreigners.

The main difficulty of organizing or legislating for Alaska lies in the utter impossibility of reconciling the widely-diverging interests and wants of two sections, entirely separate geographically, and having no one feature alike, beside being very unequal in size. The general map accompanying this report will illustrate this at a glance. The only practical and economical solution of the question will be to treat each section separately.

A reference to the map will impress the observer with the vast distance, in many cases, from one settlement to its neighbor, rendering, as a rule, communication between the small villages and settlements of the territory infrequent and rare, San Francisco being the central point for information received annually from the whole territory: for instance, the people of Kadiak or Oonalashka hear from and learn of any one in Sitka by the "Golden Gate", and *vice versa*.

The only official knowledge which the government has or can have of the condition of affairs in Alaska has been and must be derived from the cruising of the revenue-marine steamers, and from the commander of the naval vessel stationed in the Alexander archipelago, who monthly reports the natives "in all parts of Alaska" quiet and peaceable.

The mail line established between Sitka, Wrangell, and Port Townsend, in Puget sound, is the only branch of the postal service extended over Alaska.

MEAN TEMPERATURE AT VARIOUS POINTS IN ALASKA.

The following table shows the means of temperature for the months of January and July at various points in the territory:

	In January.	In July.
	Deg.	Deg.
Sitka	+30	+55
Tongas	+33	+58
Wrangell	+22	+58
Kadiak	+28	+57
Coast of Bering sea	-10	+50
Yukon basin	-26	+65
Saint Michael	+ 3	+54
Pribylof islands	+28	+46

A FEW REMARKS ON SPELLING OF RUSSIAN AND NATIVE NAMES.

In spelling the Russian and Alaskan names and terms throughout this report I have endeavored to represent Russian and native sounds by their true phonetic equivalents in the English alphabet.

The Russian names and words ending in *off*, *ow*, or *ov*, as heretofore variously spelled, should be written *of*, the pronunciation being exactly that of the English word "of": for instance, *Baránof*, *Veniamínof*; in the possessive case, however, or in the plural, the sound of "v" always takes the place of the "f", e. g., *Baránova*, *óstrova*, etc.

In words like Kamchatka the letters *ch* represent the full phonetic value of the corresponding Russian letter. The old way of spelling it, Kamschatka, is purely German, and not to be tolerated in an English work.

The Russian and native strong aspirate, resembling somewhat the German *ch* in *Woche*, I have represented by *kh*.

Profiting by observance of linguistic defects in former publications on Alaska I have abstained as much as possible from the use of Russian or native terms. The few such terms retained for the want of a good English equivalent are:

Barábara, a term of Siberian origin for a semi-subterranean hut or dwelling.

Beluga, the white grampus or white whale.

Bidár, a Kamchatkan word, an open boat, with a wooden frame and covered with seal, sea-lion, or walrus skin.

Bidárka, a skin-canoe of the Aleutians, covered all over, with the exception of one, two, or three circular openings to accommodate as many paddlers.

Kaiak, Eskimo skin-canoe.

Kamléika, a Siberian term, water-proof shirt of seal, whale, or bear gut.

Parka, a Kamchatkan word, upper garment of fur, with small head-opening and sleeves, varying in length.

Promyshlénik, a Russian word for fur-hunters or laborers, now obsolete.

Shamán, a Kamchatkan term for sorcerer or medicine-man, used by many tribes who once were subject to Russian influence.

Toyón, Kamchatkan term for chief, introduced by Russians. *Tuyúk* and *Tookoo* with Aleutians and other tribes.

Tundra, a Siberian term, a moor, morass, or swampy plain, producing a dense growth of mosses and grasses over a frozen subsoil and ice, which does not thaw to a greater depth than 18 inches below the surface.

Túngak, a term used by certain Eskimo tribes for a shaman or conjurer.

CHAPTER II.—RESOURCES.

The territory of Alaska, so called, an area nearly equal to one-sixth of the whole United States and territories, is a region to which the attention of the American people was very suddenly and earnestly directed in the summer of 1867, when it was secured as a measure of diplomacy and good will between the American and Russian governments. The Russians, who occupied the land with an eye primarily to the fur-trade and its dependencies, retired from that country, leaving us a generally correct map of the vast extent of rugged coast, locating its people in a measure correctly, with some facts and figures bearing upon the resources, natural history, and trade, which have since been found to be quite accurate, but which at the time of the transfer were so clouded and distorted by the advocates of the purchase and its opponents that the real truth in regard to the subject could scarcely be observed.

When the United States took possession of Alaska a great many active and ambitious men on the Pacific coast were imbued with the idea that much that was really valuable in Alaska in the line of furs and the precious metals would be developed to their great gain and benefit if they gave the subject the attention which it deserved. Accordingly, many expeditions were fitted out at San Francisco, Puget sound, and other points on the Pacific coast, and directed to an examination of these reputed sources of wealth in that distant country. Thirteen years have rolled by, and in that time we have been enabled to judge pretty accurately of the relative value of this new territory in comparison with that of our nearer possessions, and it is now known that the fur-trade of Alaska is all and even more than it was reputed to be by the Russians.

In this connection the most notable instance, perhaps, of the great value of these interests may be cited in the case of the seal islands. It will be remembered that at the time of the transfer, when the most eloquent advocates of the purchase were exhausting the fertility of their brains in drumming up and securing every possible argument in favor of the purchase, though the fur-trade of the mainland, the sea-otter fisheries, and the possible

extent of trade in walrus oil and ivory were dwelt upon with great emphasis, these fur-seal islands did not receive even a passing notice as a source of revenue or value to the public. Yet it has transpired, since the government has been wise enough to follow out the general policy which the Russians established of protecting the seal life on the Pribylof islands, that these interests in our hands are so managed and directed that they pay into the treasury of the United States a sum sufficient to meet all the expenses of the government in behalf of Alaska, beside leaving a large excess every year.

Of other resources, such as the adaptation of the country for settlement by any considerable number of our people as agriculturists or husbandmen, and its actual value as a means of supplying gold and silver, coal or timber, it must be said that as yet no very remarkable gold or silver mines have been discovered, nor have there been any veins of coal worked that would in themselves sustain any considerable number of our people or give rise to any volume of trade.

The timber of Alaska in itself extends over a much larger area of that country than a great many surmise. It clothes the steep hills and mountain sides, and chokes up the valleys of the Alexander archipelago and the contiguous mainland; it stretches, less dense but still abundant, along that inhospitable reach of territory which extends from the head of Cross sound to the Kenai peninsula, where, reaching down to the westward and southwestward as far as the eastern half of Kadiak island, and thence across Shelikof strait, it is found on the mainland and on the peninsula bordering on the same latitude; but it is confined to the interior opposite Kadiak, not coming down to the coast as far eastward as cape Douglas. Here, however, it impinges on the coast or Cook's inlet, reaching down to the shores and extending around to the Kenai peninsula. From the interior of the peninsula, above referred to, the timber-line over the whole of the interior of the great area of Alaska will be found to follow the coast-line, at varying distances of from 100 to 150 miles from the sea-board, until that section of Alaska north of the Yukon mouth is reached, where a portion of the coast of Norton sound is directly bordered by timber as far north as cape Denbigh. From this point to the eastward and northeastward a line may be drawn just above the Yukon and its immediate tributaries as the northern limit of timber of any considerable extent. There are a number of small water-courses rising here that find their way into the Arctic, bordered by hills and lowland ridges on which some wind-stunted timber is found, even to the shores of the Arctic sea.

In thus broadly sketching the distribution of timber over Alaska it will be observed that the area thus clothed is very great; yet when we come to consider the quality of the timber itself, and its economic value in our markets, we are obliged to adopt the standard of the lumber-mills in Oregon and Washington territory. Viewed in this light, we find that the best timber of Alaska is the yellow cedar, which in itself is of great intrinsic value; but this cedar is not the dominant timber by any means; it is the exception to the rule. The great bulk of Alaskan timber is that known as Sitkan spruce, or balsam fir. The lumber sawed from this stock is naturally not of the first quality.

The fisheries, which I shall speak of hereafter, as also of the fur-trade, cover a very large area, but their value and importance, in consequence of the limited market afforded for exportation on the Pacific coast, has not been fully developed. The supply certainly is more than equal to any demand.

The soil of Alaska is not sterile, being at many points of the requisite depth and fertility for the production of the very best crops of cereals and tubers. The difficulty with agricultural progress in Alaska is, therefore, not found in that respect; it is due to the peculiar climate.

Glancing at the map the observer will notice that hydrographers have defined the passage of a warm current, sufficient in volume and high enough in temperature to traverse the vast expanse of the North Pacific from the coast of Japan up and across a little to the southward of the Aleutian islands, and then deflecting down to the mouth of the Columbia river, where it turns, one branch going north up along the coast of British Columbia by Sitka, and thence again to the westward until it turns and bends back upon itself. The other grand arm, continuing from the first point of bifurcation, in its quiet, steady flow to the Arctic, passes up to the northeastward through the strait of Bering. *(a)* This warm current, stored with tropical heat, gives rise naturally, as it comes in contact with the colder water and air of the north, to excessive humidity, which takes form in the prevalent fog, sleet, and rain of Alaska, as noted and recorded with so much surprise by travelers and temporary residents from other climes. Therefore at Sitka, and, indeed, on the entire sea-board of South Alaska and the Aleutian islands, instead of finding a degree of excessive cold carried over to the mainland across the coast range, which the latitude would seem to indicate, we find a climate much more mild than rigorous; but the prevalence of fog clouds or banks, either hanging surcharged with moisture or dissolving into weeks of consecutive rain, so retard and arrest a proper ripening of fruits and vegetables in that climate that the reasonable certainty of success in a garden from year to year is destroyed.

When we look at Alaska we are impressed by one salient feature, and that is the remarkable distances which exist between the isolated settlements. It is not at first apparent, but it grows on the traveler until he is profoundly moved at the expenditure of physical labor, patience, and skill required to traverse any considerable district of that country.

a The existence of this northern branch of the warm Japanese current has been denied by Mr. William H. Dall, of the United States coast and geodetic survey.

The Sitkan district is essentially one of rugged inequality, being mountainous on the mainland to the exclusion of all other features, and equally so on the islands. It is traversed here, there, and everywhere by broad arms of the sea and their hundreds and thousands of lesser channels.

Land travel is simply impracticable. Nobody goes on a road; savages and whites all travel by the water. Perhaps the greatest humidity and the heaviest rainfall in the Alaskan country occur here. The equable and not rigorous climate permits of free navigation at all seasons of the year, and it is seldom indeed that the little lakes and shallow lagoons near the sea-level are frozen so firmly as to allow of a winter's skating.

The Aleutian and Kadiak districts are quite as peculiar in themselves and as much individualized by their geological age and formation as is the Sitkan division. They hold within their boundaries a range of great fire-mountains—grumbling, smoking, quaking hills; some of these volcanic peaks being so lofty and so impressive as to fix in the explorer's eye an image superb and grand, and so magnificent as to render adequate description quite impossible. Like the Sitkan district, the Aleutian and Kadiak regions are exceedingly mountainous, there being very little low or level land compared with the sum total of their superficial area; but in that portion extending for 1,100 miles to the westward of Kadiak, nearly over to Asia, bare of timber, a skeleton, as it were, is presented to the eye and strikes one with a sense of an individuality here in decided contrast with that of the Sitkan country. The hills not clothed with timber are covered to their summits in most cases with a thick crop of circumpolar sphagnum, interspersed with grasses, and a large flora, bright and beautiful in the summer season. To thoroughly appreciate how much moisture in the form of fog and rain settles upon the land, one cannot do better than to leave the ship in the harbor, or the post where he is stationed, and take up a line of march through one of the narrow valleys near by to the summit of one of the lofty peaks. He will step upon what appeared from the window or the vessel a firm green sward, and sink to his waist in a shaking, tremulous bog, or slide over moss-grown shingle, painted and concealed by the luxuriant growth of cryptogamic life, where he expected to find a free and ready path.

Passing from this district, a very remarkable region is entered, which I have called the Yukon and the Kuskokvim divisions. I have during two summers traversed the major portion of it from the north to the south, confirming many new and some mooted points. This region covers the deltoid mouth of a vast river, the Yukon, and the sea-like estuary—the Amazonian mouth of another—the Kuskokvim, with the extraordinary shoals and bars of Bristol bay, where the tides run with surprising volume. The country itself differs strikingly from the two divisions just sketched, consisting, as it does, of irregular mountain spurs planted on vast expanses of low, flat tundra. It is a country which, to our race perhaps, is far more inhospitable than either the Sitkan or Kadiak divisions; yet, strange to say, I have found therein the greatest concentrated population of the whole territory. Of course it is not by agricultural, or by mining, or any other industry, save the aboriginal art of fishing and the traffic of the fur-trade, that the people live; and, again, when the fur-bearing animals are taken into account, the quality and volume of that trade are far inferior to those of either of the previously-named divisions, and we find the natives existing in the greatest number where, according to our measure of compensation, they have the least to gain.

This country, outside of these detached mountain regions and spurs, is a great expanse of bog, lakes, large and small, with thousands of channels between them, and sluggish currents filled with grasses and other aqueous vegetation, indicated to the eye by the presence of water-lilies.

The traveler, tortured by mosquitoes in summer, blinded, confused, and disturbed by whirling "purgas", snow, and sleet in winter, finding the coast rendered almost inaccessible by the vast system of shoaling which the current of the great Yukon has effected, passes to the interior, whose superficial area comprises nearly five-sixths of the landed surface of the territory.

Here is an immense tract reaching from Bering strait, in a succession of rolling ice-bound moors and low mountain ranges, for 700 miles an unbroken waste, to the boundary-line of British America. Then, again, from the crests at the head of Cook's inlet and the flanks of Mount Saint Elias northward over that vast area of rugged mountain and lonely moor to the east—nearly 500 miles—is a great expanse of country, over and through which not much intelligent exploration has been undertaken. A few traders and prospectors have gone up the Tennanah and over the old-established track of the Yukon; others have passed to the shores of Kotzebue sound overland from the Koyukuk. Dog-sled journeys have been made by these same people among the natives of the Kuskokvim and those of the coast between Bristol bay and Norton sound. But the trader as he travels sees nothing, remembers nothing, but his trade, and rarely is he capable of giving any definite information beyond the single item of his losses or his gains through the regions he may traverse. We know, however, enough to say now, without much hesitation, that this great extent which we call the interior is by its position barred out from occupation and settlement by our own people, and the climatic conditions are such that its immense area will remain undisturbed in the possession of its savage occupants, man and beast.

The subject of the agricultural resources of the country will, however, form the topic of another chapter in this report.