DEPARTMENT OF THE INTERIOR,

CENSUS OFFICE.

ROBERT P. PORTER, Superintendent.

REPORT

ON

POPULATION AND RESOURCES OF ALASKA

AT THE

ELEVENTH CENSUS: 1890.

WASHINGTON, D. C.:
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DEPARTMENT OF THE INTERIOR,
CENSUS OFFICE,
WASHINGTON, D. C., February 9, 1893.

SIR:

I have the honor herewith to transmit the report on the population and resources of Alaska. This remote portion of our territory presents difficulties in the way of enumeration scarcely conceivable in the older portion of the country. On an estimated area greater than that of all the states north of Tennessee and east of the Mississippi there is a population less than in most single counties of the populous east. Let one imagine that all railroads and wagon roads, all vehicles and horses, were here wanting; let him imagine that enumerators could only reach this eastern section by a coasting vessel or pierce its interior by the Ohio river; let him imagine this section pushed north till its upper portion was in almost perpetual frost and its one navigable river was open but a few weeks in a year, and he can begin to measure the obstacles met in mountainous Alaska.

A part of the people are migratory, and the same band is liable to be reported from two places, or a spot correctly reported as populated is liable to be found desolate when visited later.

The Census Office has endeavored to reduce the elements of error to the lowest possible limit. The number of white persons who have gone 5 miles from the vessel on which they were viewing the magnificent coast scenery, or prospecting on the Yukon river in the brief interval when its icy bond is loosed, is exceedingly small. A goodly number of men know intimately some portion of Alaska. It is safe to say that no one man can speak from personal knowledge of all portions.

The local enumeration as far as possible was put in the hands of men personally familiar with their fields of labor. After great difficulties, often in peril, in canoe and other travel along uncharted routes, they have made the returns which are aggregated in this report.

The resources of Alaska, its fisheries and mines, are important to the nation. Before another census it is hoped that the facilities for their accurate determination will be greatly improved, and that at least the more stable population of the southeastern portion will be in easy communication with the rest of the country.

I have the honor to be, sir, respectfully yours,

ROBERT P. PORTER,
Superintendent of Census.

Hon. JOHN W. NOBLE,
Secretary of the Interior.

INTRODUCTION.

To take the census of Alaska even at this date, after 23 years of possession by the United States, involves a special condition in statistics. We are all familiar with the favorite illustration by means of parallel columns differing in color and length and denoting increase or decrease of population in successive periods of enumeration. In dealing with Alaskan statistics of population we have no previous diagram to which we may refer, not even a solitary column of definite figures upon which to build or base our present structure.

The people who discovered the region now known as Alaska, and who held it for nearly one and a half centuries, never knew nor even tried to ascertain the number of all the people therein contained. Vitus Bering, who commanded the Russian naval expedition which discovered the northwestern extremity of the American continent, never saw any of its people, and sacrificed his life upon an uninhabited island which still bears his name. Captain Alexis Chirikof, who commanded the second vessel of Bering's expedition, saw a few canoes filled with Thlingit warriors, probably on the coast of Baranof island, who approached his ship after having decoyed and massacred 2 boats' crews of his command. On his return voyage Chirikof and his officers saw a few natives belonging to one of the islands of the Shumagin group, and a few more belonging to islands of the Aleutian chain; but they made no estimate as to the probable population of the country they had discovered for their imperial mistress.

After the discovery of Alaska had been accomplished and duly heralded to the world the Russian imperial government rested upon its glory for many years, leaving it to the enterprise and courage of its hardy Siberian and Kamchatkan pioneers to develop the new discovery. As the horde of fur hunters advanced from island to island along the Aleutian chain in their frail boats of fir planks lashed together with rawhide thongs they observed and reported a multitude of good-natured savages at nearly every point visited in the course of their dangerous voyages, but did not venture upon estimates.

The first government officials to visit this newly discovered domain of Russia were Captains Krenitzin and Levashef, of the Russian navy, who explored a few of the Aleutian islands and the western extremity of the Alaskan peninsula. These men included in their report some rather vague statistics as to population, but asserted quite positively that even at that early date the population had decreased at least one-half since the advent of the Russian fur hunters. This expedition performed its work during the years 1768 and 1769. Previous to this, in 1762, one of the "irrepressible" Kamchatkan traders had already reached the island of Kadiak, which he reported as thickly inhabited. 22 years later, in 1784, Grigor Shelikof, the founder of the first permanent Russian settlement in Alaska, established himself on Kadiak island, and reported to the empress that "by his discovery he had increased her subjects by the number of 50,000 natives, eager to adopt the christian faith and to surrender themselves to the maternal care of his august mistress".

The earliest actual count of any Alaskan natives now on record was made by Eustratus Delarof, a Greek, employed as general agent by the fur company formed by Shelikof. This enumeration, which comprised all the villages on Kadiak island and one or two settlements on the mainland opposite, was taken in the year 1792, and resulted in a total of 6,510 of both sexes. Another count taken 4 years later, in 1796, by order of Alexander Baranof, the "father of the Russian colonies in North America", and covering nearly the same ground, footed up 6,200.

Captain Sarychef, one of the officers of the exploring expedition commanded by Admiral Joseph Billings, of the Russian navy, was instructed to enumerate the natives of the Aleutian islands in 1792. He reported 2,500 of both sexes, but an actual count made but a few years later at the instance of the imperial chamberlain, Nicholas Rezanof, resulted in reducing this figure to 1,492. At the time of Baranof's retirement from the management of the Russian colonies in North America, his immediate successor, Captain Hagemeister, of the Russian navy, ordered an enumeration of the natives, including, of course, only those tribes over which the Russian American Company had absolute control. Of this partial census we have two returns differing slightly in their totals. The first, dated 1818, shows an aggregate of 8,893 (4,452 males, 4,441 females), the second return, dated 1819, shows an aggregate of 14,019, including, however, an estimate of 5,000 Thlingits, omitted from the previous document. The next enumeration of Alaskan natives was dated 1822 and foots up 8,286, again omitting the Thlingits, who at that time successfully defied Russian authority.

Baron Wrangell, chief manager of the Russian colonies, forwarded to the imperial government under date of January 1, 1825, a statement of the native population under his control, aggregating 8,481 of both sexes. In the year 1830 Veniaminof, the "apostle of Alaska", published a statement of the fluctuations of the population in the districts of Kadiak and the Aleutian islands between the years 1781 and 1830. According to this document the population of the Kadiak district had decreased within the period mentioned from 6,510 to 3,396, while in the Aleutian district the number of people had declined less rapidly, being given as 1,900 in 1781 and 1,460 in 1830. In 1831 a complete census of the inhabitants of the Aleutian islands was taken by the same priest, Veniaminof, giving a total of 1,515. 4 years later Veniaminof, who was then stationed at Sitka, made an estimate of the number of Thlingits, aggregating 5,850, which comes remarkably close to the total of our census to-day. In 1839 Veniaminof furnished for the first time a well considered estimate, including the total population of the country now called Alaska. This estimate was published in full in the Alaska volume of the Tenth Census, and furnishes a remarkable instance of close estimate, as well as reasoning, in every detail. His figures showing the strength of the various tribes and races are almost what we now know them to be, while his total of 39,813 was probably but little below the actual truth at the time of his writing. Though objections may be made to certain details of this estimate, the statement as a whole must convince us that Veniaminof then had a better conception of the population of Russian America in his day than was exhibited by the compilers of the numerous official reports furnished the imperial government by the Russian American Company during many succeeding years.

From this time forward no detailed population statistics of the Russian colonies were published, beyond the fictitious total of 56,000 reported in the brief biennial reports of the chief managers of the Russian American Company, until the year 1860. In that year the Holy Synod, the highest ecclesiastical tribunal of the Russian empire, published in the annual report a census of christians in Russian America as furnished by priests and missionaries stationed in the colonies. This report showed a total of 9,845 (5,127 males and 4,718 females), exclusive of Russian employés of the company.

RUSSIAN CENSUS OF 1860 (CIVILIZED PEOPLE OF RUSSIAN COLONIES).

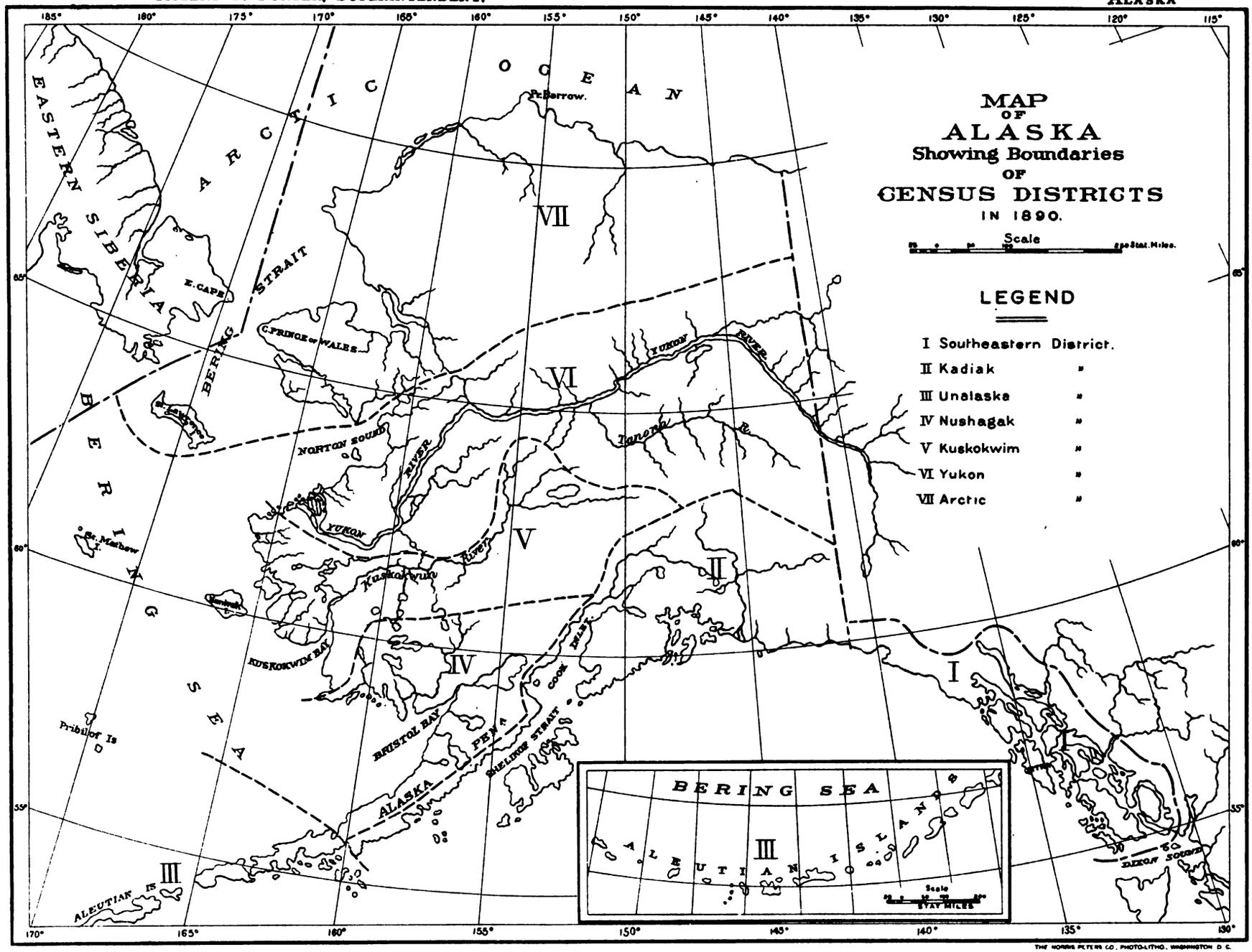
[Taken from Report of Committee on Organization of Russian American Colonies, volume II.]

DISTRICTS.	AGGREGATE.			RUSSIANS.			CREOLES.			ALEUTS.			KENAITZ.			KUSKOKWIM AND AGLEMIUT.			CHUGATZ AND COPPER RIVER.		
	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.
Total	9,845	5,127	4,718	557	493	64	1,886	921	965	4,486	2,268	2,218	931	440	491	1,398	699	699	587	306	281
Sitka	1,021	669	352	452	339	63	505	249	256	64	31	33	.....	.....	.....	.....	.....	.....	.....	.....	.....
Kadiak	5,944	2,994	2,950	67	66	1	871	431	440	2,148	1,081	1,067	931	440	491	1,340	670	670	587	306	281
Unalaska	1,770	881	889	4	4	.....	255	125	130	511	752	759	.....	.....	.....	.....	.....	.....	.....	.....	.....
Atka	964	495	469	4	4	.....	197	87	110	763	404	359	.....	.....	.....	.....	.....	.....	.....	.....	.....
St. Michael	146	88	58	30	30	.....	58	29	29	.....	.....	.....	.....	.....	.....	58	29	29	.....	.....	.....

During the last few years of the occupation of Alaska by the Russian American Company much confusion seems to have entered into the returns made by various colonial and imperial inspecting officers. We have two returns dated January 1, 1862, showing the same total of 10,156, but differing very much in the details of distribution. One of these returns enumerates the people by race and tribe, the other by districts; both were printed in Tikhmenief's Historical Review. In the second volume of this work, published in 1863, a table appears under the heading of "Population statistics of inhabitants of Russian America dependent upon and actually counted by the Russian American Company". This statement covers the years from 1830 to 1863, inclusive, and varies but little in its totals. For the year 1830 we find 10,327. About the middle of the period mentioned, in the year 1845, we find the population at its lowest, 7,224, while the highest point was reached in 1837 with 11,022. For 1863 the total is given as 10,125.

We have still another count of the inhabitants of Alaska, taken under the auspices of the Russian government, in the report of a special inspector, Kostlivtzof. In this statement the total of inhabitants known and counted is given as 7,934 on January 1, 1863, 2,191 less than the company's report for the same year. To this total Kostlivtzof adds an exaggerated estimate of the Atna or Copper River Indians to the number of 2,500 and of Thlingits aggregating 20,000, making a total of 30,434, thus reaching by the wildest estimate an approximately truthful result as to the total. This completes the population statistics transmitted to us from Russian sources.

The first official table of population issued subsequent to the acquisition of Alaska by the United States formed part of the report of Major General H. W. Halleck, of the United States army. By means of unconscious duplication of tribes under similar names and the insertion of a few imaginary ones, added to the wildest exaggeration in estimating the number of Athapascans, this officer succeeded in footing up a total of 82,400 people in Alaska. In the same year, 1868, Rev. Vincent Collyer, in his report to the Commissioner of Indian Affairs, reproduced General Halleck's table, and added a special estimate of the Thlingit tribes, furnished him by a trader named Mahoney. This estimate shows a total of 11,900 Thlingits.



THE HORRIS PETERS CO. PHOTO-LITHO. WASHINGTON D.C.

Such was the material from which a basis had to be constructed for the work of the Tenth Census in Alaska, which was substantially intrusted to the efforts of one man, who, with the greatest difficulty, succeeded in obtaining at least a partial enumeration, supplemented by close and careful estimates for the remainder. Naturally, however, the labor performed in behalf of the Alaskan census in 1880 partook more of the nature of a reconnoissance, preparing the way for subsequent efforts under more favorable circumstances.

This brief report of what little has been done in the past brings us down to the present, the first detailed enumeration of Alaska, during the years 1890 and 1891.

For this enumeration it was found necessary to divide the territory into districts, and this was done as nearly as possible on the lines adopted in 1880, while at the same time the convenience of the comparatively few persons available for this work was taken into consideration. The result is illustrated in the accompanying map, showing the boundaries of the 7 census districts.

The first or Southeastern district comprises the coast and islands from the British Columbian boundary, latitude 54° 40′, northward and westward to Mount St. Elias.

The second or Kadiak district embraces the territory lying between the North Pacific and the coast range of mountains from Mount St. Elias to Chignik bay, in the Alaskan peninsula, and the adjoining islands, including the Kadiak group.

The third or Unalaska district includes the almost continuous chain of islands from the Shumagin group to Attu, our ultimate west, and the south coast of the Alaskan peninsula from Chignik bay to Issanak strait, including also the Pribilof or Seal islands.

The fourth or Nushagak district covers the region drained by the rivers emptying into Bering sea and Bristol bay between Port Haiden and Cape Newenham, with adjoining islands.

The fifth or Kuskokwim district consists of the whole region drained by the river Kuskokwim and the flat lake country lying between its mouth and Capes Rumiantzof and Vancouver, with the adjoining island of Nunivak.

The sixth or Yukon district comprises the territory drained by the Yukon and its tributaries from the British American boundary westward.

The seventh or Arctic district has for its southern boundary the watershed between the Yukon basin and the Arctic, and embraces the north shore of Norton sound, Bering strait, Kotzebue sound, and our whole Arctic coast, with the islands of King (or Ukevok) and St. Lawrence.

In the enumeration of Alaska the same distinction as to race, color, and nativity was observed as has been adopted for the general census of the United States, but in the general tabular exhibits embodied in this report the statistics have been grouped as to race or color under 5 heads, as follows: (1) white, (2) mixed Indian, (3) Indian, (4) Mongolian, and (5) all others. The last named class comprises negroes, mulattoes, Hawaiians, Malays, and Portuguese mulattoes from the Cape Verde islands. Further distinction of these people was considered inadvisable, partly on account of their small number, but chiefly because they all belong to the class of temporary and transient residents of Alaska, being nearly all engaged in the whaling industry.

The Mongolians are chiefly Chinese, also temporary residents, with a few Japanese among them.

A few words must be said concerning the term "mixed Indian", which is applied to the descendants of intermarriage of Russians with native women in former times. They were a privileged class under the Russian régime, vested with certain rights denied even to natives of Russia. In numbers this mixed race is rapidly decreasing, and they were enumerated separately by the Tenth and Eleventh Censuses chiefly because they are the only people now remaining of the original inhabitants of the country to whom the clause of the treaty with Russia conferring the rights of citizenship could at that time apply, a point which may be of some importance when Congress sees fit to settle the political status of the people of Alaska.

In the classification of the inhabitants of Alaska as to nativity all natives of the country born previous to our acquisition of the Russian possessions have been counted as foreign born natives of Russian America, a distinction made necessary in view of possible future misunderstanding as to the right of such individuals to all the privileges of United States citizenship.

PART I.

POPULATION, GEOGRAPHY AND TOPOGRAPHY, AND SOCIAL STATISTICS.

CHAPTER I.

STATISTICS OF POPULATION.

SUMMARY BY DISTRICTS.

DISTRICTS.	Number of settlements.	Total.	Male.	Female.	Native.	Foreign.	RACE AND COLOR. White. Total.	White. Male.	White. Female.	Mixed. Total.	Mixed. Male.	Mixed. Female.	Indian. Total.	Indian. Male.	Indian. Female	Mongolian. Total.	Mongolian. Male.	Mongolian. Female.	All others. Total.	All others. Male.	All others. Female.
The territory	309	32,052	19,248	12,804	15,381	16,671	4,298	3,853	445	1,823	891	932	23,531	12,105	11,426	2,288	2,288	.....	112	111	1
Southeastern	43	8,038	4,842	3,196	3,645	4,393	1,738	1,389	349	133	67	66	[illegible]	3,054	2,780	329	329	.....	4	3	1
Kadiak	40	6,112	4,398	1,714	2,294	3,818	1,105	1,056	49	784	407	377	2,782	1,494	1,288	1,433	1,433	.....	8	8	.....
Unalaska	22	2,361	1,434	927	1,154	1,207	520	495	25	734	343	391	967	456	511	137	137	.....	3	3	.....
Nushagak	41	2,726	1,712	1,014	1,205	1,521	318	310	8	28	10	18	1,996	1,008	988	384	384	.....	.....	.....	.....
Kuskokwim	80	5,681	2,854	2,827	3,341	2,340	24	19	5	17	5	12	5,640	2,830	2,810	.....	.....	.....	.....	.....	.....
Yukon	58	3,912	2,099	1,813	2,082	1,830	202	193	9	127	59	68	3,583	1,847	1,736	.....	.....	.....	.....	.....	.....
Arctic	25	3,222	1,909	1,313	1,660	1,562	391	391	.....	.....	.....	.....	2,729	1,416	1,313	5	5	.....	97	97	.....

FIRST OR SOUTHEASTERN DISTRICT.

VILLAGES.	Total.	Male.	Female.	Native.	Foreign.	RACE AND COLOR. White. Total.	White. Male.	White. Female.	Mixed. Total.	Mixed. Male.	Mixed. Female.	Indian. Total.	Indian. Male.	Indian. Female.	Mongolian. Total.	Mongolian. Male.	Mongolian. Female.	All others. Total.	All others. Male.	All others. Female.
The district	8,038	4,842	3,196	3,645	4,393	1,738	1,389	349	133	67	66	5,834	3,054	2,780	329	329	.....	4	3	1
Auk settlements	323	163	160	141	183	1	1	.....	.....	.....	.....	323	163	160	.....	.....	.....	.....	.....	.....
Bartlett bay	40	40	.....	8	32	13	13	.....	.....	.....	.....	.....	.....	.....	27	27	.....	.....	.....	.....
Berners bay	6	5	1	5	1	5	5	.....	1	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Burroughs bay	134	93	41	20	114	18	17	1	.....	.....	.....	91	51	40	25	25	.....	.....	.....	.....
Chican	38	23	15	23	15	9	8	1	.....	.....	.....	29	15	14	.....	.....	.....	.....	.....	.....
Chilkat	153	147	6	22	131	73	69	4	3	1	2	.....	.....	.....	77	77	.....	.....	.....	.....
Chilkoot mission	106	54	52	61	45	.....	.....	.....	.....	.....	.....	106	54	52	.....	.....	.....	.....	.....	.....
Douglas city	402	317	85	197	205	356	296	60	17	7	10	26	11	15	2	2	.....	1	1	.....
Fish bay	4	3	1	1	3	4	3	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fort Tongass	50	26	24	27	23	6	6	.....	1	1	.....	43	19	24	.....	.....	.....	.....	.....	.....
Funter bay	25	14	11	15	10	5	5	.....	.....	.....	.....	20	9	11	.....	.....	.....	.....	.....	.....
Gambier bay	8	4	4	4	4	.....	.....	.....	.....	.....	.....	8	4	4	.....	.....	.....	.....	.....	.....
Hindasetukee	143	79	64	70	73	.....	.....	.....	.....	.....	.....	143	79	64	.....	.....	.....	.....	.....	.....
Hoochinoo	381	200	181	192	189	.....	.....	.....	.....	.....	.....	381	200	181	.....	.....	.....	.....	.....	.....
Howkan	105	52	53	63	42	11	5	6	4	2	2	90	45	45	.....	.....	.....	.....	.....	.....
Huna	438	234	204	237	201	2	2	.....	2	.....	2	434	232	202	.....	.....	.....	.....	.....	.....
Juneau	1,253	855	398	678	575	671	562	109	43	15	28	527	266	261	11	11	.....	1	1	.....
Kakawaterka	70	33	37	40	30	.....	.....	.....	.....	.....	.....	70	33	37	.....	.....	.....	.....	.....	.....
Kakwaltu	77	37	40	43	34	.....	.....	.....	.....	.....	.....	77	37	40	.....	.....	.....	.....	.....	.....
Kassan	47	26	21	22	25	1	1	.....	.....	.....	.....	46	25	21	.....	.....	.....	.....	.....	.....
Kichikan	40	21	19	7	33	9	5	4	5	1	4	26	15	11	.....	.....	.....	.....	.....	.....
Killisnoo	79	51	28	45	34	44	31	13	.....	.....	.....	33	18	15	2	2	.....	.....	.....	.....
Klakwan	326	176	150	186	140	3	3	.....	3	1	2	320	172	148	.....	.....	.....	.....	.....	.....
Klawak	287	170	117	151	136	18	18	.....	8	6	2	261	146	115	.....	.....	.....	.....	.....	.....
Klinquan	27	18	9	8	19	8	5	3	.....	.....	.....	19	13	6	.....	.....	.....	.....	.....	.....
Klukukhu	15	7	8	6	9	.....	.....	.....	.....	.....	.....	15	7	8	.....	.....	.....	.....	.....	.....
Lake bay	31	20	11	15	16	3	3	.....	.....	.....	.....	28	17	11	.....	.....	.....	.....	.....	.....
Loring	200	133	67	65	135	27	27	.....	2	1	1	120	54	66	51	51	.....	.....	.....	.....
Metlakahtla	823	447	376	103	720	4	4	.....	1	.....	1	817	442	375	1	1	.....	.....	.....	.....
Point Barrie	92	50	42	42	50	3	3	.....	.....	.....	.....	89	47	42	.....	.....	.....	.....	.....	.....
Point Ellis	170	115	55	64	106	17	17	.....	3	3	.....	115	60	55	35	35	.....	.....	.....	.....
Pybus bay	26	15	11	14	12	.....	.....	.....	.....	.....	.....	26	15	11	.....	.....	.....	.....	.....	.....
Pyramid harbor	77	74	3	8	69	37	34	3	.....	.....	.....	.....	.....	.....	40	40	.....	.....	.....	.....
Sakar	21	14	7	11	10	1	1	.....	.....	.....	.....	20	13	7	.....	.....	.....	.....	.....	.....
Salmon bay	42	20	22	19	23	3	3	.....	1	1	.....	38	16	22	.....	.....	.....	.....	.....	.....
Seymour channel	9	7	2	2	7	6	6	.....	3	1	2	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sitka	1,190	659	531	644	546	280	151	129	17	13	4	861	464	397	31	31	.....	1	.....	1
Sumdum	42	23	19	21	21	1	1	.....	.....	.....	.....	41	22	19	.....	.....	.....	.....	.....	.....
Tolstoi bay	17	11	6	9	8	4	4	.....	.....	.....	.....	13	7	6	.....	.....	.....	.....	.....	.....
Windham bay	11	6	5	5	6	4	4	.....	.....	.....	.....	7	2	5	.....	.....	.....	.....	.....	.....
Wrangell	316	187	129	152	164	71	57	14	15	12	3	228	116	112	1	1	.....	1	1	.....
Yakutat	308	153	155	181	127	7	7	.....	1	.....	1	300	146	154	.....	.....	.....	.....	.....	.....
Yess bay	85	59	26	18	67	13	12	1	3	2	1	43	19	24	26	26	.....	.....	.....	.....

SECOND OR KADIAK DISTRICT.

VILLAGES.	Total.	Male.	Female.	Native.	Foreign.	RACE AND COLOR. White. Total.	White. Male.	White. Female.	Mixed. Total.	Mixed. Male.	Mixed. Female.	Indian. Total.	Indian. Male.	Indian. Female.	Mongolian. Total.	Mongolian. Male.	Mongolian. Female.	All others. Total.	All others. Male.	All others. Female.
The district	6,112	4,398	1,714	2,294	3,818	1,105	1,056	49	784	407	377	2,782	1,494	1,288	1,433	1,433	.....	8	8	.....
Afognak	409	289	120	152	257	26	26	.....	169	86	83	77	40	37	137	137	.....	.....	.....	.....
Alaganak	48	27	21	26	22	.....	.....	.....	.....	.....	.....	48	27	21	.....	.....	.....	.....	.....	.....
Alitak	420	366	54	88	332	107	107	.....	2	2	.....	134	80	54	177	177	.....	.....	.....	.....
Ayaktalik	106	59	47	51	55	1	1	.....	7	4	3	97	53	44	.....	.....	.....	1	1	.....
Cape Douglas	85	47	38	49	36	2	2	.....	1	.....	1	82	45	37	.....	.....	.....	.....	.....	.....
Chignik bay	193	190	3	14	179	66	65	1	.....	.....	.....	5	3	2	121	121	.....	1	1	.....
Chilkaht lake	34	19	15	18	16	.....	.....	.....	.....	.....	.....	34	19	15	.....	.....	.....	.....	.....	.....
Eagle harbor	77	42	35	39	38	7	7	.....	3	3	.....	67	32	35	.....	.....	.....	.....	.....	.....
English bay	107	64	43	58	49	1	1	.....	6	3	3	100	60	40	.....	.....	.....	.....	.....	.....
Ighlak	94	47	47	50	44	.....	.....	.....	.....	.....	.....	94	47	47	.....	.....	.....	.....	.....	.....
Iliamna	76	42	34	45	31	.....	.....	.....	25	19	6	51	23	28	.....	.....	.....	.....	.....	.....
Ingamatsha	73	40	33	41	32	.....	.....	.....	2	2	.....	71	38	33	.....	.....	.....	.....	.....	.....
Isha	30	18	12	15	15	6	6	.....	8	4	4	15	7	8	1	1	.....	.....	.....	.....
Kadiak	495	269	226	292	203	127	87	40	245	117	128	122	64	58	1	1	.....	.....	.....	.....
Kaguyak	112	57	55	53	59	1	1	.....	16	9	7	92	44	48	3	3	.....	.....	.....	.....
Kanatak	26	16	10	12	14	.....	.....	.....	6	5	1	20	11	9	.....	.....	.....	.....	.....	.....
Kanikhluk	73	36	37	42	31	.....	.....	.....	.....	.....	.....	73	36	37	.....	.....	.....	.....	.....	.....
Karluk	1,123	1,034	89	162	961	391	391	.....	20	12	8	167	86	81	542	542	.....	3	3	.....
Kassilof	117	100	17	28	89	32	32	.....	6	3	3	28	14	14	50	50	.....	1	1	.....
Katmai	132	78	54	81	51	1	1	.....	.....	.....	.....	131	77	54	.....	.....	.....	.....	.....	.....
Kenai	264	211	53	88	176	51	51	.....	41	24	17	93	57	36	79	79	.....	.....	.....	.....
Killuda	22	10	12	13	9	.....	.....	.....	.....	.....	.....	22	10	12	.....	.....	.....	.....	.....	.....
Kinik	160	84	76	96	64	.....	.....	.....	.....	.....	.....	160	84	76	.....	.....	.....	.....	.....	.....
Kustatan	45	21	24	30	15	.....	.....	.....	.....	.....	.....	45	21	24	.....	.....	.....	.....	.....	.....
Lake	136	83	53	84	52	.....	.....	.....	.....	.....	.....	136	83	53	.....	.....	.....	.....	.....	.....
Lowell	12	6	6	10	2	10	6	4	1	.....	1	1	.....	1	.....	.....	.....	.....	.....	.....
Mitrofania	49	26	23	29	20	1	1	.....	26	13	13	22	12	10	.....	.....	.....	.....	.....	.....
Nin'chik	81	51	30	45	36	12	12	.....	53	29	24	16	10	6	.....	.....	.....	.....	.....	.....
Nuchek	145	62	83	82	63	7	4	3	18	9	9	120	49	71	.....	.....	.....	.....	.....	.....
Odiak	273	263	10	40	233	97	97	.....	.....	.....	.....	21	11	10	154	154	.....	1	1	.....
Old harbor	86	49	37	45	41	.....	.....	.....	.....	.....	.....	86	49	37	.....	.....	.....	.....	.....	.....
Seldovia	99	59	40	60	39	.....	.....	.....	16	8	8	83	51	32	.....	.....	.....	.....	.....	.....
Sushitna	142	82	60	88	54	.....	.....	.....	.....	.....	.....	142	82	60	.....	.....	.....	.....	.....	.....
Tatitlak	90	47	43	56	34	1	1	.....	36	20	16	53	26	27	.....	.....	.....	.....	.....	.....
Toyonok	115	62	53	65	50	.....	.....	.....	.....	.....	.....	115	62	53	.....	.....	.....	.....	.....	.....
Uganak	31	13	18	18	13	.....	.....	.....	.....	.....	.....	31	13	18	.....	.....	.....	.....	.....	.....
Uyak	246	240	6	11	235	114	114	.....	.....	.....	.....	15	9	6	117	117	.....	.....	.....	.....
Uzinkee	74	33	41	40	34	.....	.....	.....	74	33	41	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wingham island	150	122	28	42	108	44	43	1	.....	.....	.....	54	27	27	51	51	.....	1	1	.....
Wrangell bay	62	34	28	36	26	.....	.....	.....	3	2	1	59	32	27	.....	.....	.....	.....	.....	.....

THIRD OR UNALASKA DISTRICT.

The district	2,361	1,434	927	1,154	1,207	520	495	25	734	343	391	967	456	511	137	137	.....	3	3	.....
Akutan	80	44	36	45	35	3	3	.....	6	1	5	71	40	31	.....	.....	.....	.....	.....	.....
Atka	132	58	74	75	57	1	1	.....	15	8	7	116	49	67	.....	.....	.....	.....	.....	.....
Attu	101	41	60	61	40	9	1	8	25	13	12	67	27	40	.....	.....	.....	.....	.....	.....
Belkovsky	185	94	91	97	88	9	7	2	81	39	42	94	47	47	1	1	.....	.....	.....	.....
Borka	57	26	31	29	28	.....	.....	.....	.....	.....	.....	57	26	31	.....	.....	.....	.....	.....	.....
Chernovsky	78	39	39	43	35	.....	.....	.....	8	3	5	70	36	34	.....	.....	.....	.....	.....	.....
Coal harbor	15	8	7	8	7	5	4	1	10	4	6	.....	.....	.....	.....	.....	.....	.....	.....	.....
Korovinsky	41	26	15	21	20	6	6	.....	35	20	15	.....	.....	.....	.....	.....	.....	.....	.....	.....
Kashigin	46	22	24	24	22	.....	.....	.....	.....	.....	.....	46	22	24	.....	.....	.....	.....	.....	.....
Makushin	51	25	26	32	19	.....	.....	.....	30	15	15	21	10	11	.....	.....	.....	.....	.....	.....
Morzhovoi	68	39	29	31	37	8	8	.....	16	6	10	44	25	19	.....	.....	.....	.....	.....	.....
Ozernoi	45	45	.....	8	37	24	24	.....	2	2	.....	.....	.....	.....	18	18	.....	1	1	.....
Popof island	146	141	49	59	87	135	133	2	7	4	3	1	1	.....	3	3	.....	.....	.....	.....
St. George	93	44	5	57	36	8	8	.....	36	16	20	49	20	29	.....	.....	.....	.....	.....	.....
St. Paul	244	106	138	142	102	22	18	4	111	45	66	108	40	68	3	3	.....	.....	.....	.....
Sannak	132	101	31	54	78	62	62	.....	54	28	26	14	9	5	2	2	.....	.....	.....	.....
Semenovsky	3	3	.....	2	1	3	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Thin point	231	231	.....	32	199	110	110	.....	10	10	.....	3	3	.....	106	106	.....	2	2	.....
Umnak	94	47	47	51	43	.....	.....	.....	14	7	7	80	40	40	.....	.....	.....	.....	.....	.....
Unalaska	317	178	139	160	157	66	61	5	165	71	94	84	44	40	2	2	.....	.....	.....	.....
Unga	159	98	61	98	61	48	45	3	109	51	58	.....	.....	.....	2	2	.....	.....	.....	.....
Voznesensky	43	18	25	25	18	1	1	.....	.....	.....	.....	42	17	25	.....	.....	.....	.....	.....	.....

FOURTH OR NUSHAGAK DISTRICT.

VILLAGES.	Total.	Male.	Female.	Native.	Foreign.	RACE AND COLOR. White. Total.	White. Male.	White. Female.	Mixed. Total.	Mixed. Male.	Mixed. Female.	Indian. Total.	Indian. Male.	Indian. Female.	Mongolian. Total.	Mongolian. Male.	Mongolian. Female.	All others. Total.	All others. Male.	All others. Female.
The district	2,726	1,712	1,014	1,205	1,521	318	310	8	28	10	18	1,996	1,008	988	384	384				
Agivavik	30	12	18	15	15							30	12	18						
Agulukpukmiut	22	9	13	14	8							22	9	13						
Akakhpuk	9	4	5	4	5							9	4	5						
Akgulurigiglak	61	30	31	35	26							61	30	31						
Angnovchamiut	16	7	9	7	9							16	7	9						
Aziavigamiut	90	43	47	49	41							90	43	47						
Bradford	166	165	1	11	155	82	81	1				1	1		83	83				
Carmel	189	178	11	26	163	74	71	3	3	1	2	16	10	6	96	96				
Christangamiut	83	37	46	55	28							83	37	46						
Gologamiut	29	13	16	16	13							29	13	16						
Huckiung	32	17	15	22	10							32	17	15						
Igagik	60	34	26	34	26							60	34	26						
Igivachochamiut	31	15	16	16	15							31	15	16						
Ikalinkamiut	60	28	32	35	25							60	28	32						
Insiachamiut	42	20	22	20	22							42	20	22						
Kakhonak	28	16	12	18	10							28	16	12						
Kakwok	45	26	19	25	20							45	26	19						
Kanakanak	53	26	27	29	24							53	26	27						
Kanulik	54	25	29	31	23							54	25	29						
Kaskanak	66	37	29	41	25							66	37	29						
Kassiachamiut	50	30	20	33	17							50	30	20						
Kavalonah	13	9	4	8	5							13	9	4						
Kinuyak	51	29	22	23	28	7	7		5	2	3	39	20	19						
Kivichakh	37	22	15	21	16							37	22	15						
Koggiung	133	64	69	86	47							133	64	69						
Meshik	74	34	40	40	34							74	34	40						
Millerton	165	163	2	10	155	70	68	2							95	95				
Napaimiut	11	7	4	5	6							11	7	4						
Nikhkak	42	24	18	20	22							42	24	18						
Noghelingamiut	16	8	8	10	6							16	8	8						
Nulochtagamiut	31	19	12	17	14							31	19	12						
Nushagak	268	216	52	70	198	64	62	2	20	7	13	85	48	37	99	99				
Pakwik	93	46	47	51	42	1	1					92	45	47						
Sahruyuk	32	18	14	18	14							32	18	14						
Stugarok	7	4	3	3	4							7	4	3						
Togiagamiut	94	48	46	55	39							94	48	46						
Togiak	14	5	9	6	8							14	5	9						
Trinachamiut	20	8	12	9	11							20	8	12						
Ugashik	154	92	62	73	81	20	20					123	61	62	11	11				
Unangashik	190	91	99	112	78							190	91	99						
Yekuk	65	33	32	32	33							65	33	32						

FIFTH OR KUSKOKWIM DISTRICT.

VILLAGES.	Total.	Male.	Female.	Native.	Foreign.	RACE AND COLOR. White. Total.	White. Male.	White. Female.	Mixed. Total.	Mixed. Male.	Mixed. Female.	Indian. Total.	Indian. Male.	Indian. Female.	Mongolian. Total.	Mongolian. Male.	Mongolian. Female.	All others. Total.	All others. Male.	All others. Female.
The district	5,681	2,854	2,827	3,341	2,340	24	19	5	17	5	12	5,640	2,830	2,810						
Aguliagamiut	94	49	45	61	33							94	49	45						
Agumak	41	19	22	25	16							41	19	22						
Ahgomekhelanaghamiut	15	6	9	7	8							15	6	9						
Ahgulakhpaghamiut	19	9	10	11	8							19	9	10						
Ahguliagamiut	106	53	53	62	44							106	53	53						
Ahpokagamiut	210	98	112	117	93							210	98	112						
Ahquenach-Khlugamiut	6	3	3	4	2							6	3	3						
Akiagamiut	97	47	50	54	43							97	47	50						
Akiakchagmiut	43	20	23	26	17							43	20	23						
Annovokhamiut	15	9	6	9	6							15	9	6						
Apahiachamiut	91	38	53	54	37							91	38	53						
Askinaghamiut	138	73	65	80	58							138	73	65						
Atchalugumiut	39	20	19	20	19							39	20	19						
Bethel	20	9	11	14	6	7	4	3				13	5	8						
Chalitmiut	358	183	175	224	134							358	183	175						
Chechinamiut	84	44	40	51	33							84	44	40						
Chimingyangamiut	40	20	20	22	18							40	20	20						
Chokfoktoleghagamiut	18	10	8	10	8							18	10	8						
Chuligmiut	32	16	16	20	12							32	16	16						
Dununuk	48	27	21	26	22	3	3					45	24	21						
East Point, No. 1	36	20	16	22	14							36	20	16						
East Point, No. 2	41	23	18	25	16							41	23	18						
Ekaluktalugumiut	24	13	11	13	11							24	13	11						
Etohlugamiut	25	14	11	20	5							25	14	11						
Gilakhamiut	22	10	12	13	9							22	10	12						
Ighiakchaghamiut	81	40	41	47	34							81	40	41						
Ingeramiut	35	18	17	20	15							35	18	17						
Kahlukhtughamiut	29	15	14	16	13							29	15	14						
Kahmiut	40	20	20	26	14							40	20	20						
Kailwigamiut	157	81	76	90	67							157	81	76						
Kaltkagamiut	29	17	12	12	17							29	17	12						
Kanagamiut	35	20	15	19	16							35	20	15						
Kanagmiut	41	21	20	28	13							41	21	20						
Kashunahmiut	232	119	113	132	100							232	119	113						
Kaviaghamiut	59	31	28	37	22							59	31	28						
Kenaghamiut	257	118	139	162	95							257	118	139						
Kennachananaghamiut	181	93	88	108	73							181	93	88						
Kiklkhtagamiut	119	57	62	67	52							119	57	62						
Kinegnagamiut	92	44	48	50	42							92	44	48						
Kinegnagmiut	76	38	38	49	27							76	38	38						
Kl-changamiut	49	24	25	27	22							49	24	25						
Klutagmiut	21	11	10	10	11							21	11	10						
Kochlogtogpagamiut	20	13	7	15	5							20	13	7						
Kolmakovsky	26	14	12	19	7	8	7	1	10	3	7	8	4	4						
Koot	117	55	62	70	47							117	55	62						
Koot river settlements	74	36	38	43	31							74	36	38						
Kuskohkagamiut	115	53	62	58	57							115	53	62						
Kwichampingagamiut	25	14	11	16	9							25	14	11						
Kwigamiut	43	22	21	28	15							43	22	21						
Lagoon, No. 1	30	14	16	19	11							30	14	16						
Lagoon, No. 2	36	17	19	24	12							36	17	19						
Lomavigamiut	53	29	24	29	24							53	29	24						
Mumtrahamiut	162	81	81	99	63							162	81	81						
Mumtrekhlagamiut	33	16	17	20	13	5	4	1				28	12	16						
Napaimiut	23	13	10	11	12							23	13	10						
Napaskeagamiut	97	56	41	62	35							97	56	41						
Noh-chamiut	28	14	14	18	10							28	14	14						
Novokhtolahamiut	55	26	29	29	26							55	26	29						
Nunachanaghamiut	135	69	66	77	58							135	69	66						
Nunavoknak-chlugamiut	107	52	55	54	53							107	52	55						
Oh-hagamiut	36	18	18	18	18							36	18	18						
Queakhpaghamiut	75	38	37	47	28							75	38	37						
Quelelochamiut	112	61	51	71	41							112	61	51						
Quiechloh-chamiut	83	39	44	52	31							83	39	44						
Quiechochlogamiut	65	34	31	38	27							65	34	31						
Quilochugamiut	12	7	5	6	6							12	7	5						
Quinhaghamiut	109	54	55	63	46							109	54	55						
Shinyagamiut	7	4	3	3	4							7	4	3						
Shovenagamiut	62	31	31	34	28							62	31	31						
Tefaknaghamiut	195	101	94	119	76							195	101	94						
Tiengaghamiut	60	31	29	36	24							60	31	29						
Tulukagnagamiut	17	8	9	8	9							17	8	9						
Tuluksagmiut	62	33	29	35	27							62	33	29						
Tunaghamiut	71	35	36	43	28							71	35	36						
Ugavigamiut	57	25	32	30	27							57	25	32						
Ugokhamiut	68	33	35	36	32							68	33	35						
Ulokagmiut	27	14	13	17	10							27	14	13						
Upper Chuligmiut	30	15	15	19	11							30	15	15						
Vinisahle	140	70	70	74	66	1	1		7	2	5	132	67	65						
Woklehogamiut	19	9	10	11	8							19	9	10						

SIXTH OR YUKON DISTRICT.

VILLAGES.	Total.	Male.	Female.	Native.	Foreign.	RACE AND COLOR. White. Total.	White. Male.	White. Female.	Mixed. Total.	Mixed. Male.	Mixed. Female.	Indian. Total.	Indian. Male.	Indian. Female.	Mongolian. Total.	Mongolian. Male.	Mongolian. Female.	All others. Total.	All others. Male.	All others. Female.
The district	3,912	2,099	1,813	2,082	1,830	202	193	9	127	59	68	3,583	1,847	1,736						
Agowik	51	24	27	27	24							51	24	27						
Akeklehahamiut	79	38	41	48	31							79	38	41						
Alagnagmiut	68	32	36	39	29							68	32	36						
Andreafsky	10	5	5	6	4				10	5	5									
Ankahchagmiut	103	52	51	54	49							103	52	51						
Anvik	191	93	98	100	91				3	1	2	188	92	96						
Avnuligmiut	30	15	15	15	15							30	15	15						
Black river settlements.	125	65	60	68	57							125	65	60						
Boundary camp	18	18		5	13	18	18													
Davids camp	66	35	31	41	25							66	35	31						
Flagatlokai	16	9	7	6	10							16	9	7						
Golsova	44	27	17	25	19							44	27	17						
Holikitsak	114	63	51	68	46							114	63	51						
Ikaleaveagmiut	38	20	18	18	20							38	20	18						
Iko-agmiut	65	35	30	32	33							65	35	30						
Ikogmiut	140	75	65	70	70				16	8	8	124	67	57						
Ingahamiut	50	27	23	29	21							50	27	23						
Kalhonehagmiut	45	23	22	25	20							45	23	22						
Kanegmiut	53	25	28	22	31							53	25	28						
Keavyamiut	97	51	46	49	48							97	51	46						
Kengugmiut	54	29	25	26	28							54	29	25						
Kikliktowrik	23	12	11	11	12							23	12	11						
Kohtokaket	24	11	13	11	13							24	11	13						
Kotlik	31	15	16	19	12				22	9	13	9	6	3						
Koyukuk river settlements.	174	89	85	89	85							174	89	85						
Kozerevsky	131	64	67	63	68	10	7	3				121	57	64						
Kyktoltowtin	23	11	12	14	9							23	11	12						
Lake village	3	2	1	1	2							3	2	1						
Makeymiut	50	24	26	26	24							50	24	26						
Mitchell post office	238	194	44	121	117	127	127		16	8	8	95	59	36						
Newturit	9	4	5	4	5							9	4	5						
Notaloten	15	7	8	6	9							15	7	8						
Nowikaket	77	40	37	43	34	3	2	1	1		1	73	38	35						
Ntealeyta	7	5	2	4	3							7	5	2						
Nuklukayet	120	67	53	56	64	7	6	1	3		3	110	61	49						
Nulato	118	53	65	60	58	5	5		14	8	6	99	40	59						
Paimiut	65	37	28	28	37							65	37	28						
Pastolik	113	57	56	57	56							113	57	56						
Porcupine river settlements.	150	75	75	87	63							150	75	75						
St. Michael	101	56	45	53	48	30	26	4	33	12	21	38	18	20						
Sakataloden	39	18	21	21	18							39	18	21						
Senati	40	22	18	28	12							40	22	18						
Shaktolit	38	17	21	25	13							38	17	21						
Steamer Arctic	27	27		20	7							27	27							
Summer camp	44	26	18	27	17							44	26	18						
Swetlaya Retchka	44	20	24	24	20							44	20	24						
Takashki	80	38	42	47	33							80	38	42						
Tanyut	37	17	20	21	16							37	17	20						
Teeketnagmiut	27	14	13	12	15							27	14	13						
Teenahotozna	8	5	3	4	4							8	5	3						
Tlegochitnagmiut	60	25	35	26	34							60	25	35						
Topolnik	42	20	22	25	17				5	4	1	37	16	21						
Tvastonagamiut	33	19	14	16	17							33	19	14						
Tzeeto-at	22	12	10	14	8							22	12	10						
Ulukuk	25	13	12	12	13							25	13	12						
Unalaklik	175	90	85	100	75	2	2		3	3		170	85	85						
Upper Tanana river settlements.	203	109	94	111	92							203	109	94						
Yukokakat	39	23	16	23	16				1	1		38	22	16						

SEVENTH OR ARCTIC DISTRICT.

VILLAGES.	Total.	Male.	Female.	Native.	Foreign.	RACE AND COLOR. White.			Mixed.			Indian.			Mongolian.			All others.		
						Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.
The district	3,222	1,909	1,313	1,660	1,562	391	391	.....	.....	.....	.....	2,729	1,416	1,313	5	5	.....	97	97	.....
Atnik	34	18	16	21	13	.....	.....	.....	.....	.....	.....	34	18	16	.....	.....	.....	.....	.....	.....
Cape Krusenstern	45	24	21	28	17	.....	.....	.....	.....	.....	.....	45	24	21	.....	.....	.....	.....	.....	.....
Cape Nome	41	22	19	26	15	.....	.....	.....	.....	.....	.....	41	22	19	.....	.....	.....	.....	.....	.....
Cape Smythe	246	149	97	137	109	46	46	.....	.....	.....	.....	189	92	97	1	1	.....	10	10	.....
Erkleetpaga	20	10	10	14	6	.....	.....	.....	.....	.....	.....	20	10	10	.....	.....	.....	.....	.....	.....
Golofnin bay	25	12	13	12	13	2	2	.....	.....	.....	.....	23	10	13	.....	.....	.....	.....	.....	.....
Icy Cape	57	32	25	42	15	.....	.....	.....	.....	.....	.....	57	32	25	.....	.....	.....	.....	.....	.....
Ignaluk	85	45	40	44	41	.....	.....	.....	.....	.....	.....	85	45	40	.....	.....	.....	.....	.....	.....
Ignigtok	64	28	36	38	26	.....	.....	.....	.....	.....	.....	64	28	36	.....	.....	.....	.....	.....	.....
Itkarapaga	8	5	3	5	3	.....	.....	.....	.....	.....	.....	8	5	3	.....	.....	.....	.....	.....	.....
Kingaghee	488	260	228	192	296	.....	.....	.....	.....	.....	.....	488	260	228	.....	.....	.....	.....	.....	.....
Norkluk	13	6	7	11	2	.....	.....	.....	.....	.....	.....	13	6	7	.....	.....	.....	.....	.....	.....
Norton sound settlements.	283	138	145	164	119	.....	.....	.....	.....	.....	.....	283	138	145	.....	.....	.....	.....	.....	.....
Point Barrow	152	91	61	80	72	1	1	.....	.....	.....	.....	143	82	61	.....	.....	.....	8	8	.....
Point Belcher	114	93	21	46	68	59	59	.....	.....	.....	.....	38	17	21	1	1	.....	16	16	.....
Point Hope	301	156	145	174	127	5	5	.....	.....	.....	.....	295	150	145	.....	.....	.....	1	1	.....
Point Lay	77	45	32	53	24	.....	.....	.....	.....	.....	.....	77	45	32	.....	.....	.....	.....	.....	.....
Port Clarence	485	420	65	236	249	276	276	.....	.....	.....	.....	144	79	65	3	3	.....	62	62	.....
St. Lawrence island	267	136	131	139	128	.....	.....	.....	.....	.....	.....	267	136	131	.....	.....	.....	.....	.....	.....
Sea Horse island	15	10	5	8	7	2	2	.....	.....	.....	.....	13	8	5	.....	.....	.....	.....	.....	.....
Singick	12	4	8	5	7	.....	.....	.....	.....	.....	.....	12	4	8	.....	.....	.....	.....	.....	.....
Sledge island	67	40	27	43	24	.....	.....	.....	.....	.....	.....	67	40	27	.....	.....	.....	.....	.....	.....
Tapkak	51	27	24	23	28	.....	.....	.....	.....	.....	.....	51	27	24	.....	.....	.....	.....	.....	.....
Ukivok	200	100	100	87	113	.....	.....	.....	.....	.....	.....	200	100	100	.....	.....	.....	.....	.....	.....
Wainwright inlet	72	38	34	32	40	.....	.....	.....	.....	.....	.....	72	38	34	.....	.....	.....	.....	.....	.....

GEOGRAPHY

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Another important exploration, [illegible]
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CHAPTER II.

GEOGRAPHY AND TOPOGRAPHY.

Since the publication of the report on Alaska prepared for the Tenth Census great progress has been made in ascertaining the geographic outlines and topographic features of the vast extent of country lying within the boundaries of Alaska.

The United States coast and geodetic survey has been for many years engaged in a careful and systematic survey of the islands, coasts, and waters of the Alexander archipelago, publishing from time to time revised maps of all Alaska whenever additional information is obtained by the office from reliable sources.

The glacier region situated to the northward of Cross sound and Icy strait, unknown in its contours 10 years ago, is now a place of call and one of the greatest attractions for the thousands of tourists who visit southeastern Alaska every summer.

The Alpine coast region, rising abruptly from the shores of the north Pacific between Cape Spencer on the east and Mount St. Elias on the west, has been the objective point of several exploring expeditions. Lieutenant Frederick Schwatka, formerly of the United States army, Professor Libbey, and Lieutenant Seton-Karr, of the British army, were among the first to attempt the exploration and partial ascent of Mount St. Elias, the giant among the mountain peaks of North America. They were followed later by well organized parties, under the auspices of the National Geographic Society and the United States geological survey. Under the leadership of Prof. I. C. Russell these parties have obtained in two successive seasons a large amount of the most valuable information concerning this mountain, which is claimed by Americans and English alike as lying within their boundaries.

In the course of his second exploration, Professor Russell, after reaching a height of 14,000 feet, succeeded in making measurements of Mount St. Elias from a base line on the seashore, from which the height of the mountain was computed at 18,100 feet. On the return journey the low coast region lying at the foot of the Malaspina glacial plateau was explored, and finally a series of observations was made in Disenchantment bay, at the head of Yakutat bay, furnishing material for the compilation of a reliable map of that estuary, exhibiting a remarkable deviation from the outlines heretofore accepted on the authority of Tebenkof and others, who did not personally explore the innermost recesses of this great bay.

Another important exploration, resulting in the collection of much information concerning the interior geography and topography of Alaska and adjoining territory in the British possessions, was made by Lieutenant Frederick Schwatka, accompanied by Dr. Hayes, of the United States geological survey. This expedition first set out in an easterly direction from Taku inlet along Taku river; then crossing the coast range they emerged upon the banks of Lake Aklene, which is probably the true head of the Yukon river. Following the northern outlet of this lake, the party passed the mouth of the tributary heretofore accepted as the Yukon's head, a few miles above Lake Labarge. Thence to Fort Selkirk their way was over a well known course, but on leaving that point an entirely new route was followed, leading toward the mountains forming the divide between the Yukon basin, the upper course of White river, and the easternmost tributary of Copper river. After discovering a pass but little over 5,000 feet in height, the party struck the Chityna river about midway between its headwaters and its junction with the Copper. The latter river was then followed to the coast.

Valuable additions have also been made to our knowledge of Alaskan geography by the members of an exploring expedition organized in 1890 under the auspices of Frank Leslie's Illustrated Weekly. The leaders of the party, Messrs. A. J. Wells, E. J. Glave, and A. B. Schanz, entered the interior by way of the Chilkat river, and after crossing the coast range came upon a large lake, the head of the Tah-kina tributary of the Yukon, which was named Lake Arkell. It is probable that this is the same lake which the German explorer Krause visited in 1879 and named Western Kussoa in contradistinction from the Eastern Kussoa which he found beyond the Chilkoot pass. Here Mr. Glave left the party, and, striking across the coast range southward, discovered the headwaters of the Alsekh river, following down its channel to the coast at Dry bay. Messrs. Wells and Schanz proceeded to the Upper Yukon by the usual route. At Forty Mile creek Mr. Wells and another white man turned off, and, with the assistance of a miner who was engaged as guide, crossed over into the basin of the Tanana river and explored an unknown tributary of that stream. Mr. Schanz traveled down the Yukon to

St. Michael and thence back to the Kuskokwim portage and down that river to the seacoast, reaching Bristol bay in October. Here he was joined a month later by Mr. Wells and his party, who had followed the same route from the mouth of the Tanana river. During the months of January and February Mr. Schanz, in company with Mr. J. W. Clark, accomplished a dog-sledge journey of discovery, resulting in the definite location and exploration of a large lake to the northward of Lake Iliamna, the existence of which, though long known by reports of natives and mentioned in the Alaskan report of the Tenth Census, and vaguely indicated as Lake Kichik on the accompanying map, had never been verified. This has now been done and its outlines laid down from astronomical observations. This important sheet of water, some 75 miles long, was named Lake Clark. The Noghelin river, broken about midway by a magnificent fall, connects it with Lake Iliamna, of which it is the principal feeder.

The heretofore unknown course of the Copper river has been explored and mapped by Lieutenants Abercrombie and Allen, of the United States army, and the misleading feature of the former maps, giving this river a wide, open mouth, most inviting to the navigator, has been duly corrected.

The intricate waters and coast line of Prince William sound had been carefully surveyed and charted a century ago by Vancouver and his assistants, and but little that is new was added by the exploration of Mr. Samuel Applegate 5 or 6 years ago.

The long line of Alaskan coast and islands, extending from Prince William sound to the westernmost island of the Aleutian chain, has received but little attention in the way of scientific exploration during the last 10 years. A few corrected charts have been published by the coast survey of the region immediately adjoining the western extremity of the Alaskan peninsula and the Shumagin islands, and in addition a series of soundings has been made by the United States fish commission steamer Albatross, developing vast and heretofore unknown fishing banks.

On the waters and coast of Bering sea the only work of exploring, sounding, and surveying accomplished since 1880 has been done at odd times by the vessels of the United States revenue marine, and in 1890 by the Albatross, commanded by Captain Z. L. Tanner.

The great interior lying back of the Bering seacoast of Alaska, with its great rivers, low ranges of hills, and swampy plains, including the curious deltoid tundra land inclosed between the sea and the Kuskokwim and Yukon rivers, has been traversed, explored, and described by missionaries, traders, and prospectors in a cursory way, but the only discovery made and authenticated with astronomical observations in all this region is Lake Clark.

The great highway of northern Alaska, the Yukon river, has been so constantly traveled over by traders, miners, missionaries, and even the ubiquitous newspaper correspondent, as to leave but little room for new information concerning it. Its principal tributaries, the Tanana in the south and the Koyukuk in the north, have been explored and roughly mapped by Lieutenant Allen, but they are still comparatively unknown as to their real course and topographical details of their respective valleys.

Much geographical work has also been accomplished on the Upper Yukon and Porcupine rivers, under the auspices of the United States coast and geodetic survey, by the boundary survey parties of Messrs. McGrath and Turner, who spent two winters in that desolate region. The boundary was definitely located at its points of intersection with the principal streams, and one party succeeded in penetrating from the Porcupine river to the Arctic shore in the vicinity of Demarcation point.

To the northward of the Yukon basin, beyond the Arctic circle, much information has been obtained within the last 10 years, enabling our map makers to place new rivers hundreds of miles in length upon our charts, with much topographic detail of the surrounding country, which heretofore had been represented on our maps as a suggestive blank.

The explorations of Lieutenant J. C. Cantwell, of the United States revenue marine, and Lieutenant George M. Stoney, of the United States navy, have made known to us the basins of the great rivers Kowak and Noatak debouching into Kotzebue sound, and confirmed the existence of water routes connecting the headwaters of these rivers with the Colville and other streams in the vicinity of Point Barrow. Concerning the latter point and adjoining region, Lieutenant Ray, United States army, collected much valuable geographical data while in charge of the United States polar meteorological station.

Concerning the Arctic coast line of Alaska from Cape Prince of Wales to Demarcation point, valuable information is added annually by the work of the vessels of the revenue marine during their cruises. The United States steamer Thetis a few years ago succeeded in coasting the Arctic shore as far as Herschel island, near the mouth of the Mackenzie river.

This comprises the sum and substance of geographical work accomplished since our last report.

The coast of Alaska washed by the Pacific ocean begins at Dixon entrance, in latitude 54° 40′; thence it sweeps northward and westward in a mighty curve, measuring over 1,200 miles, to the western extremity of the Alaska peninsula, and from here again the Aleutian chain of islands stretches far toward the coast of Asia in another long curve measuring nearly 1,000 miles, with its convexity to the south. The remaining coast of Alaska follows the lines of Bering sea, Bering strait, and Kotzebue sound, finally turning in a northeasterly direction from Cape Lisburne to Point Barrow, and thence eastward to the British boundary.

The highest latitude of that great bend of the coast to the eastward of Sitka, sometimes called the Gulf of Alaska, is 60° 30′, while the end of the curve at Issanak or Morzhovoi strait lies in latitude 55°. From this strait, which separates the peninsula from Unimak island, with its towering volcanic peaks robed in the bridal splendor of eternal snow, the island chain curves to the southward until the lowest latitude is reached near the meridian of Greenwich in 51° 30′, and thence westward and northward again to the island of Attu, the western extremity of the United States, in latitude 53° and longitude 173° east of Greenwich.

The westernmost point of the mainland of Alaska is found at Cape Prince of Wales, latitude 65° 30′ and longitude 168° west, while its northern extremity is at Point Barrow, latitude 71° 20′ and longitude 156° 10′.

From east to west, between our boundary on Portland canal and the island of Attu, Alaska covers 58 degrees of longitude. The distance between the southernmost of the Aleutian islands and the latitude of Point Barrow measures 20 degrees of latitude. The area of land within these lines has not been measured by actual survey, but estimated at 531,000 square miles, one-sixth of the total area of the United States.

From Dixon sound and Portland canal, in latitude 54° 40′, the mainland is shielded from the sea by a vast archipelago of islands, large and small, most of them being mountainous throughout, and all covered with a dense growth of spruce, hemlock, and cedar. The dimensions of this great accumulation of islands average about 75 miles east and west and 260 miles northwest and southeast, divided by hundreds of navigable passages. The number of these islands is given as 1,100, divided as follows: Prince of Wales island and those closely surrounding it, 135; from Portland canal to Caamaño, 134; from Cape Caamaño to the middle of Stikine straits, 77; between Chatham, Frederick, and Stikine straits, 350; Admiralty island and those surrounding it, 118; Baranof and adjacent islands, 138; Chatham strait north of Admiralty island, 29, and Chichagof and islands adjacent to Cross sound, 109. The fiords of Norway and the "scheres" of Finland sink into insignificance before the great dimensions of these straits and sounds. Among the larger passages dividing this archipelago, Chatham strait, named by Vancouver, is the most important, stretching in a straight line 195 miles in a northerly direction from Cape Ommaney, in latitude 56° 10′, to the mouth of Chilkat inlet, in latitude 59° 40′, with an average width of 7 or 8 miles and a great depth of water. Several large passages connect this waterway with other straits to the eastward and also with the sea north of Sitka. Of the latter, one called Peril or Destruction strait leads directly to Sitka, while the other consists of Cross sound or Icy strait, about 75 miles north of Sitka. The Alexander archipelago embraces a shore line of nearly 8,000 statute miles.

The outline of this section of Alaska is naturally a very irregular one on account of the numerous straits, bays, and islands. The south coast, facing upon Dixon sound and Portland canal and extending 80 miles from the latter westward to Cape Kaigan, exhibits numerous headlands and broken shores, steep hills, and mountains covered with dense forest to their summits. The mountains attain an elevation of from 2,000 to 3,000 feet, with scarcely a valley between them.

The extensive eastern arm of Dixon sound, called Portland canal by Vancouver, forms the southeastern dividing line between British Columbia and Alaska. It begins in latitude 54° 41′, and its northern head is in latitude 55° 45′ and longitude 149° 54′. The inlet is but a little over a mile in width.

On the island of Tongass, situated a little to the westward of the mouth of Portland canal, a military post was established soon after the transfer of Alaska to the United States, but it has since been abandoned; a few of the buildings, however, still remain, surrounded by the easternmost native villages of all Alaska. Cape Fox, the southerly extremity of the mainland within the American territory, is situated in latitude 54° 45′ 30″. From the north side of Dixon sound several large passages extend to the northward: the Revilla Gigedo channel, or Tongass narrows, between Cape Fox and Cape Northumberland; Clarence strait, between Cape Northumberland and Cape Kaigan; and Cordova bay or strait, between Cape Chacon and Cape Kaigan, having connection with Bucarelli sound. The largest of these passages, Clarence strait, runs in a northwesterly direction for 120 miles, with an average width of from 15 to 20 miles, and finally mingles its waters with those of Chatham strait, its western shore being formed by Prince of Wales island. Strange to say, this large island, which has been known to the maritime nations of the globe for over 100 years, still remains unsurveyed, and has been variously named an island and an archipelago, and accounts of natives report numerous navigable passages cutting through it here and there. From the eastern side of Clarence strait great arms penetrate in a general northeasterly direction until they reach the base of the coast mountains; their waters are navigable, the shores bold and covered with timber, and the whole forms an intricacy of inland navigation difficult to describe in detail, and a chart affords but a faint idea of its perplexing grandeur. There seems to be no harbor on the mainland in this vicinity. The port of Wrangell is located on an island of the same name a short distance from the mouth of the Stikine river, in latitude 56° 31′ and longitude 132° 23′. The Russians had a small stockaded station here called Redoute St. Dionys, which was subsequently leased to the Hudson Bay Company. After the acquisition of the country by the United States a military post was established here, but was finally abandoned in 1877.

The Stikine is the largest river of southeastern Alaska, but lies within our boundaries for a distance of only 30 miles in an air line from its mouth. The Dominion government claims a boundary even nearer to the seacoast, including the spot where British ocean steamers land cargoes and passengers, and the advent of the British here has destroyed the once large transit trade of Wrangell. The interior of the country adjoining this

river is broken into a succession of sharply defined mountain ranges, separated by narrow, deep valleys similar to those between the islands of the coast.

The topography of the Alexander archipelago is the type of that of the interior of the mainland back of it within our boundaries. Beyond, on the upper rivers, within the British possessions, there is a large rolling plateau stretching between the coast range in the west and the prolongation of the Rocky mountains in the east. Like other Alaskan rivers, the Stikine takes its head from a succession of great lakes. A number of glaciers descend from the snow-covered peaks on both sides of the river down to its banks. The largest of these is situated on the right or west bank, with its face on the river 4 or 5 miles in width, and its length is said to be over 60 miles. The Indians relate that in ancient times this glacier extended across the river, forming an icy arch over the stream, but in course of time the spring freshets washed away the obstruction. Some officers of the Russian navy attempted to explore this huge glacier to its head, but they probably fell into one of the numerous chasms, as they were never heard of again.

One wide passage from the mouth of the Stikine to the ocean, called Sumner strait, runs westward between Prince of Wales island on the south and the Kehk archipelago on the north, reaching the sea between Cape Ommaney, on Baranof island, and Coronation island on the south. Another passage, Prince Frederick sound, runs from the mouth of the Stikine northward along the coast of the mainland and then westward between Admiralty island and the Kehk archipelago until it empties into Chatham strait. A branch of this channel, Stephens passage, runs northward between the mainland and Admiralty island until it mingles its waters with those of Chilkat inlet. At about the middle of its course Taku inlet opens on the east, and a little beyond this Douglas island divides the strait into two channels. Juneau city and Douglas city are situated on opposite sides of Gastineaux channel. From the junction of Stephens passage, Chilkat inlet, and Chatham strait, a wide channel, called Cross sound or Icy strait by the Russians, opens between the mainland on the north and Chichagof or Huna island on the south. Glacier bay extends in a northwesterly direction from the north shore of Cross sound, between Lynn canal, or Chilkat inlet, and the Pacific, for a distance of about 40 miles. About 20 miles from its mouth there is an island 5 or 6 miles in length named Willoughby island, and around the shores of the bay are 5 immense glaciers. The first, in the vicinity of Willoughby island, is about half a mile wide and 150 feet high; the next is about three-fourths of a mile wide and 200 feet high; the third, known among the Indians as the "great glacier", is situated at the head of the bay, and is about half a mile wide and from 200 to 300 feet high; the fourth, on the northern shore of the bay, is about half a mile wide and 150 feet high, and the fifth and smallest is about half a mile wide and 50 feet high. Nearly all the ice floating in this bay and Cross sound comes from these glaciers. The sea washes under them, honeycombs the ice by its incessant lapping, and pieces are broken off constantly. Prof. John Muir, an eminent geologist of the Pacific coast, describes another huge glacier located here, as follows:

> On the northern shore of Glacier bay, north of Willoughby island, there is a large inlet, from 3 to 4 miles wide at its mouth. It runs to the northward and westward 5 miles, and at its head there is an immense glacier, which extends across the head of the inlet for a distance of 3 miles; 10 miles back from its face it is 10 miles wide, and near this, its greatest width, 16 branches of the first class unite to form one immense glacier; 4 of the 16 branches are each over 2 miles wide, while nearly all have tributaries; the distance from the face of the glacier to its farthest removed fountain is about 40 miles.

The port of Sitka is situated on the west coast of Baranof island, in latitude 57° 2′ 52″, and longitude 135° 17′ 45″.

West of Cross sound the coast mountain range attains an elevation of 14,000 to 18,000 feet, covered far down with perpetual snow, the highest peaks (Mount St. Elias, Fairweather, and Crillon) looming up in silent grandeur above them, visible in clear weather a distance of 150 miles at sea. From Lituya or Port des Francais westward the immediate seacoast is comparatively low, wooded ground, but closely backed by icy declivities that come down from the high mountain ranges, and at the head of Yakutat bay reach the coast land. This narrow strip of low coast, interrupted only in the vicinity of Icy bay by a succession of precipitous glaciers fronting the sea for 15 or 20 miles, extends to the mouth of the Copper river. Here the sediment carried down from the mountains has been deposited for thousands of years, until a vast, low delta has been formed, through which the waters of the river find their way to the sea in numerous channels. In many places the swift current has scooped large basins and lagoons out of this soft material, the whole presenting the spectacle of a perfect labyrinth of lakes and streams. The mountains rise up abruptly from the northern edge of this flat to a height of 8,000 or 9,000 feet.

Vistas of the far interior are afforded here and there by the gradually sloping masses of glacier ice. West of the Copper river the foot of the Chugatch alps is bathed by the sea without any intervening lowland, with only two or three exceptions, and these have been utilized for the location of settlements. The mountains on the northern side of Prince William sound must reach a height of 10,000 or 12,000 feet, all densely wooded up to about a height of 1,000 feet, and covered with eternal snow from their summits to within 3,000 or 4,000 feet of the sea level. The interior of Prince William sound or the Gulf of Chugatch forms a basin almost entirely landlocked, being sheltered on the south by the islands of Nuchek and Montague; but, although thus surrounded on all sides by land, it is by no means a calm and pleasant sheet of water to navigate, as furious gales and "woollies", or mountain squalls,

sweep down the mountain sides without a moment's warning, compelling the luckless traveler in a small craft or canoe to seek the lee of one of the hundreds of islands and capes studding the coast. Immense glaciers on the northern shore are constantly descending into the sea and shedding fragments of ice, both large and small, that are carried off by the tide in compact fields or loose masses, still more endangering navigation. The western shore of the sound, the northeast coast of the Kenai peninsula, is very much cut up into deep bays and fiords, and everywhere mountains can be seen looming up in the background with snowy peaks and ridges. The deepest indentation in this section of the coast of the peninsula is Resurrection bay, which was long years ago utilized by the Russians as a shipyard. This bay affords the only harbor in the vicinity, though its entrance is beset with islands and the approach made difficult to sailing vessels. From Resurrection bay in a southwesterly direction the coast is one succession of deep fiords, but, exposed as it is to the fierce easterly gales prevailing here at nearly all times of the year, it is shunned by navigators, especially because even the deepest and most extensive bays do not afford a single anchorage, so that vessels entering them to find refuge from storms would still be at the mercy of the tides.

The entrance to Cook inlet, or the Gulf of Kenai of the Russians, lies between Cape Elizabeth on the southwestern extremity of the Kenai peninsula and Cape Douglas, a bold promontory jutting out from the Alaskan peninsula. Nearly half way between the two is a group of bleak, naked rocks, called the Barren islands, which, placed as they are in midchannel of the tide rushing into Cook inlet from the ocean, cause violent and irregular tidal currents, very dangerous and perplexing to the navigator. During calm weather the so-called "tide-rip" will toss a craft about more violently than any sea stirred up by wind, and a sailing vessel caught within a few miles of the Barren islands in the "tide-rip" without wind is irresistibly drawn to destruction upon the rocks.

Just above its mouth the waters of Cook inlet widen out into the Gulfs of Kamishak on the west and Kachemak (also called Kachekmak and Chugachik) on the east. On the east shore the mountains are not high, and contain extensive coal veins of an inferior quality, but on the west the main Alaskan chain of mountains rears up several volcanic peaks to a considerable height, rising abruptly from the seacoast, with a narrow belt of shelving woodland intervening. North of the indentations mentioned the shores of Cook inlet again approach each other to a distance of not over 30 miles between Anchor point on the east and Mount Isaac on the west. From this point northward and eastward the eastern shore is low and flat, with an elevation of from 50 to 100 feet above the sea. High ridges of mountains traverse the interior and eastern side of the Kenai peninsula, but between them and the coast there is a strip of marshy tundra, wooded along the river courses, and varying from 40 to 50 miles in width. The Kassilof and Kenai rivers, both important salmon streams, form the outlets of a system of lakes that bathe the foot of the snow-capped mountain chain, the backbone of the Kenai peninsula. As the inlet contracts still farther, especially between the promontories of East and West Foreland, the tides increase in velocity and violence of action until they attain a speed of 8 or 9 knots, with an average vertical rise and fall of 24 to 26 feet. The northeastern extremity of this vast inlet or gulf, which Cook entered with the expectation of finding a northwest passage, and, being disappointed, applied to it the name of "Turnagain", equals in tidal phenomena the Bay of Fundy. The flood comes in in a huge "bore", with thundering noise and astonishing rapidity, and a traveler advancing with it in a canoe experiences the peculiar sensation of seeing one high bank of clay and gravel after another apparently sinking before him as he is lifted up and carried over by the inpouring tide. From the mountains surrounding this branch of the inlet innumerable avalanches sweep down the rocky and wooded slopes, demolishing large sections of forest and piling up rocky débris to such an extent as to cause frequent and total changes in the aspect of the country, while the outlines of the coast undergo equally perceptible modifications from the action of the tides.

What the country north of Cook inlet is like no civilized man can tell, as in all the years of occupation of the coast by the Caucasian race it has remained a sealed book. The Indians tell us that the rivers lead into lakes, and that the lakes are connected by rivers with other lakes again, until finally the waters flow into the basins of the Tanana and the Yukon; but conflicting with this intermingling of the waters are stories of mountains of immense altitude visible for hundreds of miles. The natives living north of this terra incognita give, however, similar descriptions, which may be accepted until reliable explorers are enabled to penetrate this region.

On the western side of Cook inlet the main Alaskan chain of mountains, called by Dall the Chigmit range, rises abruptly from the sea in steep ridges and peaks, the highest two being the Redoute and the Iliamna mountains, both volcanic and emitting smoke. Only at two points along this coast within the inlet does low land intervene between the mountains and the shores, at Toyonok and Kustatan, both of which localities have been utilized by the natives for establishing settlements. Up to the height of about 1,000 feet all these mountains are densely wooded. From Kamishak gulf, situated between Mount Isaac and Cape Douglas, a portage is made, over a slight depression in the ridge to the basin, to the great Lake Iliamna, but on the southwestern shore of the bay the mountains rise again to a considerable height, culminating in the 4 peaks to the westward of Cape Douglas. The last named cape is one of the most prominent and boldest in shape of the many Alaskan promontories, jutting out as it does at a right angle for a distance of several miles into the sea, with a sudden descent of over 1,000 feet into the waves of Cook inlet.

The same chain of mountains extends down the south coast of the peninsula, varying in height between 5,000 and 8,000 feet, with peaks much eroded by glacial and meteorological action. The numerous glaciers existing throughout the upper regions of this mountain chain do not anywhere approach the seacoast, as is the case with Mount St. Elias and the Chugatch alps, these formations being found only at high altitudes, generally facing westward and southward.

Two distinct and continuous lines of "water mark" can be observed along the whole of this chain, one at an altitude of 1,000 feet, the other perhaps 500 or 600 feet higher. Both of these lines show the effects of the wash of the ocean for ages, together with many petrifactions of mollusks and other marine life. The natural conclusion forced upon the observer is that the whole peninsula of Alaska has undergone two successive periods of elevation from volcanic action, and that this region would afford a highly interesting field of research to geologists. It is a significant fact that no glacial action is observable below the upper sea level. The immediate seacoast here is cut up into innumerable fiords and coves and lined with rocky islets.

The term "mountain chain" applied above to the elevated portion of the peninsula does not, perhaps, quite describe a very peculiar formation. The mountains or mountain groups are interrupted from time to time by depressions, but these do not at all bear the character of mountain passes, as they consist of low, marshy plains, extending entirely across the peninsula, varying very much in width. A similar formation can be found on the coast of Prince William sound, where outlying spurs of the main chain are frequently divided in the same way. The impression created in the mind of the beholder is not that of a continuous alpine chain, but rather of a series of islands, such as the Aleutians, raised by successive volcanic action until the straits between them are left dry. These depressions serve as the portage routes across the peninsula. A careful observer could easily recognize distinct islands in the mountain groups of Morzhovoi and Belkovsky, connected with each other and with the Pavlovsk volcanic group only by low, swampy isthmuses. Again the mountain groups opposite the Shumagin islands containing the Veniaminof and other volcanoes, loom up, entirely isolated by similar depressions, north and south. Between Moller and Portage bays the portage is made in an hour from the waters of the North Pacific ocean to those of Bering sea.

Other swampy passages lead through from the Chignik and Kishulik bays to the north coast of the peninsula. Nearly all these isolated mountain sections bear a peculiar resemblance to the outward shape of the island of Unimak, the first of the Aleutian chain that is actually separated from the peninsula, though only by a strait too shallow to be navigable. That an elevation of this region has taken place is confirmed by abundant evidence, and altogether it does not seem at all improbable that what now resembles from a distance a long mountain range was once a chain of islands.

At Cape Atushagwik the coast of the peninsula approaches nearest to that of Kadiak island, the width of the strait here being only a little over 18 miles.

In the vicinity of Katmai both coal and petroleum have been found, but not in abundant quantity or excelling in quality.

The volcanic group of the Pavlovsk mountains stands, as already mentioned, entirely isolated with its two craters, of which one is still active, while the other is reported to have been extinct since 1786. From this region also samples of coal of inferior quality have been procured. South of Pavlof bay another volcano rears its jagged crown, separated both north and south from the other mountains.

In the neighborhood of Belkovsky and Morzhovoi several volcanic peaks can be observed, but they have not been active within historic times.

On rounding the southern extremity of the peninsula and turning northward and eastward, a total change in the aspect of the coast can be observed. Low, sandy reaches and slightly elevated moorlands cover the wide interval between the mountains and the shores of Bering sea, interrupted here and there by lake-fed streams and rivers. In the vicinity of Ugashik the volcanic character of the country disappears entirely, the rock formation being altogether of granite and quartz, and pumice stone and chalk are only washed up by the sea. All along the coast from here we encounter gray granite, hornblende, serpentine, porphyry, and sandstone, but at an altitude of about 300 feet above sea level parallel strata containing fossil bivalves appear on the faces of bluffs. As we advance northward the interval between mountains and seacoast widens, until in the vicinity of Lakes Naknek and Bocharof swampy plateaus nearly 100 miles in width are found, dotted with many lakes.

Proceeding northward along the coast of the mainland the first deep indentation of the shore line is Bristol bay, into which the waters of Lake Iliamna flow through the Kvichak river. From the southern extremity of the Alaskan peninsula to this point Port Moller affords the only harbor for shipping through three rivers, the Sulina, the Igagik, and the Naknek, flowing into Bering sea from the mountains in the east. In the vicinity of the mouths of the last two streams the shore is high and rocky, but only few traces of volcanic action can be discovered. North of Lakes Iliamna and Clark high mountains of the main Alaskan range protrude between that sheet of water and the Nushagak river, its spurs approaching nearest the coast immediately behind the Nushagak post and settlement. Other spurs of the same range of mountains and isolated groups of hills appear at long distances from each other on the coast of Bering sea, the intervals being filled up apparently with alluvial, swampy soil, not altogether

level, but gently rolling. The earliest intelligent observer of this region, the Russian missionary Veniaminof, described the conformation of this section of the country as follows:

> Slight elevations can be found along the whole extent of the American coast of Bering sea; they are in nearly all cases connected with the mountains in the interior. If the observer ascends to a height the country appears to him like a heaving ocean suddenly become stationary, with its waves transformed into sand and mud; these waves are now covered with vegetation, but their outlines are still very striking. In the midst of this dry sea we find occasionally high, rocky islands entirely separated from the neighboring hills.

To the westward of Nushagak the mountains first reach the coast on both sides of the Bay of Kulluk. The summits of this range as seen from the lakes forming the portage between the Bays of Kulluk and Nushagak are very jagged in outline, rising abruptly in almost perpendicular blocks and peaks too steep to afford lodgment for snow. The capes and headlands jutting out from this range into the sea are frequently composed of sandstone worn into fantastic shapes by the action of the tides and changes of temperature. The next great elevated headland is Cape Newenham, which forms the terminal point of a rather low range of hills running parallel with the left bank of the Kuskokwim west of the Tuluksak river. At Cape Newenham these hills culminate in two towering peaks between 2,000 and 3,000 feet in height. Between this point and Cape Vancouver in the north the country on both sides of the wide estuary of the Kuskokwim is evidently of an alluvial formation, low and swampy. Both at Cape Vancouver and on the island of Nunivak lava is found, in addition to many other evidences of volcanic origin, and the same is true of the islands further off the coast, St. Matthews and St. Lawrence. At Cape Rumiantzof, in latitude 61° 47′, is another aggregation of volcanic hills rising like mountainous islands from the tundra.

The delta of the great Yukon is of course entirely alluvial, with the exception, perhaps, of the isolated hills of Kusilvak, which give indications of volcanic origin. From the northern mouth of the Yukon eastward the south coast of Norton sound consists of low, rocky hills of lava and basalt. Between the small streams of Pastolik and Pastoliak are high bluffs of basalt, and the sandstone cape of Vsachaghik looms up between 400 and 500 feet from the sea level. The islands of St. Michael and Stuart are comparatively recent lava formations, and contain several extinct craters. The traditions of the natives here speak of the island of St. Michael as having risen from the ocean, and old people living in Tebenkof's time related to him that twice within their recollection the whole island was covered by the sea. From St. Michael northward the chain of low hills, composed of lava and basalt, runs parallel with the coast, averaging in height from 200 to 300 feet, but at a distance of about 30 miles inland a few peaks attain a height of between 1,000 and 1,500 feet. At Cape Denbigh a granite formation appears, jutting out into the sea at a right angle with the volcanic range of hills. The shores of Norton bay are low, and all the alluvial deposits contain bones, tusks, and skeletons of the mammoth and mastodon. On the north coast of Norton sound we find the deep indentation of Golovin bay between two high points, Cape Derby and Stony cape. The interior at the head of Golovin bay is low, and a portage route extends thence by means of lakes and rivers to Grantley harbor. From Stony cape to Cape Rodney the shore is low and level, but in the interior a few high mountains covered with snow are visible.

To the northward of Cape Rodney is situated the best harbor in the northern waters, Port Clarence, with an interior basin named Grantley harbor. The harbor is utilized by the whaling fleet for refitting and meeting their tenders bringing supplies of stores and coal. From here the low, rocky coast trends westward, culminating in the prominent headland of Cape Prince of Wales, the westernmost extremity of the North American continent.

A low, sandy shore extends in a northeasterly direction from Cape Prince of Wales to Cape Espenburg, broken only by the shallow waters of Shishmaref inlet. Cape Espenburg is the western headland of the broad but shallow gulf known as Kotzebue sound, the waters of which are freshened by the outpouring flood of several great rivers, the Buckland, the Kowak, the Noatak, and the outlet of Selawik lake.

Beyond Cape Krusenstern, which forms the northern headland of Kotzebue sound, the coast line runs northeasterly to Cape Lisburne, a steep eminence rising abruptly from the sea, but about half way between the two points a remarkable low, sandy tongue of land, backed by steep cliffs at its landward end, forms Point Hope, known also as a point of rendezvous for whalers and traders.

From Cape Lisburne to Point Barrow the general direction of the coast is northeasterly. Its conformation is generally low and rocky, with many outlying shoals and sandy islets. The few headlands between the two capes are named Point Lay, Icy cape, and Point Belcher. Beyond Point Barrow the coast continues in an easterly direction to Demarcation point, at the point of intersection of the 141st meridian with the arctic coast.

The length of coast line of Alaska's mainland and islands is nearly four times that of all other parts of the United States combined, as exemplified in the subjoined statement furnished by the United States coast and geodetic survey:

	STATUTE MILES.
California, including islands	1,280
Oregon	382
Washington, including islands	2,028
Alaska, including islands	26,364
Atlantic coast, including islands	2,043
Gulf coast	1,810
Total	33,907

CLIMATE.

The climate of the Alaskan coast regions is much milder, even in the higher latitudes, than it is in the interior or in corresponding latitudes on the Atlantic coast. This is easily explained and understood when the natural forces productive of this milder temperature are contemplated.

The most important among them is a thermal current resembling the Gulf Stream in the Atlantic. This current known as the Japanese or Kuro Siwo, has its origin under the equator near the Molucca and Philippine islands, passes northward along the coast of Japan, and crosses the Pacific to the southward of the Aleutian islands, after throwing a branch through Bering sea, in the direction of Bering strait. The main current strikes the coast of British Columbia, where it divides again, one branch turning northward toward Sitka, and thence westward to the Kadiak and Shumagin islands.

The comparatively warm waters of these currents affect the temperature of the superjacent atmosphere, which, absorbing the latent heat, carries it to the coast with all its mollifying effect. Thus the oceanic and atmospheric currents combine in mitigating the coast climate of Alaska, and this process is greatly aided by the configuration of the extreme northwestern shores of the Pacific, backed as they are with an almost impenetrable barrier of lofty mountains, which holds back from the interior the warm, moist atmospheric currents coming in from the ocean, deflecting at the same time the ice-laden northern gales from the coast to the interior.

The force of these influences as mitigating the climate of Alaska can be seen from the following table:

SITKA, ALASKA (LATITUDE 57° 3′).					HALIFAX, NOVA SCOTIA (LATITUDE 44° 38′).				
YEARS.	Lowest in winter.	Highest in summer.	Mean summer.	Mean winter.	YEARS.	Lowest in winter.	Highest in summer.	Mean summer.	Mean winter.
1880					1880	− 9°	90°	61.9°	26.1°
1881		79°	54.0°		1881	0	90	59.6	24.0
1882	4°	70	53.4	33.5°	1882	− 8	90	61.8	25.1
1883	8	68	52.1	36.8	1883	− 8	82	61.0	21.2
1884	11	75	54.4	35.6	1884	−11	88	60.9	24.2
1885	15	75	56.3	35.1	1885	−11	84	62.1	24.4
1886	4	72	55.8	34.4	1886	− 8	84	62.1	25.6
1887	3	72	52.5	31.1	1887	− 7	93	62.7	25.5
1888					1888	− 5			22.0
1889					1889	− 8	84	62.1	27.0
NAIN, LABRADOR (LATITUDE 56° 10′).					PORTLAND, MAINE (LATITUDE 43° 39′).				
1880					1880	− 3	94	68.4	30.5
1881					1881	− 6	88	66.3	26.0
1882					1882	−12	94	68.7	30.4
1883	−26	77	48.7	−1.3	1883	1	89	68.0	25.3
1884					1884	− 8	89	67.3	26.6
1885					1885	− 6	90	65.7	25.1
1886					1886	−12	94	64.0	23.3
1887					1887	−15	96	65.5	21.3
1888					1888	−12	96	64.6	21.8
1889					1889	− 8	92	65.0	26.4

To the southward of Cook inlet lies the Kadiak group of islands, which presents a possible field for settlement and improvement in the near future. We find here both forests and grassy plains and hills, with a climate such as to throw no obstacles in the way of cattle breeding and sheep raising on a large scale in many favored localities. The table on the following page shows the mean temperature and rainfalls in this favored section of Alaska for a series of years. When we scan these figures we can feel no surprise on being told that a band of sheep has existed and done well for 11 years here, without shelter throughout the year, and with but very little feeding.

MEAN TEMPERATURE, MAXIMUM AND MINIMUM, AND RAINFALL AT KADIAK, LATITUDE 57° 38′ N., FROM JULY, 1881, TO SEPTEMBER, 1890.

[From observations by Frederick Sargent.]

MONTHS.	1881					Rain.	1882					Rain.
	TEMPERATURE.						TEMPERATURE.					
	7 a. m.	2 p. m.	9 p. m.	Highest.	Lowest.		7 a. m.	2 p. m.	9 p. m.	Highest.	Lowest.	
						Inches.						*Inches.*
January	.....	.....	.....	.....	.....	.....	31.4°	28.3°	31.4°	40°	14°	3.45
February	.....	.....	.....	.....	.....	.....	16.2	22.0	17.8	39	—2	5.08
March	.....	.....	.....	.....	.....	.....	28.1	34.8	30.5	46	14	1.23
April	.....	.....	.....	.....	.....	.....	31.9	37.5	32.4	49	19	0.69
May	.....	.....	.....	.....	.....	.....	41.4	45.5	41.6	57	33	9.94
June	.....	.....	.....	.....	.....	.....	48.7	52.0	48.4	73	41	7.25
July	59.0°	59.2°	54.5°	78°	46°	2.42	50.8	54.7	51.0	75	44	4.20
August	62.2	65.9	59.6	78	52	1.13	51.5	59.1	52.0	64	47	8.41
September	50.6	55.8	50.9	65	45	6.50	46.8	52.4	47.8	61	42	7.59
October	45.1	50.0	44.4	58	24	4.73	40.1	43.1	39.7	52	24	17.83
November	35.2	39.9	37.5	50	24	8.75	32.5	35.7	33.4	46	16	8.53
December	21.5	23.7	22.2	43	7	4.65	29.1	31.3	30.1	39	17	9.41
	1883						1884					
January	32.2	34.2	33.1	40	22	11.90	32.8	35.4	32.8	41	23	12.32
February	25.3	33.6	30.5	44	18	3.15	29.8	36.1	31.0	44	20	3.50
March	34.0	39.0	34.9	49	27	9.49	34.9	38.3	35.6	47	28	5.68
April	33.2	39.7	35.6	48	26	6.73	39.6	45.7	40.0	59	29	5.33
May	40.8	42.7	40.8	52	38	11.09	45.5	48.5	43.8	57	37	3.30
June	47.5	51.8	48.4	62	41	5.14	51.4	57.1	51.0	74	44	3.20
July	50.0	55.2	50.8	62	47	5.05	56.8	62.2	54.3	73	45	1.67
August	52.5	54.3	53.1	69	48	5.98	53.5	56.3	52.5	72	46	5.38
September	49.3	53.3	49.4	62	44	11.82	46.4	52.2	47.1	64	43	3.50
October	.....	.....	.....	.....	.....	.....	36.6	40.0	36.2	53	21	4.69
November	.....	.....	.....	.....	.....	.....	33.5	37.5	35.0	44	18	8.88
December	28.0	29.6	29.4	39	12	10.59	33.2	35.5	33.8	42	23	4.87
	1885						1886					
January	35.5	36.8	35.5	42	23	10.36	28.0	31.2	27.5	42	12	2.11
February	25.8	31.3	27.5	40	11	2.55	26.8	32.0	27.9	46	10	2.28
March	30.4	36.7	31.7	46	14	7.16	30.2	35.9	30.8	45	19	2.22
April	37.6	42.8	37.4	51	29	2.32	34.9	40.0	34.3	48	23	1.63
May	45.3	51.3	44.5	65	39	5.24	42.9	48.6	42.3	68	36	2.24
June	49.1	53.8	49.4	75	44	1.03	48.9	53.2	48.1	68	42	4.86
July	53.6	59.0	53.8	71	49	3.62	56.3	60.8	56.0	76	51	2.67
August	53.8	57.1	53.7	65	51	5.66	53.6	59.3	53.1	71	46	3.61
September	48.4	52.3	48.7	63	37	7.81	48.4	56.5	48.7	61	42	6.33
October	43.6	46.9	44.0	51	31	11.86	39.2	44.0	39.7	52	29	4.26
November	29.9	33.0	30.5	44	11	1.92	33.2	34.8	32.8	42	18	7.51
December	31.2	31.0	29.1	41	15	6.17	36.5	37.7	36.7	42	29	14.53
	1887						1888					
January	22.9	24.2	22.3	41	0	1.97	28.8	32.0	29.8	41	9	3.06
February	29.8	33.4	30.0	42	12	0.89	33.2	38.2	33.4	42	19	9.00
March	25.6	31.4	26.6	38	14	1.77	30.3	40.0	35.5	53	17	2.94
April	33.5	37.3	34.1	49	22	7.83	31.3	39.3	29.3	54	12	2.24
May	35.3	42.8	38.6	55	32	8.05	43.3	49.2	43.6	64	35	6.94
June	46.8	51.9	47.5	69	41	4.72	49.4	56.3	50.1	66	38	4.40
July	47.4	51.9	48.5	62	44	8.62	51.5	52.2	51.5	69	48	1.01
August	49.8	55.4	50.5	67	46	9.02	52.3	60.9	55.8	69	50	1.38
September	46.6	52.5	47.2	63	37	6.29	48.3	51.1	48.3	61	36	8.84
October	39.1	44.5	40.3	52	31	6.68	41.4	44.4	41.2	54	27	6.66
November	31.8	34.7	31.1	44	16	4.46	25.8	32.3	28.9	46	13	3.23
December	24.7	26.4	24.2	40	0	2.76	34.6	35.8	34.1	43	16	15.26

MEAN TEMPERATURE, MAXIMUM AND MINIMUM, AND RAINFALL AT KADIAK, ETC.—Continued.

MONTHS.	1889					Rain.	1890					Rain.
	TEMPERATURE.						TEMPERATURE.					
	7 a. m.	2 p. m.	9 p. m.	Highest.	Lowest.		7 a. m.	2 p. m.	9 p. m.	Highest.	Lowest.	
						Inches.						*Inches.*
January	35.3°	37.1°	34.9°	43°	24°	11.65	27.4°	31.6°	28.5°	49°	12°	0.77
February	33.8	34.9	34.1	41	10	6.32	27.1	33.7	29.6	47	8	0.87
March	36.2	40.8	37.1	54	27	3.96	28.8	35.9	29.7	49	9	3.58
April	36.1	41.4	37.0	65	19	3.30	35.7	38.1	31.9	48	14	2.99
May	43.7	49.1	43.6	76	39	3.86	42.6	47.7	42.9	58	38	5.63
June	48.6	52.9	48.6	70	43	7.98	48.3	52.5	47.8	72	43	4.20
July	52.0	56.7	52.0	73	48	5.02	54.0	59.7	54.0	79	45	3.95
August	69.5	53.7	48.5	62	39	8.06	53.6	57.5	53.5	67	48	3.55
September	47.5	53.7	48.5	62	39	7.98	.....	.....	.....	.....	.....	.....
October	42.8	47.1	43.4	52	33	8.96	.....	.....	.....	.....	.....	.....
November	36.6	39.4	36.8	47	24	9.15	.....	.....	.....	.....	.....	.....
December	32.2	35.7	32.9	45	12	1.28	.....	.....	.....	.....	.....	.....

CHAPTER III.

THE FIRST OR SOUTHEASTERN DISTRICT.

The first or Southeastern district of Alaska, comprising the territory bounded by the parallel of Mount St. Elias on the north, the Pacific ocean on the west, and the British Columbian boundary on the east and south, has undergone remarkable changes during the past decade. When the enumeration of this section was made for the Tenth Census in the month of June, 1880, the number of its white or civilized inhabitants did not reach far into the hundreds; its mineral resources were known to but few, and only one or two surface mining claims were in actual operation during the summer months. The salmon canning industry was still in its infancy, and the struggling villages of Sitka and Wrangell could scarcely advance any tangible reason for present existence or hope of future growth. But even at that early date this "panhandle" district of Alaska was favored above all other sections of the territory in having a ship of war stationed at Sitka, the commander of which exercised a mild, paternal authority, while the marines and sailors did duty as local police. The only other government official was the collector of customs, with a few deputies scattered far beyond his reach, and with nothing to do but to inform his department chief at stated intervals of his opinion on Alaskan affairs. With gratifying regularity the Secretaries of the Navy and of the Treasury were informed by these two officials that "All was quiet in Alaska", though neither had any means of hearing directly from the immense area of the mainland of Alaska lying beyond their immediate ken.

Before, however, the year 1880 had joined the column of historical dates an event occurred which has since worked a wonderful change in the outward appearance as well as the industrial life and growth of southeastern Alaska. A French half-breed named Juneau discovered gold-bearing ore on Douglas island, situated between the waters of Stephens passage and Gastineaux channel, and though auriferous quartz veins had been previously known to exist at various points of the district, Juneau's discovery was the first to attract large capital, and therefore marks the turning point in Alaska's fortunes.

Many other deposits were found in the immediate vicinity, but the origin and growth of the towns of Juneau and Douglas city are due entirely to the gradual development of the Paris or Treadwell mine; without its ever present stimulus other ventures would not have survived the struggles of infancy, so fatal to incipient enterprise as well as to human kind.

The development of this mine, with its large force of employés, and its stimulating effect upon prospecting and tributary industries, created a freight movement which enabled a steamship company to inaugurate regular trips, carrying mails and blossoming out during the summer months into a lucrative excursion service, which has done more than any other means toward making known this part of Alaska to the general public and attracting capital for investment. With increasing prosperity and importance came a louder demand for some attention on the part of the United States government, and at last, in the year 1885, the territory was organized as a civil district, with a governor, district judge and attorney, United States marshal and deputies, and a few United States commissioners, all appointed by the President. A system of public and subsidized schools was inaugurated under the auspices of the Interior Department with the help of an annual subvention from the United States treasury, a system which, after first taking root in the southeastern section, has since extended its ramifications over the length and breadth of Alaska.

At the present day the towns of Juneau and Douglas supply the only examples in Alaska of American frontier settlements affording the ordinary necessities and conveniences of civilized life. The capital, Sitka, can not yet be placed in this category, and while Wrangell is still hovering upon the verge of an uncertain existence, the western fishing and trading posts do not extend to the hapless visitor even the most ordinary comforts of shelter, bed, and nourishment.

Under such circumstances the taking of the census was beset with difficulties even in this the most civilized section of Alaska, and unfortunately the obstacles in the way of the hapless enumerator in the shape of scarcity and excessive cost of the most primitive means of transportation were accentuated by an almost universal misapprehension of the scope and nature of census work here and a deficiency of statistical records.

Taking into consideration these facts, the final result of the effort to obtain reliable statistics must reflect great credit upon the energy and perseverance of the special agents intrusted with the field work in southeastern Alaska, whose monographs, describing and discussing the salient features of their own particular districts, are here incorporated as most valuable contributions to the report.

DESCRIPTION OF SOUTHEASTERN ALASKA FROM CAPE FANSHAW TO THE SOUTHERN BOUNDARY.

BY MINER W. BRUCE.

The extent of territory embraced in my census district is best described by commencing at a point at the lower or southerly portion of southeastern Alaska near 54° 40′ north latitude, thence following what is known as the boundary line between British Columbia and Alaska to a point opposite Cape Fanshaw, thence through Frederick sound and Chatham strait to the Pacific ocean, thence following these waters through Dixon entrance to the place of beginning.

To give the number of miles traveled to complete the enumeration would be a matter of sheer guesswork on my part, in view of the tortuous unsurveyed channels and sounds through which my course lay.

The time consumed in covering this territory was from May 14 to October 29. My means of traveling was a canoe hewn out of a cedar log, 35 feet long, and capable of carrying 6 persons and 3 months' supplies. The state of the weather always determined the distance traveled, especially when on the "outside", on the Pacific ocean. Even the inland waters were at times so turbulent that a canoe could not live in the heavy seas, and in places the tides surged with such force as to require every exertion on the part of the whole crew to enable us to make any headway at all.

I kept an accurate account of meteorological conditions during the whole time, and have divided them into 3 classes: cloudy, rainy, and sunny. At times it would be cloudy in the forenoon and the sun would shine in the afternoon, or it would rain part of the day and become clear for the rest, but I have, when these changes occurred, given one class or the other credit for a half day each, which is approximately correct.

When the sun shone the atmosphere was as clear as crystal, and all nature seemed to take on a new and beautiful life. When it rained, it was impossible to conceive of more dreary or lonesome surroundings, and if the wind happened to blow, the dismal sighing of the evergreen trees and the rocking of the canoe over the foaming waters impressed one with a sense of loneliness which it was impossible to shake off.

My weather record may be summed up as follows: in the month of May, from the 14th to the 31st, inclusive, 2.5 days were cloudy, 9.5 rainy, and 6 sunny; in June, 2 were cloudy, 10 rainy, and 18 sunny; in July, 10.5 were cloudy, 6 rainy, and 14.5 sunny; in August, 8.5 were cloudy, 6.5 rainy, and 16 sunny; in September, 6 were cloudy, 14.5 rainy, and 9.5 sunny; in October, from the 1st to the 29th, inclusive, 5.5 were cloudy, 15.5 rainy, and 8 sunny.

As the population of my district was mainly confined to the islands, it became necessary to sail entirely around most of them, the largest of which are Kupreanoff, Kuiu (or Kuhu), Zarembo, Wrangell, Etolin, Revilla Gigedo, Gravina, Annette, Long, and Prince of Wales, the last named island being one of the most extensive in area within the territory of Alaska.

The number of natives belonging to this district not enumerated I do not think will exceed 150, most of whom were hunting and fishing among the mountains, working at the salmon canneries in British Columbia, or hop picking in the state of Washington. It must be remembered also that a few Haida and Kake, and perhaps a couple of hundred Tsimpseans, were temporarily at work in the northern half of the Southeastern district, and as a matter of course were returned as a part of the inhabitants thereof. (*a*)

FORT WRANGELL.

One of the most interesting places in this portion of the territory is Fort Wrangell. It is one of the earliest settlements made by the Americans after Alaska passed into the possession of the United States, and is situated upon the northern extremity of Wrangell island, which embraces about 8 or 10 square miles. The town is located on the side of a mountain having a southern exposure. Like all mountains in this part of the territory, its surface is covered with a heavy growth of fir trees, and the stumps found all through the village indicate that at one time the timber extended to the water's edge.

The soil here seems to be very light, and the little effort made at gardening is evidently in soil made by clearing away the moss and filling in with earth and decayed vegetable matter. Outside the village the soil is very wet, and wherever a level place occurs it is very difficult to walk about. In the northern part of the village there is a trail 3 or 4 feet wide and half a mile or so long, and poles have been laid down to walk upon. If one happens to step upon one that is decayed or where one has been removed, he quickly sinks to his knees in mud and mire. All through the village, if one ventures off the walks, a wet foot is pretty sure to follow, unless he picks his way over roots or rocks.

For several years after Alaska passed into possession of the United States a garrison of troops was stationed here. A 2-story log building with 2 wings extending at right angles with each other forms two sides of a sloping parade ground, while several buildings which were used for officers' quarters form the other side, leaving the southern exposure free to command approach from the water. A blockhouse about 50 feet high, like the other

a The omissions mentioned by Mr. Bruce have been rectified.

buildings which comprised the soldiers' quarters, is an imposing structure. The material from which all the buildings are constructed presents splendid specimens of the timber which is found in this portion of the territory. The sides of the blockhouse are perforated with loopholes, which command every direction. The substantial character of all these buildings shows that they were constructed with a view to effectually guard against surprise and to protect the occupants from assault by Indians. In the center of the parade ground stands a flagstaff, and near it upon this square is one of the most unique specimens of the native "totems" found in Alaska.

Upon the well preserved shingles on the roofs of these old buildings a covering of moss has formed, telling of years of exposure to constant moisture.

At the time of the rich placer gold discoveries in the Cassiar district, which lies north of Fort Wrangell, in the interior of the mainland and within British territory, Fort Wrangell was the most important point in Alaska. It was the shipping point of all the supplies for that district, and they were transported to the head of navigation on the Stikine river by light draft steamers, and thence to the mining camps by pack trains. Fort Wrangell was at that time a rendezvous for miners, and the old settlers tell of the stirring times which accompanied the miners' return from the gold fields to spend the long winter months at this place.

These mines have long since been abandoned, except by a few miners, chiefly Chinese, who are content with small wages, and who have passed out of the state of feverish unrest which is so common to rich gold discoveries, when dirt is quickly abandoned as soon as it ceases to pay $10 per day to the man. Most of the miners who come from that district in the autumn now go either to Victoria or farther down the coast to spend the winter.

During the season of 1890 the prospect of an early return of the former exciting times was manifest from the fact that 3 or 4 companies had been formed for the purpose of reopening the abandoned diggings, and extensive preparations were made for hydraulic work, which so often has proved successful after mining with the gold pan and rocker has ceased to pay. There seems to be a general opinion that these old mines will pay to operate under this system, and if this proves correct, Fort Wrangell may again become an important point and secure permanency as a town.

Some of the finest bodies of timber found in southeastern Alaska are in the vicinity of Fort Wrangell, and the largest sawmill in the territory, having a capacity of 30,000 feet per day, is one of the few industries here. It is a model of architectural design, and its large buildings shelter improved machinery. It is owned by Messrs. Sylvester & Wilson, both old pioneers, the former being one of the earliest white settlers, who for a quarter of a century has been identified with a number of commercial enterprises in Alaska and British Columbia.

One of the longest sand beaches found in this portion of the territory is here, extending for three-quarters of a mile in a semicircle, and along this shore the houses are built, many of them in such close proximity to the water that when the tides are high the waves come to the very doors.

Fort Wrangell has a pretty harbor, and in the autumn, after the return of the whites and natives from the season's work, the different small craft lying at anchor present a scene that is novel and striking.

Of the half dozen stores here 3 or 4 carry stocks of goods which in quality and variety will compare favorably with those in many country towns in the states. A feature which strikes one as odd is the good quality of goods used by the people in this country. The clothing and blankets are as a rule of superior quality, and the groceries used by the natives as well as the whites are of the best. To such a degree is this true that the "traveling man" on his first visit is surprised to hear the merchant tell him that he wants nothing but the best of his wares.

At Fort Wrangell is found the greatest variety of "curios" anywhere in this part of the territory. The natives who, until the recent advent of the salmon canneries, came from long distances to dispose of their relics at this place, still to a large extent follow their old custom. Many of the finest furs are also brought here. About 4 miles from here are 2 garnet mines, and the Alaska diamond is found in this vicinity. The garnet is much sought after, for it can be had either in rough or cut and polished, and when in the latter state is quite handsome. When seen in the rough the garnets are half imbedded in a brittle sort of slate and sandstone, and look as if they had been dropped into it when the rock was soft. They vary in size from that of a pea to a walnut, and are nearly round, with a surface of regular crystallic facets. The "Alaska diamonds" found here are beautiful specimens, very brilliant, and are sold as low as 25 cents each.

Among the houses in Fort Wrangell are 2 church edifices, one belonging to the Presbyterian society and the other to the Roman Catholics. The Catholic church withdrew from the field a few years ago, abandoning it to the Presbyterians, who still keep up their organization, and a regularly ordained minister is located here. His congregation is mainly composed of natives, and they are, as a rule, devout and regular in their attendance at church.

The civil officers at Fort Wrangell consist of a United States commissioner, a deputy United States marshal, and a deputy collector of customs. The commissioner has duties similar to those of a justice of the peace, and before him are brought those charged with crime or minor offenses. He has power to bind a prisoner over to the United States district court, but it may be said to the credit of the whites and natives in this part of the territory that his court docket rarely contains an entry of a desperate character.

The deputy marshal's duties are not such as to make his office one of severe labor, but, as an offset, his compensation is not large enough to make the office much sought after.

The duties of the deputy collector of customs are principally to see that no liquors or dutiable goods are smuggled into Alaska from British ports, but it is apparent that he requires much better facilities for executing his authority in order to stop the liquor traffic across the British line and among the natives in southeastern Alaska.

Fort Wrangell boasts of the only poultry farm in southeastern Alaska, and the owner declares that fowl can be raised successfully and profitably. He finds no trouble in disposing of all the eggs his hens produce at 50 cents per dozen.

The houses occupied by the natives are usually of neat appearance, with a number of pretty cottages among them. Those built by the natives during the early settlement of the country are of logs, 1 story high, usually having but 1 large room, and frequently several families occupy a single house. This room is divided into sections, or rather each family has its particular part, which contains their beds or sleeping couches. Their boxes and personal belongings are in this particular section, while in the center of the room is a dirt or gravel fireplace, where the various families do their cooking. The smoke ascends to the roof and makes its escape through a hole usually 2 or 3 feet square. A screen of boards or logs is placed on the roof to windward, so as to prevent the rain from beating in.

Many of the natives at Fort Wrangell have cook stoves in their houses, and also furniture similar to that of the whites, and with scarcely an exception they dress in civilized garb. Many of them speak English, and are industrious as a class.

The whites living here have not for many years felt any uneasiness as to their personal safety, and the instances of depredation upon their persons or property by the natives have been exceedingly rare.

One of the earliest missionary efforts made here was the establishment of a home or boarding school under the auspices of the Presbyterian church. But a few years ago, after it had begun to demonstrate its usefulness to the natives, it was accidentally destroyed by fire and it has not been rebuilt. The only school now at Fort Wrangell is one supported by the general government, and is under the supervision of Mrs. Thomas, who has for some years been connected with school work in Alaska. Her devotion to the natives has won for her the respect of the whites and the love of the natives. The average number of scholars who attend the school is about 25, but in the winter this number is considerably increased.

The trail, of which mention has been made, extending from the rear of the village, leads in the direction of the only salmon cannery in this vicinity, at Labouchere bay. Its capacity is about 15,000 cases annually, and the fish packed here are caught mostly with gill nets, this cannery and the one at Burroughs bay being the only ones in this portion of the territory which secure their salmon in this way. The fish are caught in the bay near the mouth of the Stikine river, and it is said that the run of salmon here is earlier than in any other locality in this vicinity; they are usually of a larger variety, and this cannery since its first establishment 5 years ago is said never to have failed to secure a full pack.

The Stikine is a large river, in fact the only navigable stream in southeastern Alaska, and those who profess to know say that it contains fish in sufficient numbers to supply 3 or 4 more canneries of the capacity of the one now here.

The fishing season had closed when I visited this cannery and the season's pack had been shipped. The usual pack of 15,000 cases had been secured. But 3 white men were there, and they were left to look after the property until the following season's work commences. During the fishing season about 25 whites, 25 Chinese, and a large number of natives are employed. The cost of the plant is in the neighborhood of $40,000. Fishing with gill nets involves the necessity of having a much larger number of small boats than usual, and consequently a greater expense is incurred, but the depth of water and the absence of any smooth beach prevents the hauling of seines.

LORING.

Loring is the largest and oldest fishing station in this part of southeastern Alaska. Its annual salmon pack averages about 23,000 cases, and the supply of salmon does not seem to have diminished in the 10 years that the station has been in operation. It is situated on Naha bay, on the west side of Revilla Gigedo island. For a number of years salmon were salted here and shipped in barrels to market, and this is carried on by the company at the present time to some extent. It is the first post office after reaching Alaskan territory from the states, and mail matter for the lower settlements and missionary stations, as well as Port Chester and the canneries at Yess bay and Burroughs bay, comes here, and is distributed in such manner and at such times as occasion permits.

The cannery at this point is equipped with all the latest improved machinery, and when running to its full capacity 400 cases of salmon can be packed per day.

About 50 Chinese are employed here during the fishing season, and a large number of native men, women, and children find work both in the cannery and in catching fish. The white help numbers about 20 males.

A large number of the natives find employment in bringing fish to the cannery in their canoes, some being brought a distance of 40 or 50 miles. A swift and thoroughly equipped steam launch is kept busy plying between the cannery and 3 fishing stations on the east side of Prince of Wales island transporting fish.

During 8 months of the year Loring has the appearance of being a thriving village. About 40 native houses are scattered along the sides of the mountain, some of them being neatly constructed and nicely furnished. A number of Tsimpsean natives come here each season from Port Chester, and many of the Tongass, Haida, and Cape Fox natives are also employed or come here to trade.

The company has an extensive general merchandise store and deals largely in furs. The principal shipments of skins, however, are those of the deer, large numbers of which are brought here by the natives every season. The company has in the neighborhood of $50,000 invested.

An industry in which a dozen or more native families are engaged at this point is the manufacture of fish oil from the dogfish, this locality being particularly favorable for catching them in large numbers. The oil is made by themselves, the company having no financial interest in the enterprise, simply selling them the barrels used, and attending to the shipment and sale of it as a matter of accommodation and to encourage the people.

During the winter there are usually but half a dozen whites here, most of those employed during the fishing season, as well as all the Chinese, returning to their homes in the coast states for the winter. The natives also return to their respective villages, where they enjoy a season of rest or go on their hunting excursions.

YESS BAY.

The cannery settlement known as Yess bay is situated on the mainland, about 25 miles north of Loring. It is at the head of a beautiful body of water, which extends in about 2 miles from the west side of Behm canal. The bay is about 1 mile wide, the mountains rising abruptly on either side, and the water is so deep that the largest steamers that sail in Alaskan waters find no difficulty in floating up to within a few feet of the cannery buildings.

This station was for a number of years used for the salting of salmon, but 3 years ago a cannery, having a capacity for packing 15,000 cases, was erected. This cannery enjoys the reputation of never failing to secure all the fish wanted for its season's pack, and there are 2 or 3 streams within a few miles that can be made to contribute largely to its nearer supply, if necessary. There are about 30 Chinese usually employed here, with a dozen white men and a large number of native men and women. The cost of the plant will probably aggregate $25,000.

The only fish traps I found in my district were in successful operation here. Deep nets are fastened to piles driven into the bottom of the bay, resembling a heart in shape, with one side extending along piles for quite a distance. With this extension the fish in their attempts to ascend the river come in contact and follow it along into the trap, and when once in they can not find their way out, as their instinct impels them to go against the current only. At the time of my visit the trap fairly swarmed with salmon. As many as 5,000 were taken out each day, but as the company had about completed its pack, the superintendent told me he should remove it at once. Trap fishing in this section of Alaska, it is claimed, has not heretofore proved successful, on account of the depth and clearness of the water in localities where fish are found, but experiments made here have demonstrated the fact that this sort of fishing can be made a success if the traps are properly constructed.

The company makes no effort to do a large merchandise business, keeping on hand only such goods as will meet the temporary wants of its employés during the fishing season. But 1 white man remains here from December 1 to April 1, his duties being simply to look after the property, and most of the natives return to their villages. Yess bay cannery is about 25 miles from the regular route of steamers, and they only run in here to deliver freight and take away the season's pack.

BURROUGHS BAY.

This cannery settlement is located at the head of Burroughs bay, which extends into the mainland about 6 miles from the extreme north end of Behm canal. It averages about 3 miles in width. The cannery is located about 1 mile from the mouth of the Unuk river, which is quite a large stream and but little known. The capacity of the cannery is about 15,000 cases. Besides fishing here, the company keep men at Stewart river, another large stream emptying into Behm canal, about 20 miles to the southeast of Burroughs bay. They also have a fishing station a few miles farther down.

The fishing at Burroughs bay is done mainly with gill nets. Attempts have been made to trap salmon near the mouth of the Unuk river, but without success, on account of the rapidly shifting quicksand. Burroughs bay settlement contains about 30 buildings. The houses of the natives are all of a temporary character. I found some Chinese employed here and probably 70 or 80 natives. Many women and children work in the cannery, while the men are usually employed in catching fish. The men are paid according to the number of fish caught, and as but 2 men are necessary for each crew, one to pull the boat and the other to look after the net, it is not an unusual thing for them to make $5 or $6 apiece per day during the fishing season.

About a dozen white men are employed here, and a steam launch plies as a tender between the outside fishing stations and the cannery. The fishing at each of the outside stations is done with seines. The capital invested by the company here is given as $25,000. The pack of 1890 was 12,000 cases.

At the close of the season, or from the middle of October until the middle of April, this place is abandoned by the employés, and all the natives return to their winter villages. During the winter of 1889 and 1890 but 1 white man was left here to look after the property, and he told me he had passed a most dreary time. The Burroughs bay settlement differs from most of the cannery and fishing stations in this part of the territory, inasmuch as it is situated remote from native settlements and a long distance from the regular line of travel between the states and Alaskan ports. Its location at the mouth of Unuk river, the course of which is southerly and flows through high mountains from the interior of Alaska, exposes it to cold winds, which sweep through the gorges. The chilly air from the early winter in the interior is felt here very early in the autumn, and the same effect is noted in the late spring. The watchman who spent last winter here told me that the weather was bitterly cold, high and piercing winds prevailing most of the time. The bay froze over and the strong winds were often accompanied by severe snowstorms, and for most of the winter snow lay to a depth of 4 feet on the level. The watchman was a native of Sweden. He said that for a period of 4 months he did not see a human soul, his loneliness not being relieved even by the presence of a native. I spent here the first 3 days of the month of September, and the air was keen and cold in the morning, with every indication that frost would occur within a few days.

I found along the banks of the Unuk river the most numerous indications of bears met with anywhere in my travels. The river was at this time swarming with salmon, and, spending a Sunday here, I took my natives up the river 3 or 4 miles. The shrubbery on both sides of the river was dense, and every few yards we found places where bears had evidently waded out into the stream and caught salmon. The appearance of the trampled earth and shrubbery showed that they had brought them to the shore, where they had crouched down and eaten them at their leisure, as partly consumed salmon were scattered all around. We found several places where they had left the wet imprint of their feet as they walked over fallen logs, and several times we heard them as they scampered through the underbrush, frightened away at our approach.

Mountain goats are numerous here, and a number were seen on the sides of high and precipitous mountains.

BEHM CANAL.

It may here be remarked that Behm canal is a body of water which surrounds three sides of Revilla Gigedo island. It forms almost a complete loop from where it passes out of Dixon entrance, on the east side of the island, to where it again enters the main body of water in Clarence strait, on the west side. The length of this channel is about 135 miles, and for nearly the whole distance its width does not average over 2 miles. The mountains on either side rise abruptly and generally reach a height of about 2,000 feet, while their sides are covered with a thick growth of spruce and hemlock timber. The depth of the water is sufficient to admit of the free passage of the largest vessels afloat. Camping places along this whole distance were scarce, and I had greater difficulty in finding places to pass the night than anywhere else during the whole time of my journey. The tides appear to be very strong in places, and nearly opposite Yess bay we encountered severe tide-rips, which for a time made our sailing a period of much anxiety.

STEWART RIVER.

20 miles southeast of Burroughs bay we came to another stream, the Stewart river. A half dozen white men and about 20 natives were fishing here for the Burroughs bay cannery. This river, like the Unuk, flows in a southerly direction, the waters coming from the interior of British Columbia. Where it empties into the Behm canal the river is one-half or three-quarters of a mile wide. I had occasion to go up this river 6 or 8 miles in search of some natives who were said to be camping there, and found a very swift flowing stream, in places 20 or 30 rods wide. As the time of my visit was during the dry season, the water was very low, and in places we had occasionally to haul our canoe over shallow places into deeper water. The mountains on both sides of the river are very high, some of them extending above the timber line, and here and there the remains of a glacier were seen upon the tops of the highest. There are no native settlements along this stream, at least in Alaskan territory, and I am told the people of the neighborhood seldom venture up it to any considerable distance. This river is sometimes made the route of miners on their way to the interior, and it is said that good placer prospects have been found about 70 miles above its mouth.

About 10 miles south of Stewart river I found a cascade pouring down the side of the mountain, one of the largest I have seen in Alaska. It is almost completely hidden from sight by the thick growth of timber which grows along the sides, and falls into the canal from a height of at least 300 feet, averaging in width about 35 feet. As it plunges into the water below the sound is deafening, and a cloud of spray rises to a height of 12 or 15 feet. I ascended the sides of the cascade for a distance of 200 feet, and as I looked up saw it tumbling from an almost perpendicular height far above me. After again getting into my canoe I paddled out into the canal until I could discern a depression between the mountains, indicating the existence of a large lake, which supplied the water of the cascade.

15 miles south of the falls, on the opposite or west side of the canal, stands a rock named by Vancouver the New Eddystone. It rises out of the water to a height of at least 100 feet, and is about 50 feet wide at its base,

keeping this width nearly to the top. Its sides are covered with creeping vines. It is a curious and conspicuous landmark, and can be seen for a distance of 20 miles from either direction on the canal. It stands alone, and there is ample space between it and the west shore to admit of the passage of vessels, the water being so deep at its sides that it can be approached by a large ship to within a few feet. Along the east side of the canal there is more or less red and yellow cedar scattered among the hemlock and spruce.

I consider the route from Loring to where the canal joins Dixon entrance, on the opposite side of the island, one of the pleasantest of the many intricate waterways in southeastern Alaska. The mountains rise, some of them to a considerable height, on either side of the canal, and in many cases the distance across is so short that small objects can easily be distinguished from one side to the other. Every few miles narrow bays extend into the mainland, furnishing retreats from rough weather which sometimes prevails in the canal. It is seldom that white men visit this portion of the territory, for Burroughs bay settlement is the only one on the east side of the island. When the Alaska steamers visit that settlement they usually go there from Loring and return over the same route. (*a*)

SEATON BAY.

Nearly opposite New Eddystone rock, on the east side of the canal, is Seaton bay. It is about 2 miles wide, and extends into the mainland a distance of 15 miles. In places its width narrows down to half a mile. It extends northeast and southwest, and at its head is a fine large salmon stream, where a few families of the Cape Fox or Tongass tribe spend part of the season catching salmon for their own use. I found some timber along the banks of this bay, among which was red and yellow cedar.

BOCA DE QUADRA INLET.

This narrow body of water, called by many whites Bokay inlet, opens into the strait about 5 miles from where Behm canal leaves Dixon entrance. It is a most remarkable and beautiful sheet of water, extending into the mainland from 15 to 18 miles, its width averaging about the same as Seaton bay. Its direction is the same, and at times it looks as if it must connect with that body of water, for the mountains along its north shore seem from a distance to break away in that direction, but upon nearer approach the inlet is seen to follow the other side of the mountain and to wind away gracefully in another direction.

When we neared the head of the inlet my natives called my attention to a large flat rock jutting out into the water, which they told me was once occupied by a tribe of natives during some local war. It covered a space of perhaps 200 square feet, and its position is such as to afford excellent protection to a besieged party. It evidently had been occupied at some time, for the shrubbery growing upon it was still small, and decayed timbers were scattered around, which looked as if they might have been used long ago for some kind of shelter.

At the head of this inlet a stream of water flows from a lake one-half or three-quarters of a mile wide, and at the time of my visit it swarmed with salmon. A splendid variety of red salmon is found here and caught by natives for the Loring cannery. The distance to Loring is about 60 miles, but as the route is through Tongass narrows, the natives frequently make the trip with a favorable south wind in a little over a day with their canoes laden with salmon. When the wind is not favorable the salmon are taken to some convenient point and there transferred to the steam launch, and by this means transported to the cannery. No difficulty would be experienced by large vessels navigating the waters of this inlet, for they are very deep.

There is no permanent native settlement along the shores of this inlet, but every few miles we find a house or two used by the Indians for temporary quarters during the fishing or hunting season.

KAH SHAKES COVE.

This is a small native settlement on the mainland, about 4 miles north of Cape Fox village and immediately opposite Mary island, the location selected by the government for its lighthouse and customs station. It contains half a dozen houses, which are owned and occupied by the family of the Cape Fox chief, whose name the settlement bears. It is a splendid retreat for small craft from the severe storms which so often sweep Dixon entrance, and it is from this vicinity that the natives usually choose their starting point in crossing to the other side. The channel is not over 10 miles wide, and if the weather be fair at starting they can by diligent paddling reach the opposite shore before a storm becomes violent.

The timber, especially the spruce, in this immediate neighborhood is of excellent quality. A large salmon stream flows into the main body of water at this point, and the shores and rocks in many places are covered with mussels, which form a favorite article of food among the natives.

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a Since Mr. Bruce's writing the United States coast survey steamer Patterson has spent a whole season surveying in Behm canal.

CAPE FOX VILLAGE.

The home of the Cape Fox natives is on the mainland immediately east of Duke island, on the opposite side of Dixon entrance. It is located on the shore of a beautiful beach. There are 21 buildings in all, and when the tide is highest the water comes almost to the doors of the houses. The village is so completely sheltered that, however severely the storm may rage on the outside, it is not felt here. The houses are all large and imposing, built of heavy timbers and of the usual height, and have but 1 story. Some have windows and steps approaching the door. They have a neat appearance, and are ranged along the line of the beach. The village was entirely deserted at the time of my visit, and the appearance of the grass and weeds, which had grown to considerable height, made it doubtful whether any one had been there for some weeks.

In front of some of the houses were a number of finely carved totem poles. The burying ground of this tribe is immediately adjoining the village, and the graves were neatly cared for. It is very seldom that the Alaskan natives bury their dead. Where soil can be found deep enough for this purpose it is always wet, and therefore it is the custom to erect for the dead small houses or inclosures set upon poles, and sometimes a picket fence is built around them. It is not unusual for a number of bodies to be buried in one inclosure, and frequently the blankets used in life by a man and the dresses worn by a woman, together with boxes and trunks containing the personal effects of the dead, are placed by their side. At a point of land jutting out into the water just as we turned into the harbor of this village I observed a native grave and beside it a canoe. The grave and canoe were about 20 feet above the water, and my natives told me it was the grave of a medicine man; that it was their practice to bury men of this rank by themselves and at a point overlooking the water.

FORT TONGASS.

The journey from Cape Fox village to Fort Tongass is over a distance of probably 30 miles, and in windy weather it is one of the most dangerous stretches of water through which the natives travel in this part of the territory. It is open to the waters of the Pacific, and even when there is no wind the swell from the ocean is felt, tossing their canoes about like corks. For 20 miles or more there are no places where a canoe can run in, and if one is unlucky enough to be caught in a storm he has to stay out. This means that he must steer a mile or more away from shore, for it is a bleak, barren coast, and as the water recedes the black and jagged surface of reefs are revealed. If one attempts to make a landing in bad weather his canoe is certain to be dashed to pieces and the occupants would not live to reach the shore.

The village of the Tongass tribe of natives is located on Tongass island, at the lower extremity of southeastern Alaska. For a few years immediately following the purchase of Alaska from Russia the place was used as a military post, and for a number of years a deputy collector of customs was stationed here.

The island is, perhaps, 4 miles long by 3 miles wide, and a considerable portion of it is nearly level. The buildings which were occupied by the troops are not so extensive as those at Fort Wrangell, and it never was so important a post. The portion of the island formerly occupied by the military is about half a mile from the native village, and the houses in the latter number 25, resembling in construction those at Cape Fox town. At Fort Tongass a very large collection of carved totem poles can be found.

The natural location of the village is very pleasant. It has a long beach, and is protected from severe weather by a point of land which completely shelters it. Fort Tongass was doubtless at one time of considerable importance as a native rendezvous. Its proximity to Port Simpson, the principal British trading post in this section of the country, which is but 25 miles to the south, naturally gave it prominence, and during the time the troops were here it did a large business with natives. The withdrawal of the military destroyed also the importance of this point as a trade center. If the store had remained it would have had to enter into competition with the Hudson Bay Company, which has an extensive establishment at Port Simpson.

PORTLAND CANAL.

Portland canal, similar in character to Boca de Quadra inlet, but more extensive in width and distance in the interior, opens just below Fort Tongass, but there are no permanent white or native settlements in Alaskan territory along its shores.

TURK'S SALTERY.

The southernmost settlement in southeastern Alaska is about 12 miles southeast of Fort Tongass. It is the home of an old miner, who for many years during the gold excitements of British Columbia followed mining, and at one time was an extensive freighter. He followed the fortunes of Cariboo, Dease lake, and Cassiar, and several times could have taken out of the country enough to have kept him comfortably for life, but like many more of his class he waited until adversity came, and now he is pursuing the uncertain business of salting salmon. He has chosen a delightful location, but the number of salmon caught here is very limited. His pack for the season of 1890 did not exceed 150 barrels, and he has not over $1,000 invested in the business. There are but half a dozen buildings here altogether, and when the fishing season is over he goes with the natives employed here to Fort Tongass to spend the winter. This settlement is about 20 miles away from the regular route of the Alaska steamers.

PORT CHESTER.

Probably the most interesting point in this portion of southeastern Alaska, as well as one of the best known to the outside world, is Port Chester. It is sometimes called "New Metlakahtla", Metlakahtla being the name of the village from which the Tsimpseans moved in British Columbia, about 70 miles southeast of their present location on Annette island. It is especially interesting on account of the history of the natives and their remarkable advancement toward civilization. 3 years ago the spot where now stands Port Chester was a dense forest of spruce and hemlock timber. It is situated on the west side of Annette island, which is comparatively level for 5 or 6 miles in the vicinity of the village. It has the longest beach of any settlement, native or otherwise, in this part of the territory, and the buildings are erected on gradually sloping ground, having a northern exposure. Approaching it from the north one is surprised at seeing so many buildings, and scarcely believes that all the improvements here have been made within the last 3 years and entirely by natives.

When all the Tsimpseans are at home there are about 800 of them. Their language differs from that of the natives of Alaska, it being singularly smooth and pleasing.

The houses of these people stand on the beach for a mile or more, and there are probably 150 or 200 altogether. Most of those first constructed are substantial log houses, but within the past 2 years as many as 75 frame buildings have been built, most of them 2 stories high, and painted.

Under a system inaugurated by Mr. William Duncan the best building portion of the town has been surveyed into lots, which are selected by the natives at a nominal figure, and the amount thus paid goes into a fund which is expended in clearing off the timber, building sidewalks, and grading streets and alleys. In building upon these lots the owners are expected to conform to certain rules of architecture and cost. By means of laying out his town in squares of 4 lots each Mr. Duncan has succeeded in giving each of his householders a corner lot.

At the time of the removal of the Tsimpseans from Metlakahtla they were not permitted to carry away with them any of their personal effects, and they established their homes at their present location under severe privation, and in the face of obstacles that nothing but an abiding faith in a Supreme Power and confidence in the man whose counsel had guided them for many years could have overcome.

Nearly every branch of work is carried on here, and many of the trades have skilled workmen. The great lesson Mr. Duncan has instilled into these natives has been to be industrious and self-sustaining.

Probably the largest and best equipped store building in the whole of southeastern Alaska is at Port Chester. It is a frame building, about 60 feet front by 120 feet deep, and 30 feet high. The building is amply lighted with skylights, and both the store and cannery are roofed with metal. The goods are arranged on either side, and between the counters, which extend the whole length of the building, there is ample room for the free passage of the large numbers who at times congregate here to trade.

The stock includes everything usually found in a country store, and the variety and quality of the goods will probably equal that found in any store of its size elsewhere. The business is in charge of natives entirely. They keep the books and have the general responsibility of everything connected with the business, but make a daily report to Mr. Duncan.

Among the principal industries carried on here is a salmon canning establishment, built and operated for the first time during the season of 1890. It has a capacity of about 8,000 cases, but as this was the first season, only a few hundred cases were packed. It is intended that the natives shall have the full management of the business, so far as the catching of the fish, making of cans and boxes, packing the fish, and everything pertaining to the mechanical part of the work is concerned. No apprehension is felt as to their being able to attend to the business, for at Metlakahtla, their former home, they had a cannery in successful operation, and the product met with a ready market. The cannery plant complete involved an outlay of about $10,000.

Another of the important manufacturing establishments here is a steam sawmill, which is complete in every particular. Like everything else at Port Chester, natives operate the mill, measure the logs brought here by the natives, saw the timber in any shape or dimension needed, and if there is any defect or breakdown in the machinery, native mechanics are able to immediately repair it and place it in good running order. The mill during the past 2 years has been run almost all the time, getting out lumber for the buildings at Port Chester, and supplying some of the canneries in this part of the territory with boxes for shipping their salmon.

The workmanship upon the houses, both outside and inside, the accuracy with which joints are fitted, the delicate mortising of doors and windows, and the firm and substantial character of all the large buildings, give evidence of the greatest care, and leave no doubt as to the mechanical skill of the Tsimpsean natives who follow the trade of carpenters and joiners.

The Industrial Home building is a large 1-story structure, and the high ceilings and the arrangement of the windows to secure good air show an appreciation of the value of proper ventilation in living apartments. The sleeping apartments are arranged in two wings, which extend in opposite directions from the main room or dining hall. The kitchen and storeroom are in the east wing and the private office and sleeping apartment of of Mr. Duncan in the west wing.

The season of 1890 was the first year in which this important work was attempted, and while but a start has been made, enough is now apparent to show that the design is to ultimately make this an important factor in the training of the native youth in the mechanical and industrial arts. The boys taken into this establishment are boarded and lodged here, and kept under the same strict discipline which prevails at like institutions among the whites. They are under the immediate charge of a superintendent, who instructs them in the use of tools and manual labor out of school hours.

A large building is under process of construction about 100 yards east of the boys' home, which will be used as a boarding school for girls. It is inclosed, and it is hoped to have it in running order in another year.

The most imposing structure at Port Chester is the school building, also occupied as the temporary place for holding church services. At present there is no church edifice here, but plans for one are ready, and within another year it is hoped its erection will be commenced. The school building is octagonal in shape, with very high ceilings, and windows on every side. It has a cupola at the cone of the roof, and the high walls are slanted from a point about 30 feet from the floor to the center of the arch. This gives the interior of the building a pleasant appearance. The seating capacity is about 400.

The Tsimpseans as a whole are not natural musicians, but have some musical taste. Immediately in front of the store stands the trunk of an enormous hemlock tree. It has been cut off about 30 feet above the ground and steps have been built to the top, around which a stand has been erected. Upon every pleasant evening during the summer 15 of the natives, who comprise the Port Chester brass band, ascend this stand and discourse sweet music. Their playing is harmonious and their time excellent, and their rendering of national airs, of which they seem to be especially fond, is enough to stir one to patriotic feelings and awaken an admiration for these people, who seem to be able to encompass success in the practice of any art or science toward which their efforts may be directed. Many of these natives are good vocalists, who have entirely given up the chant of the savage, and sing quite melodiously both sacred hymns and popular music. The mouth organ and accordion are as popular among the youngsters as among white children, and a number of them are proficient on the violin.

2 of the natives are photographers, having sufficiently mastered the art to produce excellent likenesses and landscape views, and in many of the houses may be seen pencil sketches and paintings of scenes in the vicinity of Port Chester which are readily recognized.

In the center of the village, upon a tower 30 feet high, swings an enormous bell, which is rung on every public occasion, and on Sunday, as its powerful tones are heard, the natives are seen coming from every direction and wending their way toward the place of worship. I chanced to spend one Sunday at Port Chester, and took occasion to arrive at church early, and seated myself where I had a good view of the whole interior. There were but 4 other white persons present. When the hour arrived for the service to begin every seat was filled. The natives were all neatly and well dressed, and as they took their seats most of them bent their heads in silent devotion. A native boy of not over 16 years of age played a voluntary upon the organ, at the close of which Mr. Duncan entered the room from the rear and took his seat in the pulpit. He was dressed in a black frock coat, and as he rose to read the opening hymn his white hair gave him a most venerable appearance. As I watched the congregation, all well behaved and evidently impressed with the thought that they were within sacred precincts, I could not help but think of the wonderful transformation which had taken place among these people. Mr. Duncan is a man 56 years of age, 5 feet 6 inches tall, and weighs 150 pounds. Although his hair is as white as snow, his face is free from lines of care, and he is the very picture of robust health.

Immediately after the reading of the opening hymn, which was read and sung in English, he announced the text in Tsimpsean, and for an hour preached in that language. All the rest of the service, including the singing, was also in the native tongue. There was the closest attention paid by his congregation, and at times the minister seemed to grow eloquent. Although his utterances were unintelligible to me, it was apparent that the natives understood every word that was spoken. After witnessing these services I could understand why the Tsimpseans are a devout people and attend church with strict regularity. 34 years of earnest devotion to these natives by this remarkable man has inspired them with religious sentiments to which they cling with undying constancy.

The advancement made by the Tsimpseans toward civilization is acknowledged by the whites throughout this territory. The natives belonging to other tribes think nothing of making a journey of several hundred miles in their canoes, and many of them often visit Port Chester. They look upon the Tsimpseans as a sort of superior people, whose ways and example many of them seek to emulate.

Before moving his people to their present home, Mr. Duncan visited Washington for the purpose of learning what privileges could be secured in Alaska. A number of prominent people were interested in his work, and he was encouraged to bring his followers into the United States territory, though no official action was taken. On the last day of the Fifty-first Congress a law was passed setting aside Annette island for the sole use and benefit of the Tsimpseans.

Mr. Duncan's first act among the people was to thoroughly master their language, thus to be better able to instruct them in the ways of civilization. For years he lived among them, adapting himself to their mode of life. He early taught them to avoid white men who sought to live with them, and religiously impressed upon them that

such intermingling was not for their good. While the whites who visited this tribe were never illtreated, they were given to understand that he would tolerate no hanging around. As a result of his caution in this matter the only white man living with a native wife here is an old Frenchman, who has been with them for a great many years.

Notwithstanding the fact that many of his people work at the different canneries during the fishing season and in the mines in the northern part of the district, as soon as the season's work is over they return with pleasure to their homes at Port Chester, and expend the summer's earnings in building and providing for the future. It is a fact, often commented upon by the whites, that when Sunday comes the Tsimpseans lay aside their garments of toil and don those of the sanctuary. On the Sunday which I spent at Burroughs bay the Tsimpseans employed there held religious services, one of their number preaching, while the natives belonging to other tribes spent the day in labor.

The Tsimpseans differ from all the other tribes in southeastern Alaska, unless perhaps the Haida can be excepted, in their total abstinence from the use of liquor, and the manufacture of the vile hoochinoo is unknown among them.

RED BAY SALTERY.

This fishing station is located on the northeastern end of Prince of Wales island, and for several years has been used for the salting of salmon. There are half a dozen log and frame buildings here, in which at the time of my visit were stored tools and material for making barrels. The saltery was not operated during the season of 1890. It is understood that some of the members of the Loring Cannery Company are interested in this location, and that some time in the near future it is proposed to make this place a tributary to a cannery to be built either at Salmon or Lake bay, farther down the east coast of the island. There were no natives or whites here at the time of my visit, but the size of the stream and the general appearance of the improvements indicated the importance of this location, and that it will be a prominent factor in the supply of salmon for the new cannery.

SALMON BAY.

This location is about 20 miles south of Red bay, and is one of the most important salmon stations in this part of southeastern Alaska. It is used for salting salmon, which are caught in vast numbers from a beautiful stream which flows from a large lake lying between the mountains. Several thousand dollars are invested here in buildings, boats, and fishing tackle, and about 50 natives and half a dozen white men are employed here during the fishing season. Over 1,500 barrels of salmon were packed here during the season of 1890, and the stream is regarded as promising a permanent supply of these fish. There are about 25 buildings here, including the native houses, and it presents an interesting settlement.

At the close of the fishing season the settlement is abandoned by whites and natives. A good stock of general merchandise is kept in store, but little business is done here besides that incident to supplying the employés.

LAKE BAY.

This fishing station is thought by some to be the best and most prolific of any on Prince of Wales island. It is located some 2 miles inland from the main body of water, and the stream pours out from the mountain lake about 1 mile above the settlement. It furnishes a large number of salmon for the cannery at Loring, and when they can not be shipped to that place immediately after being caught they are salted here and packed in barrels. Here, as elsewhere at all the different salteries in this section, the lumber used for barrels is made from timber found in the immediate vicinity.

The steam launch from the Loring cannery makes regular trips between that place and this station for the transferring of salmon. Several hundred barrels of salted salmon were packed here during the season of 1890.

The cooper shop is located about a mile from the saltery, and at the point where the cannery will probably be located if built at this place. It is at this point that the launch stops to receive the salmon taken to Loring. Between here and the saltery there is a deep and narrow passage of 1 or 2 miles, through which it is only safe to pass when the tide is full. During the ebb or flow of the tide the water rushes through this passage with the force of a torrent, and only a year ago 3 natives were drowned while attempting to pass through in a large boat. It is one of the most dreaded and dangerous water courses found in this portion of the territory.

There is a settlement here usually of about 50 natives and half a dozen white men during the fishing season, but it is wholly abandoned in the winter months. There is a small store well stocked with general merchandise and the business is under the management of Mr. Bell, who showed me some fine red cedar timber in this vicinity, and says there is a considerable body of it.

TOLSTOI BAY.

From Lake bay to Tolstoi, located on the east side of Prince of Wales island, the distance is about 30 miles. It is the most southern station on this island where fish are obtained for the Loring cannery. A large saltery is located here, but during the season of 1890 only a few barrels of fish were salted, as they were able to ship most of those caught in fresh condition to the cannery. It is a natural salmon location, well sheltered from the outside, and will prove a valuable auxiliary to the new cannery should it be desirable to include this among the supply stations. It is but 35 miles across to Loring, and it may be deemed best to reserve Tolstoi as an adjunct to the Loring cannery, which at present depends upon it for a large supply of salmon. A crew of half a dozen white men is kept here during the fishing season. This is quite a resort for halibut, and splendid specimens can be caught almost any time by throwing a hook and line into the water from the saltery.

From this place to Karta bay settlement there is a trail over the mountains, which shortens the distance between the two points to about 12 miles, while as many as 40 miles must be traveled if the journey is made by water.

KARTA BAY SALTERY.

Some 6 years ago Karta bay, on the east side of Prince of Wales island, the site of the first salmon saltery in Alaska, became noted as the place where the collector of customs for the district of Puget sound captured a large quantity of opium. Having heard that a large lot of this drug had been sent here from British Columbia, which it was intended at the first opportunity to ship to the states, he succeeded in reaching this place ahead of the parties who owned the opium, and found it secreted in the salmon house packed in barrels. The amount found was estimated to be worth about $50,000.

The place consists of half a dozen log and frame buildings, but during the season of 1890 all the salmon caught here were taken by the natives to the Loring cannery.

The stream has every indication of affording large numbers of fish, and the natives, of whom I found about 25 at the time of my visit, told me there was never known to be a failure in the run. The parties interested in this location deem it of enough importance to keep on hand a small stock of goods and 2 white men to look after their property.

KASSAN.

This is a native settlement at the southern end of Karta bay, and about 10 miles from Karta bay saltery. It is one of the villages of the Haida tribe, and at one time was an important place. It now contains about a dozen native houses, mostly built of logs, and some of them large and substantial. When the natives who regard this as their permanent residence are at home, they number probably not to exceed 75.

Some fine totems have been erected here, and some of the houses contain a number of rare curios in the shape of elaborately carved wooden masks, headpieces, and implements of war, among the latter being old flint lock muskets of Russian and English make and a number of old blunderbusses. A few antiquated pieces of tableware bearing a Russian stamp were scattered around, and if all the boxes and chests piled up in these houses contained as many relics as the few I saw opened, this would be a good field for the relic hunter to swoop down upon.

Among the natives here I found an extraordinary character, a man perhaps 70 years of age, of powerful physique and voice, and totally blind. He was known as Paul Jones, and spoke exceedingly good English. One of my natives told me that he was known as the native whose eyes had been put out by whites many years ago, but he denied this, and said his blindness was the result of disease. He took a great deal of pleasure in telling me of things that took place before he became blind, and of his association with whites during the early settlement of the country. Some of the incidents he related sounded very much like the experiences of the famous man whose name he bears. He had evidently been a character of some note during his younger days, and the respectful consideration paid him by the natives showed that he was still a man of influence among them.

About half a mile across the bay from the village is a large stream which at the time of my visit was swarming with salmon. A large canoe filled with these fish left for Loring the morning after my arrival, and from information obtained from the natives I became assured that this was an important and valuable salmon location.

NICHOLS BAY SALTERY.

Within a few miles of the southern extremity of Prince of Wales island is a bay known as Nichols bay. It is perhaps 2.5 miles long by half a mile wide. It is a location selected by a firm which, for a number of years, carried on a salmon saltery at Burroughs bay. At the time of my visit the fishing season had not commenced. There are the usual buildings necessary for carrying on the salmon salting business. On the same bay, but a mile nearer Dixon entrance, is located a native summer village. The natives I found here were stopping only temporarily.

TAKU.

This place is another location made by the same firm, about 30 miles around the lower end of Prince of Wales island, and a branch salmon saltery was established here at the same time as that at Nichols bay, and with about the same character of improvements. The saltery is located at the head of a small cove branching off from Cordova bay. A large stream comes in from the mountains and has every natural advantage necessary to make it a prolific one. I was later informed that the season's catch had proven all that had been anticipated, both here and at Nichols bay. This company has a steam launch, which is designed to run between the two stations and assist the natives in the transporting of fish to the salteries.

KLINQUAN.

Within 2 miles of the Taku saltery is located a small Haida village known as Klinquan, which, like Kassan, was probably at one time a place of some note among the natives. There are about a dozen native houses here similar to those found at other native villages, and there are some very interesting totems. This village is seldom visited by natives now, and it is doubtful if over a dozen families are ever here at one time.

HOWKAN.

Howkan (Jackson post office) is situated upon the west side of Long island [which lies between the south end of Prince Edwards island and Dall island], and next to Port Chester is the most important native village in this part of the territory. The Haida as a tribe are considered by many whites as equal to the Tsimpseans in point of intelligence, morals, and general character. Physically they are perhaps the best formed of any of the Alaskan natives, many of them being of large frame and powerful build. They are good looking as a class, and some of the women are very pretty.

Rev. J. Loomis Gould, the Presbyterian missionary at this place, has been unremitting in his efforts with these people for the past 9 years, and has been ably seconded in his work by his wife, a woman of charming character, who possesses many of the charitable and philanthropic traits which have distinguished her sister, Mrs. McFarland, so long stationed at Fort Wrangell, but now in charge of the children's home here.

There are but 2 white men living at the mission besides the missionary, one the superintendent of the sawmill and the other the storekeeper. This village is about 175 miles distant from Fort Wrangell by the usual route, and probably its remoteness from white settlements has aided in the success of the missionary work among these people.

The public school here, supported by the general government, is presided over by a sister of Mr. Gould, and her work among the native children has been marked by excellent results.

The children's home, in charge of Mrs. McFarland, and supported by the Presbyterian Board of Home Missions, is occupying temporary quarters, the pretty buildings built for that purpose having been destroyed by fire a year ago. Mrs. McFarland and the society have at this place suffered their second loss by this means, the home at Fort Wrangell having been entirely destroyed by fire a few years ago. In both instances Mrs. McFarland lost nearly all her personal property. Howkan has a post office called Jackson, and receives mail from Fort Wrangell once a month. The regular Alaska steamers make visits to this place only twice a year, once in the autumn and once in the spring, and remain only long enough to discharge their freight.

The village of Howkan contains about 40 houses, among them a number of neat and pretty cottages occupied by natives. At the time of my visit most of the people were away for the summer, fishing and working at different canneries. There is an elaborate display of totems here, the carvings upon them being of the best workmanship. From my observations I am led to believe that the Haida rank second at least among all the other tribes in the practice of industrial pursuits, many of them displaying rare mechanical skill. (*a*)

There is a general store here, which carries a stock of several thousand dollars and does a large business. Besides dealing with the resident Haida, many of those living on the Queen Charlotte islands do more or less trading here, bringing their furs, which they exchange for goods.

About 20 miles south of Howkan is a place sometimes occupied by the natives, called Kaigani. It is at the southern point of Dall island, which lies on the opposite side of Howkan strait, a body of water a mile or so wide separating this island from Long island. Between Kaigani and the Queen Charlotte islands the Haida hunt sea otter, this channel being a resort for this most valuable of fur-bearing animals, though they are not very numerous. These waters are also in the pathway of the fur seal on its journey to the breeding grounds in Bering sea, and many valuable pelts are secured by the natives.

About 3 miles south of Howkan, on the opposite side of the strait, is located a sawmill which is run by water power. For the past 5 years it has been made to furnish lumber for the mission and also for the natives. None of the lumber cut here has been sold to the white settlers or sent away from this immediate vicinity. The mill is run by natives with the help of the superintendent, a part of whose duties it is to instruct them in the use of tools and in the various branches of labor.

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a In carvings the Haida are conceded to rank first both in design and execution.

The general appearance of the country on Prince of Wales island, near Howkan, is similar to that of other portions of the island. The surface is covered with the usual kinds of timber found in other parts, and of a similar quality.

At the time of my visit to this place the weather was so bad that I had to remain here 4 days. The next day after my arrival the steam launch from Taku arrived, bringing Mr. Miller and his wife and daughter. An idea of the remoteness of Jackson from other settlements, and the rare visits made by strangers, is best understood when I state that Mrs. Gould told me this was the first time during her residence of 9 years that she had had the pleasure of entertaining a white woman.

KLAWAK, OR TLEWAK.

This is the most important settlement on Prince of Wales island, being the principal village of the Hanega tribe of Thlingit, and when all are at home they number about 300. It is one of the oldest stations in southeastern Alaska and the first salmon saltery established on this island by California capitalists. The buildings belonging to the company are all of the most substantial character, and everything connected with this establishment shows the business-like methods employed and the close attention paid to the smallest detail.

There are about 60 buildings in this settlement, and during the fishing season it has the appearance of being a thriving village. It is on the line of the mail route between Fort Wrangell and Jackson, and has a post office, Klawak mail being received here once a month. It is not on the regular route of the Alaskan steamers, and the goods handled by this company are brought here in the spring and the season's pack of salmon shipped to San Francisco in the fall by their own vessel.

The capacity of the cannery is about 15,000 cases, and 2 steam launches visit a number of stations and bring salmon here whenever it is feared the streams in the immediate vicinity may not yield a sufficient supply.

The Klawak Cannery Company is under the direct charge of a superintendent, and he has solved the problem of native help in the salmon packing business. The fish are caught almost entirely by the natives; they constitute the principal help employed on the launches, and, aside from a dozen white men employed, native men, women, and children do the entire work. They cut the tins, make the cans, clean the fish and pack them, make the boxes for packing the cans when ready for shipment, and among the first things taught is the free use of water, so essential to this business. The fact that the cannery at this place is carried on almost entirely by native labor makes it one of the most interesting institutions of its kind in the whole of southeastern Alaska, for in all the other canneries the work is done by Chinese, while here not a Mongolian is employed. When ready for market the product of this cannery enters into successful competition with all others and finds a ready sale.

Klawak has a well equipped store and does a large business. Deer and hair-seal skins are brought here by the natives in large numbers, and many of the different kinds of furs found in the vicinity make their way to this market.

Immediately adjoining the cannery is a large steam sawmill, with a sawing capacity of 15,000 feet per day. It is used only for making lumber for the use of the cannery and to supply the natives with building material. All the box lumber is made on the spot, while boxes used by other canneries are shipped from Puget sound in "shucks" and nailed together when wanted. This sawmill was erected some years ago, when it was supposed that lumber could be shipped from the territory, and at one time extensive preparations were made for sawing lumber for the San Francisco market. But almost the first shipment made was seized by the government, and after years of litigation the company compromised the case, and the work of the mill thereafter was confined to local wants.

For 2 years a government school was in operation here, but 3 years ago the teacher died, and until the spring of 1890 the vacancy was not filled. At the time of my visit, however, the school had been started anew, and there was every prospect that the neat 2-story schoolhouse, which was also made to serve as the residence of the teacher, would be filled with native children.

Among the 50 native houses here some are neat and substantial. They are arranged around the beach in a semicircle in the rear of the company's buildings, and the natives can launch their canoes from their very doors and paddle away on their journeys.

I arrived at Klawak on the 24th of May, and as I was obliged to travel completely around Prince of Wales island, concluded to make this my starting point. On account of the location of the settlements on the west side of the island I had to go to the extreme southern point and back to Klawak. On this journey I was absent until the 2d of July, and at every village visited my natives were questioned about the proposed "potlatch" which was to be given at Klawak by the chief Tekike of the Hanega tribe on the 4th of July. This is an antiquated custom, still to some extent observed among the Alaskan tribes, in which a chief and perhaps other members of a tribe distribute presents during a season of feasting and merrymaking, which often lasts several days.

In the present instance Tekike had sent invitations to the Haida to join in the celebration, and everywhere we went I found the natives all anxious to be present. Those who constituted my party were willing to work extra hours and undergo the inconvenience of traveling in bad weather if they could only get back to participate in the festivities. In view of an opportunity of witnessing an unusual event and a chance to enumerate some who might

otherwise escape me, I concluded to hurry my work that I might be at Klawak on the anniversary of the nation's independence.

On my return I found one portion of the village occupied by Haida and the other by Hanega. Everything was bustle and excitement. The clerks at the store were taxed to their utmost to wait upon the natives, who brought in their furs and dug out from their pockets many a silver and gold piece, for the purchase of some article of clothing, blankets, or groceries, which were to be distributed among their friends as an evidence of good will and friendship.

The chief interest, however, centered in Tekike. It was understood that he proposed to make this the most important event of the kind that had taken place among the natives for years, and his house was filled with all manner of goods, with which he expected to purchase the esteem of the natives and secure himself renewed recognition as the chief of the Hanega tribe. Tekike is a man about 60 years of age, the possessor of the largest and best canoes at Klawak, and claims 2 or 3 of the best fishing streams in this vicinity.

On the morning of the 4th a procession was formed from the Hanega quarters, which marched to Tekike's house, and it was immediately followed by one composed of the Haida. Many of the houses were ornamented with flags flying from the roofs, and the company's buildings were gayly decorated. The natives were dressed in odd garments, some of them gorgeous in gilt and buttons and others ludicrously grotesque. Many of them had their faces partly painted in red and black, and on the heads of some were elaborately carved crowns and headpieces made of wood and inlaid with shells. Feathers were braided in their hair and eagle down was mixed among the loose locks of the women, which gave them the appearance of having slept in a feather bed the night before. What the significance of the feathers may be among the Alaskan natives I do not know, but they play a conspicuous part in every celebration, and among the dancers it is the practice to fill the space above the headpiece with small feathers and down, which fly about them as they jump around.

When they were all in the large room of the chief's house it was filled to suffocation, and peering into the doors and windows were the faces of many others anxious to witness the ceremonies. There must have been over 400 natives present. The exercises opened with a song, which, while it did not possess very great range of note, was rendered in very good time and harmony. The children all joined in and the sight was an interesting one. At one end of the room were 2 native women with rich Chilkat blankets (an article much prized by the natives, and woven from the wool of the mountain sheep) thrown about their shoulders. They stood together and gracefully swung their bodies from side to side, keeping time to the music. The perspiration poured down their faces like water, but apparently unconscious of the heat they kept up this swinging motion for half an hour or more. At times they seemed moved by some new power, or perhaps the words of the song sunk deeply into their hearts, for they would swing with quicker motion, and every eye seemed riveted upon them.

When the music finally ceased a male member of the Hanega tribe stood up and delivered himself of a brief exhortation, to which responses were occasionally made by the crowd, and as the speaker waxed eloquent the excitement was intense. At the conclusion of the oration singing was again renewed, and the 2 women again started in on their swinging, lateral motion. After a while the chief Tekike took the floor and proceeded to deliver what seemed to be a welcoming address, and at times during its delivery half a dozen men would talk at the same time, probably telling of the glorious achievements of their chief. When the chief seemed to arrive at the closing point of his address half a dozen natives crowded their way into the room loaded down with blankets, bolts of sheeting, and calico, which they commenced to unwind and heap in endless confusion around their chief, until he was completely buried from sight under hundreds of yards of many colored cloths. During this ceremony some would exhort, a song would be sung, and again and again the bolts of calico and sheeting were unwound and heaped upon Tekike. What this ceremony meant I do not know, but when the chief finally thrust out his head, decorated with head gear and face painted, he looked more like some wild animal buried under this mass of dry goods than a human being. After what seemed to be hundreds of dollars' worth of goods had been thrown about him, Tekike freed his arms, and, tearing off piece after piece, called out the names of those for whom he intended each gift. A number of men and women were kept busy distributing the goods. Blankets were given away single and double, and valuable ones were cut in strips and the small fragments passed among the people present. The recipients seemed as much pleased with a small strip as they would have been with a whole blanket. There were those who seemed to be special objects of regard by the chief, and these persons were sometimes buried under the many gifts heaped upon them. These exercises were continued for some hours amid singing and the pounding upon boxes, which served as drums. After a time the crowd separated to gather again in the evening, when the same performance was repeated. The programme was varied somewhat at times, 1 or 2 men taking the place occupied by the dancing women during the day. These men were dressed in fantastic shape and their hair powdered with down and the feathers of birds. One of them would start in with some sort of an exhortation, and as he proceeded the crowd would shout responses, when all of a sudden a song would be started and the 400 voices would join in the chorus. Meanwhile the figures would jump and kneel, swaying and bending their bodies in all kinds of positions, their heads thrown backward and forward, and when their faces became livid with excitement their eyes would roll in their heads, and gradually they yielded to the exertion amid a shower of feathers. As fast as one became worn out another took his place, and this

performance was kept up for hours amid the anxious gaze of the audience, who seemed carried away with excitement, which grew so intense at times that it was painful to witness. For 4 days and nights these festivities were continued, sometimes in the house of the chief, at others in that of some member of the tribe, and occasionally they would all congregate in the quarters occupied by the Haida.

An interesting ceremony took place on the afternoon of the third day. As many as 20 canoes were launched, some of them containing 30 or 40 persons. With flags flying and ribbons streaming they floated out into the bay, an inspiring sight, under the glare of a bright sun, the men quietly dipping their paddles, while every voice joined in a funeral dirge. They were going to the burying ground about a mile away to erect a totem pole over the grave of a child of the chief who had died some months before. At the grave the ceremonies consisted simply of raising the pole. It was nicely carved, and I was told it cost $100. After the pole was raised they returned to the village, and in a few hours the potlatch, with all its accompanying excitement, was renewed. During the whole of the 4 days' celebration not an angry word was heard nor an intoxicated person seen.

After witnessing the bestowal of several hundred dollars' worth of goods by Tekike upon these people, in which were packages of ulikan oil, pressed seaweed, dried salmon and halibut, hats, women's dresses, clocks, knives and forks, and every imaginable article of clothing, dry goods, and groceries, I asked the manager if there was no end to the resources of Tekike. He replied: "Oh, yes; when this thing is over he will probably come to me for credit to buy something to eat." Sure enough, the very next day he came into the store with a deer pelt and a hair-seal skin, the combined value of which was but 65 cents, and exchanged them for some sugar and tea.

CHICAN.

About 60 miles north of Klawak, on the west side of Prince of Wales island, is a small settlement called Chican. It contains a sawmill and about a dozen houses. The mill was built some 10 years ago and has a sawing capacity of about 8,000 feet per day. It is run by water power, which has been brought at great expense several hundred feet from the side of a mountain through a flume resting upon an extensive trestlework.

About the time the Klawak company shipped some lumber to San Francisco the owner of this mill made a shipment which was seized by the government, since which time its business has been confined to trade within the territory. It has 2 schooners, which transport lumber to Juneau, Fort Wrangell, and the cannery settlements. Considerable yellow cedar is found in this vicinity, and samples of the wood have been worked up into many articles which set off the value of this timber to good advantage.

The manager lives here throughout the year and has his family with him. His house is filled with many comforts, and notwithstanding the loneliness of the surroundings, all seem to be contented. He is something of a shipbuilder, and has a fine steam launch of his own design. Another man, also an old shipbuilder, had at the time of my visit the hull of a good-sized schooner nearly completed.

Chican is connected by mail with Fort Wrangell and Howkan, but, like Klawak, it is not on the line of the regular Alaskan steamers. Natives on their way to and from the various settlements frequently pass here, and more or less trading is done in the store at this place. The surface of the country about is very rugged.

KICHIKAN.

This settlement is located in Tongass narrows, about midway between Port Chester and Loring. It was the seat of a salmon cannery, having a capacity of about 12,000 cases, but in the spring of 1889 the buildings were destroyed by fire and they have not been rebuilt.

A store is still maintained by the company, and there are a few native houses, but only half a dozen families reside here permanently since the burning of the cannery.

Kichikan is on the line of the Alaskan steamers, which stop here only if they have freight to deliver or furs to take on, these constituting the only article of shipment now.

The natural location of this place seems to be good for trade, as it is on the direct route between the lower portion of the territory and Juneau and Sitka. It has a remarkable salmon stream, which comes into the narrows just to the south of the village, and during the running season the fish ascend the stream in vast numbers.

I found here quite an extensive garden, in which potatoes and various varieties of root crops were successfully grown during the season of 1890. The manager told me that as a result of his experiments during the last 2 years he felt convinced he could raise all sorts of root crops profitably at this place.

WARDS COVE.

About 3 miles north of Kichikan is situated a salmon saltery known as Wards cove. It takes its name from an inlet which opens into Tongass narrows through a very narrow entrance, not over 25 yards in width. Inside there is a beautiful little sheet of water, perhaps half a mile wide, and so completely sheltered by high mountains that however rough and stormy it may be in the straits nothing is felt of it here. A German was engaged in making barrels here during the season of 1890, and put up a few barrels of salmon as an experiment with a view to a future enlargement of the business.

POINT BARRIE.

On the most southern point of Kupreanoff island is a salmon saltery designated as the Point Barrie settlement. It is owned by Wrangell parties, and was established 2 years ago. They have a store here, in which is kept a fair assortment of goods, and their saltery buildings are large enough to carry on an extensive business. A large stream flows into the bay about half a mile from the saltery, and during low tide there is shallow water for half a mile from its mouth. The hauling grounds are very good and comparatively free from rock.

Half a mile from the saltery there are 15 native houses, all of them temporary quarters, being occupied only during the fishing season or when the natives are in this vicinity on a hunting excursion. This is a great resort for deer, and many are killed here every winter. There is considerable level country in this vicinity, and I was told that when there is much snow in the mountains the deer come down to this level country for food.

A narrow strip of water separates Kupreanoff from Kuiu (Kuhu) island, joining Clarence strait near Point Barrie. It is called Rocky pass, and during high tide there is depth of water in most places sufficient to float a large ship. It is about 40 miles long, and is the route frequently taken by natives and small sailing vessels in going to Juneau from the southern section of the territory.

KAKE VILLAGE.

At the northern end of Kupreanoff island, situated upon a beautiful beach, is Kake village. It is the home of the tribe of natives known as Kakes, who have the reputation of being the most vicious of all the southeastern Alaska tribes. They are, without doubt, the most backward in embracing civilized habits, but during the 4 weeks in which I traveled all through their country I saw nothing which would justify the reputation they seem to bear. On the contrary, in a number of instances I saw that they were not only anxious to become civilized, but said that they would do anything to do away with the manufacturing and drinking of hoochinoo if the government would give them a school at which their children could be educated and have the same opportunities that some of the other tribes have in this respect.

There are about 25 houses at Kake village, and many of them are neat and will compare well with those of other villages I have visited. At the time I was there the place was entirely deserted. There are a number of totem poles here, some of them elaborately carved. The burying ground, which immediately joins the village, had the appearance of receiving a good deal of care. Strong and roomy "dead houses" had been erected, and through the openings in the sides I could see about the boxes containing the dead bodies all sorts of articles that probably belonged to the occupants when living. Nearly all of the Kakes belonging to this settlement I found at Point Ellis.

POINT ELLIS.

This is the name given to the cannery settlement which is situated at the head of a bay opening into Chatham strait, about 3 miles from the south point of Kuiu island.

Mr. Calbreath, the manager, is one of the oldest settlers in southeastern Alaska, having been engaged for many years as trader among the natives of British Columbia, and he still has large interests in trading stations up the Stikine river. He owns the only steamer running up that river, and has a pack train which takes goods from the head of navigation into the interior.

The Point Ellis establishment was removed from Fresh Water bay, on Baranof island, about 60 miles from its present location, during the spring of 1890. At the time of my visit to this place the fishing season had just commenced, but I understood afterward that about 10,000 cases were packed.

The cannery is thoroughly equipped with the latest improved machinery, and has a capacity of about 15,000 cases. 35 Chinese and 15 white men are employed here, and at the time of my visit nearly 100 natives were living here.

The store at this place is one of the largest found anywhere in my travels. The steam launch owned by the company might properly be termed a steamer. It is built after the model of large ocean steamers, and is equipped with a superior class of machinery. A crew of 6 men is necessary to man the vessel, which, if necessary, can attain a speed of 14 miles an hour. It is large enough to navigate the roughest seas ever experienced in these inland waters.

RESOURCES.

The natural resources of this portion of Alaska may properly be considered the same as those credited to the district farther north, namely, timber, fish, and mineral.

TIMBER.

The different varieties of timber found in this district are the spruce, hemlock, red and yellow cedar, poplar, alder, willow, birch, and pine.

The spruce timber found in this section generally has a diameter of from 3 to 6 feet, and towers to a height of from 70 to 100 feet, growing straight as an arrow. I did not find any very extensive bodies of this timber, or where it might be considered a vast forest, but splendid specimens are scattered from one end of the district to the other. The spruce, while sometimes containing much resin and gum, is here generally free from these objectionable features. It is a clear grained wood, from which all the barrels used by the salmon salteries for packing their fish are made. It is easy to split, and will compare favorably with the pine in other parts of the country for shingles and kindred uses. A feature of this timber which gives it special value is that it is inodorous, and fruits and breadstuffs can be packed in boxes made from this wood without danger of their becoming tainted with the taste or smell so common to many woods.

The hemlock corresponds with the spruce in size but is thought to be of little use by the natives and whites, as it is tough, difficult to work up, seasoning very slowly, and unless dry makes poor fuel. Its bark may in the future become valuable for tanning purposes, as it is heavy and thick and can be stripped easily.

I found one quite extensive body of red cedar and two very considerable bodies of yellow cedar. The red cedar will, I think, average larger in diameter, but in height they are about the same. Both varieties of timber are similar in character and appearance. The most distinctive feature between them is a slight difference in the shade of the bark, and the needles of the yellow cedar are round while those of the red cedar are flat. Their foliage is very similar in tint and difficult to identify unless closely inspected. Any doubt, however, as to the name for a tree is dispelled when the ax is driven into the yellow cedar, for a most pleasant odor at once becomes noticeable.

By far the best timber found here, if, indeed, its equal exists in any other part of the United States, is the yellow cedar. It is of a yellowish cast, has a beautiful grain, splits straight, and is susceptible of a very high polish. It contains but little moisture, and seasons rapidly without shrinking or warping. It is hard in texture and light in weight, and is preferred by the natives in all this part of Alaska for making paddles, and though the blades are made long and thin they easily withstand the severe strain often put upon them in these turbulent waters.

Of the two considerable bodies of yellow cedar referred to, one extends for a distance of about 7 miles along the coast, and the other for 10 or 12 miles. The trees average from 30 to 50 feet in height, and measure from 12 to 30 inches in diameter, though I found some as large as 6 feet in diameter, and probably 60 or 80 feet high.

At Jackson I saw several very handsome pieces of furniture made from the yellow cedar by the superintendent of the sawmill at that place. There can be no doubt, now that there is an opportunity to acquire title to land for industrial purposes in Alaska, that the merits of the yellow cedar will be made known to the world, and it will become one of the most popular woods in the market for furniture and finishing purposes.

An incident worthy of mention in this connection is that, all through the forests of this section, among the heavy growths of timber can be seen thousands and thousands of yellow and red cedar trunks standing among the spruce and hemlock like white monuments, entirely stripped of their foliage, and undergoing a process of slow decay. In nearly every instance I found by cutting into them that they were in a good state of preservation. I can not account for their condition in any other way than that the heavy foliage of the spruce and hemlock so completely envelopes them that they do not obtain enough sun and air to promote vigor and thrift. I believe if the trees surrounding these varieties of timber could be trimmed out, vast numbers of the yellow and red cedar could be preserved.

Another important feature of these extensive forests is the great number of spruce and hemlock from 6 to 18 inches in diameter, and running up to a height of 80 and 100 feet. The timber line in this portion of Alaska is about 2,000 feet above the sea level.

All through the timber upon the sides of the mountains there is a heavy covering of moss, and one sinks through it to a depth of a foot or more. Bushes in spontaneous growth form a complete network, filling with its tangled masses the interstices between fallen stumps and trees, which are also covered with a thick and slippery coating of moss and dead leaves. A prickly plant called "devil club", a species of cactus, having prongs sometimes 6 and 8 feet long covered with briers, penetrating the flesh like so many needles, grows everywhere among the shrubbery throughout this region.

I found, however, that the underbrush is very easily cleared away, for the soil is so shallow and its decayed vegetable component parts so light that it can be uprooted with very little difficulty. The timber on the mountains can be felled with very little labor, slid down the steep slopes into the water, and floated to the mills at much less expense than is often the case in many of our western states, where expensive chutes and roads have to be built.

The willow, birch, poplar, pine, and alder grow in greater or less quantities in this section, but they are very much scattered and of little commercial value.

The surface of the country is generally mountainous, sometimes precipitous, often attaining a height of 2,000 and 3,000 feet, timber prevailing everywhere. Wherever level land occurs, it is covered more or less with a heavy

growth of forest, underlaid with moss and shrubbery. Level land seldom occurs along the main water courses, but tracts of 2 and 3 miles in extent are often found on the shores of inlets.

There is nothing about the general appearance of this part of the territory that would give rise to the impression prevailing to a large extent that it is a barren and bleak region, where only seals and blubber-eating natives can survive the winters. Indeed, the general appearance of the country throughout the whole of this section would suggest fertility, many wild plants and shrubbery of the varieties found in warm and temperate climates growing here.

VEGETATION.

Several varieties of wild berries are found here, chief among which are the red and blue huckleberry, gooseberry, and salmon berry, and in some localities strawberries abound in large quantities. In many places where there is a depression in the sides or on tops of the mountains, or in low, marshy tracts, cranberries flourish. They are usually small, about the size of a huckleberry, and of a most excellent flavor. They are very tender, and become soft and juicy with the least possible cooking. Various other varieties of berries abound, some of which are eaten only by the natives, as they have an insipid taste not enjoyed by us.

In many localities I found potatoes, carrots, beets, parsnips, radishes, lettuce, and turnips grown by the natives, and at some of the canneries the Chinese laborers had patches of ground cleared off, and their efforts at gardening were generally repaid with good results. The vegetables I have eaten in Alaska fully equal in flavor, size, and quality those found in the states.

From what observations I have been able to make in the matter of the possibilities of this country from an agricultural standpoint, I am led to the conclusion that when a class of people who understand gardening and what kinds of root crops and cereals are best adapted to this climate and soil undertake to demonstrate its capabilities their efforts will be rewarded with good results.

Never have I seen a country where the natural vegetation grew with such spontaneity and made such rapid strides toward maturity as in this section. Both timothy and blue joint and the coarser slough and marsh grasses thrive, and clover has done well in localities where it has been planted. If the high latitude of this country gives it a short season, it must be remembered that there are nearly two months, June and July, when the sun is under the horizon but a very few hours in the 24, and what is lost in one season of the year by the shortness of the days is made up in the other and when it is most needed. If the rank and abundant growth of the natural vegetation in this country is an indication of what it would do with cultivated crops, there can be no question as to favorable results.

LIVE STOCK.

The only live stock found in my district, with the exception of 4 hogs at Loring, was in the town of Fort Wrangell, and upon the only farm in southeastern Alaska, 4 miles north of that place, at the mouth of the Stikine river. At Fort Wrangell the stock consisted of half a dozen milch cows, whose owner supplied the inhabitants with milk. The stock on the farm consisted of a score or so of cows and beef cattle and half a dozen horses. The year 1890 was the second season since the farm was established, and the owner expected to carry his stock through the winter with wild grass he had cut and put into a silo. He was hopeful of good results from his first venture in this direction. The cows at Fort Wrangell depend mostly upon hay and grain shipped from Puget sound for winter feed, but when I saw them in October they were fat and sleek, and had passed through the summer feeding on grass growing upon the island in and about the town.

The hogs at Loring found abundant food from the refuse of the boarding house, and their sleek condition might have been accounted for from the care they received. Swine thrive, however, upon fish and clams found upon the beach, but when fattened in this way a disagreeable flavor is imparted to the meat. If, however, the animals are subsequently penned up and fattened on corn and grain, the fishy taste is destroyed.

WILD FOWL.

Myriads of wild fowl swarm in the waters of this part of Alaska, and many varieties of ducks and sea gulls are found here. A number of different kinds of loon were seen, some of which were of beautiful plumage. Toward the last of the season geese become very plentiful. The sea parrot, resembling a small duck except that its bill is bright red and shaped like that of a parrot, were found all through the district, and they seemed to mingle freely with the ducks. Gray and bald-headed eagles were seen in large numbers, and seemed to inhabit every island. The natives all through this district during the months of July and August like to visit Forrester island, which lies in the Pacific ocean about 20 miles south of Dall island, and a small group of islands about 20 miles farther to the north, called Misty islands, for the purpose of gathering wild fowl eggs. These islands are the hatching grounds for the sea parrots and sea gulls, and from the description given by the natives I should judge that there were myriads of these birds upon the islands. They tell some curious stories about the tameness of the birds and the ease with which they are caught. There are no wild animals of any character upon these islands, and the eggs are deposited upon the bare rocks by the thousand. The eggs resemble those of the turkey

in size, and are of various colors, most of them being speckled or spotted. A native canoe containing 8 men and 3 or 4 women came into our camp one evening with boxes, pails, and kettles filled with eggs. I counted those in one of the boxes and estimated that they had over 1,500. I boiled some and found them of excellent flavor.

DEER.

Among all the different kinds of game which abound in this part of the territory, deer is by far the most numerous. They are found in almost every part of the district. Deer signs were seen at nearly every place we camped, and at no time were we without fresh venison. It seemed to be a matter of little trouble for the natives to shoot them, and it was seldom that one would be gone from camp over an hour without bringing back a splendid specimen. The localities where the natives say they are most numerous are Mary and Kuiu islands. It is to one of these islands that the natives in this district go when on a general deer hunt, and the slaughter at these times is frightful, judging from the number of skins found at the different trading posts and native villages. One trader on Kuiu island told me he shipped 2,500 deer pelts on the 1st of May, the result of but 2 months' trade, and when I was there in the middle of July he had as many more ready for shipment.

FISH.

Foremost among the resources of this section stands its piscatorial wealth. At certain seasons of the year a sight of some of the streams would justify one in saying that there was more fish than water. The different kinds of salmon found here are the king, silver or red, cohoe, humpback, and dog. Flounders, halibut, and dogfish are also very numerous, and the cod is found in large numbers near the islands bordering upon the Pacific ocean. Crabs and clams abound everywhere, but no oysters are found in this section. An excellent kind of fish found in all the salmon streams and lakes is the salmon trout. It looks like the brook trout found in the mountain streams of many of our northern states. It has crimson and purple spots extending along the sides, and the external resemblance to the mountain trout is so close that even those who are familiar with the latter often insist they are the same, and can not be convinced to the contrary until the fish is cut into, thus displaying the deep red color that is the distinguishing feature of the salmon.

Perhaps the location where the salmon trout are most abundant is in the lake at the head of the stream at Naha bay, the site of the Loring cannery. The superintendent of this establishment told me last August that he believed that there were enough trout in that body of water to supply the country. They grow to about 10 or 12 inches in length, and weigh from 2 to 5 pounds. They have a rich flavor, but their flesh, like most of the salmon, pales when cooked.

Large numbers of porpoise abound in these waters, and can frequently be seen chasing in front of or along the sides of a canoe. The narrow passages often swarm with these graceful animals, whose black backs and sides and white bellies glisten as they dart along. They seem to have little commercial value, and if hunted by the natives it is more for the fun of the sport than for any profit.

It is no uncommon thing to see in these narrow waters enormous black whales frequently coming to the surface to spout. They often go in schools, and in such close proximity to the native canoes as to occasion no little anxiety among the occupants. At times they approach very near, but swim rapidly away when the natives pound upon the sides of their canoe with their paddles.

Many of the natives in the lower part of the territory engage in catching dogfish, which is done by tying a number of large hooks baited with salmon to a line. It is an industry that affords the natives an excellent opportunity to do a profitable business. The dogfish are cut open, and after the entrails are removed they are put into pots, placed over a hot fire, and boiled to pieces. The grease which rises to the surface makes an excellent lubricating oil when refined, and is fast coming into favor. The flesh of this fish, if at all palatable, is never eaten even by the natives, who naturally crave oily food. The bellies of the dogfish are very rough, and when dry are used by the natives instead of sandpaper in rubbing the rust from their guns.

The ulikan, or candle fish, as it is often called, is one of the most remarkable fishes found in these waters. It is about 6 inches long, an inch in diameter, and nearly round. It is very free from bone, and when prepared for the table by boiling furnishes most excellent food. It is one of the most delicate and tender fish found, is so full of oil that it will fry in its own fat, and is everywhere considered a dish of rare delicacy. It is caught in great numbers along the Naas river, just over the southern line of the district. The salting and drying of this fish by the natives of that section has become quite an industry. When dried it resembles the herring in appearance, but is of much higher flavor. The oil from the ulikan is a great delicacy among the Alaskan natives, and when purified is thought to be as palatable as olive oil, while possessed of all the medicinal properties of cod liver oil. It is especially recommended for lung troubles, and is also considered a certain cure for dyspepsia. This delicate fish is found in all the waters of this section, but there does not appear to be the organized effort to secure them here that prevails among the natives of British Columbia.

While fur seals are occasionally found along the shores of the southernmost islands in this district, it is of rare occurrence that they are killed there, but great numbers pass to the seaward of Prince of Wales island on their

way to the rookeries or breeding grounds in Bering sea. I did not see more than 100 fur seal skins throughout my whole district.

Hair seals are found all through this section of the territory in large numbers, and their pursuit forms one of the principal occupations of the natives. They were seen in such numbers and so frequently that they soon ceased to attract my notice.

The natives stretch the skin of the hair seal in the same manner as the beaver skin is prepared for drying, and their market value among the trading posts is from 20 to 70 cents each. About the only use to which the hair seal skin is put by the natives is to cut it up for thongs or ropes used for tying up packages, and for the bottoms of moccasins. It is thick and unwieldy in its raw state, but when nicely tanned it becomes soft and pliable and is sometimes made into caps, which are impervious to the cold. The natives try out the fat of the hair seal, and the oil is a favorite article of food with them.

MINERAL INDICATIONS.

Prince of Wales island is probably one of the richest in natural resources in this section of Alaska. It is nearly 150 miles long and averages 30 or 40 miles in width. All along its shores are innumerable islands, some of them 6 or 8 miles long. Between are estuaries, which as the tides recede leave beautiful beaches, and following the shore, densely covered with the thick foliage of the fir tree, are found inlets sometimes extending a mile or more, with waters deep enough to admit of floating a large vessel. This is one of the peculiarities as well as a beautiful feature of this part of the territory, and one that the casual observer is apt to overlook. The narrow opening of a spacious inlet is often passed by unnoticed when sailing a little way from shore.

The indications on the surface are that Prince of Wales island contains much mineral. Gold, both free milling and in sulphurets, silver, galena, copper, and iron have been found in many places, but as yet no extensive efforts have been made to demonstrate whether any of the ores mentioned exist in paying quantities. If minerals exist in other portions of the district the very limited prospecting done has failed to show it. Annette island may be an exception, and also Dall island. Some of the finest specimens of gold-bearing ore I have seen on my journey were said to have been taken from Dall island.

On the east side of Prince of Wales island, near Karta bay, coal has been found, but the little prospecting done has failed to give promising results. The carbon is of a soft character and said to contain so much sulphur that it is not desirable for use. One prospector told me that he believed that a better quality could be found at a greater depth and in considerable quantity. This man had done much mining in coal in other parts of the country.

On the west side of Prince of Wales island, about 20 miles from Klawak, I found a very curious group of springs. My native paddlers had told me that a branch or leaf dipped into the water would soon be coated over with some substance which hardened upon exposure to the air. I went to the place and found at the mouth of a small stream a number of holes, from which water seemed to be oozing. Further on round mounds 3 or 4 feet high were scattered for a distance of an eighth of a mile or more on both sides of the stream. These mounds were hard, and picking at them with my knife I found the substance would chip off in minute particles, and seemed to have a salty taste. From the tops of these mounds water came welling up from holes 1 or 2 inches in diameter. When I stopped up a hole for a few moments water would shoot into the air several inches. A peculiar feature of these springs was that from the opening at the apex a streak of deep crimson stains extended down the sides of the mounds. The water seemed to be colorless, but a reddish brown sediment was deposited after it had been standing a short time. The taste of the water was disagreeable and tart, and an offensive odor issued from the openings. The effect of taking it into the mouth was similar to that of drinking lime water. I unfortunately broke the bottle which I had filled with the water to be analyzed. On the banks of the stream in the immediate vicinity of the springs were innumerable deer tracks, and I concluded that the water must be palatable to them.

About 4 miles east of Yess bay settlement, on the opposite side of Behm canal, there is a number of hot springs, said to contain valuable medicinal properties. They are much resorted to by natives, and are considered efficacious in venereal diseases.

CLIMATE.

Within the limits of my district from the middle of June until the 1st of August there were but few hours in the 24 that it was not daylight or nearly so. In the last days of June the glow that marked the path of the sun after it had dipped below the northwestern horizon did not fade away until the bright tints which preceded the dawn of another day had appeared in the northeast. It is not until the first days of October that one begins to notice the shortening of the days, but when once the change is apparent it is rapid.

Only upon the tops of the very highest mountains in this part of the country is snow seen later than the 1st of June. The first snow falls about the 1st of October, but usually disappears in a few hours. It sometimes falls to a depth of 3 feet in midwinter. Winter can not be said to set in until about the 1st of December, and by the 1st of May the weather is always of a temperature that admits of traveling, and prospecting may be carried on by that time, except on the highest mountains.

The effect of the Japan current makes the mean temperature about equal to the climate of the city of Washington, District of Columbia. It is an unusual occurrence in midwinter for the mercury to fall lower than 15° below zero, and it seldom gets down to zero.

The precipitation throughout this portion of the territory is very great, not so much in the quantity of water that falls as the long and incessant rains that prevail at all seasons of the year. It is not unusual for rain to continue without cessation for 1 or 2 weeks, but it is more of a drizzling character than a genuine downpour. The rains are usually warm and mellow, and one may be exposed to them for days at a time and not feel that disagreeable chilliness that is experienced during the rainy season in the Puget sound country and the Pacific coast states. It is claimed by many of the whites and natives that there is less rain in this part of the territory than about Juneau and Sitka.

It must be borne in mind that this peculiarity of climate, both as to the mild and even temperature and the continued rainy weather, is confined to the section embraced in my district. When once in the interior, or over what is known as the coast range, at an average distance of 20 miles from the sea, the climate is dry, with little rain except during the summer season, and the thermometer often ranges as low as 50 and 60 degrees below zero in winter. It may be remarked that a thunderstorm or lightning is rarely ever witnessed in southeastern Alaska, while in the interior they are of frequent occurrence and of the most startling character. The summer of 1890 was an exceptionally dry one, and for 1 or 2 weeks at a time little rain fell: at such times the atmosphere was as pure as crystal. During the rainy weather it is often foggy, and when the sun comes out for a day or two, long lines of misty clouds cling to the sides of the mountains, sometimes obscuring the lower portion, and having more the appearance of smoke than mist. Above these lines of clouds the mountains stand out in their fresh, green foliage, brighter in hue, one imagines, after emerging from their misty bath.

ROADS AND TRAILS.

In the whole extent of the territory visited by me there is not a mile of road, and I know of but 4 trails or portages in this whole district: one of about 8 miles between Tolstoi and Karta bay; one of 25 or 30 miles between Karta bay on the east central side of Prince of Wales island and Klawak on the west side; another from Nichols bay near the southern end of this island to Klinquan, of perhaps 8 or 10 miles, and another from Rocky pass on Kuiu island to Chatham strait on the opposite side, a short portage of a couple of miles or so. This partially explains why but 4 horses were found in my district. One was at Port Chester, the home of the Tsimpseans, and it had been turned loose to enjoy the freedom of the country for the services he had rendered before leaving his old home in British Columbia. The other three served their master on the only farm in southeastern Alaska, near Fort Wrangell.

GLACIERS.

There is but one extensive glacier in this part of Alaska, yet upon the tops of several of the highest mountains may be seen a crown of ice and snow, the remnant of what was a mighty glacier not many years ago.

Up the Stikine river, the only navigable stream in this section, about 25 miles from Fort Wrangell, there is one of the most extensive glaciers found within the whole of southeastern Alaska. It is in British territory just beyond the line, and extends back into the mountains 50 or 60 miles.

DEEP AND NARROW CHANNELS.

The route taken by the Alaskan steamers through this portion of the territory is what is called the "inland" route. In many places the narrow channels seem to barely admit of the passage of the ship, and the curves are often so abrupt that the traveler is puzzled to discover the point of exit from the lake-like sheet of water through which the steamer is smoothly gliding at the time. Yet, within this whole district, there is but one place where the usual speed of the vessel is slackened, namely Tongass narrows, and here it is only upon flood tide that enough water is found to effect a passage. This is a most interesting locality, for it is in the heart of one of Alaska's deepest solitudes. In this stretch of 20 miles one scarcely knows which commands the greatest admiration, God's handiwork in nature or the consummate skill of the navigator as he guides his floating palace through the swift flowing tide and the labyrinth of shoals and rocks into deeper waters. It is in these narrow channels along the shore that the greatest depths of water are often found.

The water in these channels is kept at a low temperature by the quantities of ice and snow that are constantly melting and flowing down the mountain sides. The innumerable waterfalls and cascades which are seen throughout this grand stretch of country come thundering down from snow-riven summits, affording a glorious sight to the observer of nature's grand panorama in this wonderland. Owing to the low temperature of these waters the natives have the greatest fear of being swamped while sailing in their canoes, knowing that if they are capsized they are almost certain of becoming benumbed from exposure to the waves. It is their keen dread of accidents of this nature that has made them such good judges of the weather. It is a maxim among the whites who travel in this country in small craft to never urge a native to attempt a journey on the water when he advises otherwise. It sometimes happens, however, that the most cautious among them are caught in sudden squalls, and when thus

overtaken they display, if left to guide their canoe according to their own judgment, the best seamanship and the steadiest nerve. The skill with which the natives will, by a graceful turn of the paddle, present just enough of the broadside of his canoe to escape a white and seething "comber" as it rolls in his wake is indeed marvelous and challenges a lively admiration for the dusky navigator.

CANOES.

The highest ambition of the average native of this section is to possess one of the canoes made by the Haida of Prince of Wales island or by members of the same tribe living on Queen Charlotte islands. They are made from the red cedar tree, sometimes 70 or 80 feet long, and the largest are capable of carrying 30 or 40 people. They are similar to most native canoes, hewed out of logs, but the bow and stern project 2 or 3 feet beyond the line which runs, with almost perfect symmetry, the whole length of the sides of the canoe. The manufacture of these canoes is a tedious undertaking, but when finished they are of such uniform thickness and perfect curves that when launched they ride the water with grace and buoyancy. It is impossible for these canoes to sink, for the extensions at either end serve as "righters", and when capsized, if freed from mast and sail, they will at once assume an upright position, and if filled with water will not sink below the surface.

MISSIONARY WORK.

I can not close my report without commending the efforts of the missionaries in this part of the territory. Nearly every tribe has had men and women among them whose devotion and self-sacrifice has won from the natives their confidence and esteem.

The work of the missionaries among the natives of this section may be said to have commenced about 10 years ago, when Rev. Sheldon Jackson visited the different tribes with a view to permanently establishing missionary stations. The missionaries he selected for the different tribes proved to be adapted to the work, and among the Stikines, the Tongass, the Hanega, and Haida I found earnest and devoted native men and women who were following the teachings of Christ, and whom religion was doing more to keep within peaceful pursuits than all the combined forces of military and civil government. From my intercourse with these people I have been impressed with the good the missionaries have accomplished, and feel that too much can not be said in praise of the men and women who are laboring in this country to bring these people to a higher plane of civilization.

THE FIRST DISTRICT OF ALASKA FROM PRINCE FREDERICK SOUND TO YAKUTAT BAY.

BY ELIZA RUHAMAH SCIDMORE.

Between Prince Frederick sound and Yakutat bay lies the region of Alaska's finest coast and mountain scenery, its greatest glaciers, its richest mineral region, and its largest settlements. Within it centers all that spirit of progress which has gained for the territory its meager political blessings, which has made its resources widely known, developed its industries, attracted settlers, marked the map with new towns, and dotted the shores with mining camps and canneries that are the beginning of future towns. Unlike other districts of Alaska, its white population is gaining in permanent elements from year to year.

While there are 3 large salmon canneries at the head of Lynn canal and 1 on Baranof island, an oil and guano factory on Kenasnow island, and a few salteries, the fisheries are secondary to the mining interests of this region. The discovery of gold near the site of Juneau in October, 1879, marked the turning point in Alaska's fortunes. The miner's pick opened the way, and it was chiefly the insistence and efforts of Juneau mine owners that secured that concession from Congress establishing a skeleton form of territorial government May 17, 1884.

Although the United States had no mining laws for 17 years after the discovery of gold in California, those laws were not extended to Alaska until the passage of their organic act, 8 years after the first placer miners had made their camp at Shucks, in Windham bay. With the American citizen's inborn principle of self-government, the remote camps maintained the semblance of law and order. The rights of property were admitted, but the fugitives and renegades who purposely sought these regions beyond civil law often made it difficult to maintain these rights for the first half of this decade.

The homestead and pre-emption laws having been withheld from this territory, the most desirable class of settlers have been barred out; but in the face of all hindrances the section has gained a population of nearly 2,000 whites, and 2 considerable towns have sprung up on Gastineaux channel. Great sums have been invested in mining plants in the territory, and a large amount in gold has been taken out. Over 500 mineral claims have been filed and one-third of these patented. The independent miner, working his one small placer claim, has been succeeded by stock companies and rich syndicates, who conduct quartz and hydraulic mining on the largest scale, and are constantly enlarging their plants. The general land laws not being extended to this territory until 1891, the agricultural possibilities of the region could not be proven. As there were no titles to any other than mineral lands, citizens had only a squatter's right to their homes, and insurance companies refused risks. With no form of municipal government provided, all public improvements have been at the expense of the few public spirited citizens. A rigid enforcement of the timber laws, designed to protect the arid, treeless prairie country of the western territories, has worked against the development and best interests of this densely forested region. Strict prohibition laws are decreed for the whole terrtitory but are not respected, and can not be enforced in this section, where whisky smuggling is as fixed an occupation or industry as mining.

The scenery of the region is as much a factor in its wealth and prosperity as any of the material industries or portable commodities. Its fame brings thousands to visit the coast every season, and this tourist travel dates from an initial excursion party led by General Nelson A. Miles in 1882. The largest ocean steamers may ply on the inside passages of the northwest coast, and 4 trips are made from Puget sound during each of the 3 summer months, the ships touching at Fort Wrangell, Juneau, and Sitka, visiting many canneries and going into Taku inlet and Glacier bay. The steamship company began to cater to this travel in 1884, and since that time it is estimated that more than 10,000 tourists have made the great loop along the coast and through the islands. It is easy to see that this travel is only in its beginning, and that southeastern Alaska is the great yachting, hunting, fishing, camping, and summer pleasure resort of the future. Little attempt has been made to tempt or encourage this travel by the inhabitants of the settlements, but in time the summer hotels, the small interisland steamers, the bridle paths, and guides will come.

Eastern and European geographic societies have considered Alaska a fit region for exploration, and have sent out expeditions, and explorers have come under less eminent auspices. Very often the explorers found that Russians and Hudson Bay company agents had anticipated them by half a century, and they have been hospitably entertained at mining camps in the heart of the presumably undiscovered country. The prospector has covered much of Alaska in his search, but there is abundant field for scientists on the untrodden peaks, the unknown glacial fields, and the mineral belts, which the prospector has only scratched here and there. The government has done little in the way of land exploration and survey, ethnological or archæological study, in this most interesting country, and the coast and geodetic survey, although diligently at work for 10 seasons, has not yet completed the survey of the continental coast line as far as Yakutat nor charted the routes of commerce among the islands. To thoroughly survey the archipelago will be more than one coast survey steamer can do in several years.

The ordinary route of commerce along this coast rejoins the mainland shore at Prince Frederick sound and follows a bold mountain wall all the way to Chilkat, save where the bar at the head of Douglas island compels the detour of its shores after leaving Juneau. The shores grow bolder, the snow fields are vaster, and glaciers gem the range as they follow it to the northward. As the several mountain systems of the coast converge and make a great curve westward the heights increase, rising finally to the group of lofty peaks in the Fairweather region, and then to Mount St. Elias, the southern sentry of a great army of peaks that stretch northward.

The 3 great islands, Admiralty, Chichagof, and Baranof, have their mountain systems, but except as the prospector has searched their shores and followed their water courses, nothing more is known than their snowy peaks and overlapping ranges can declare. Their real outlines, their indentations, and their areas all remain to be discovered.

Remnants of the great glaciers of prehistoric times that carved out all these channels and canyons, hewed down the mountains, chiseled their sides, and made all their landscapes ready for nature's richest decoration, remain as the crowning attraction of this district. The 5,000 living glaciers, which Prof. John Muir estimates as belonging to the coast region of Alaska, all lie between Prince Frederick sound and Cook inlet. Hundreds of them descend nearly to the level of the sea, and over 25 discharge icebergs directly into tide waters. The glacial record is plainly written on every mountain side, and everywhere one may see glacial work in progress. Wonderful tidewater glaciers, such as otherwise one must go to Greenland or the Straits of Magellan to see, are here easily accessible to luxurious pleasure travel. A 4 days' voyage along the river-like reaches of the coast conveys one from the Puget sound cities to these fiords, barred by palisades of ice that rise far above the masts of the largest ships that steam close to them. Masses of ice many times the size of the ship are detached with crashes, thunders, and roars; ice cliffs topple and sink into the water; floating ice covers the surface for miles, and icebergs float away and ground on beaches, where the forest trees trail their branches over these dazzling monsters.

All this region rejoices in as dense a mantle of vegetation as the rest of the coast region north of the United States boundary. The heavy precipitation, the mild winter temperature, and the long, hot summer sun force luxurious vegetation. Forests cover all the land from water's edge to snow line, save where the rock is too perpendicular for a seed to lodge or a glacier fills ravine or canyon. No forest fires ever devastate these shores or darken the air, and the scars of a landslide are quickly covered with green. Every tree is moss hung, and moss-grown veterans of the forest hold beds of ferns and plants on their higher branches, and trees smother and maim one another in their rank growths.

There is the same flora from Dixon entrance to Mount St. Elias and no difference in the character of the forests. Menzie and merton spruce, with scattered red and yellow cedars, cover the shores as far as one can see. Only the yellow cedar has much value, and it has not yet been found in sufficiently compact bodies to reward any attempt to manufacture it into lumber for general use or export. Its darker foliage marks it easily among the other growths, and its plumy, willowy, tasseled branches grow raggedly and uneven as compared to the rigidity and symmetry of the spruce. The Indians kill many of these cedars by stripping them of their bark, the inner coating furnishing them with a fiber that serves all the purposes of rope, which they weave into mats, cloaks, and baskets, and the trunk is shaped into canoes.

For the first 1,000 feet above sea level the forests are choked with the densest undergrowth, a jungle of bushes covering the mossy pitfalls of logs beneath. Above that level is a belt where ferns and mosses riot and the giant cedars and hemlocks spring straight as columns or shafts in a vast cathedral, where there is always a dim green light and the dew and moisture left by tangled clouds. The foot sinks in and springs from this thick-piled carpet, and one treads and climbs with muffled steps. From the timber line, from 2,000 to 2,500 feet above the sea, there are the wildest fantasies in trees, wind-swept, gnarled, and crouching cedars and hemlocks borne down by winter snows, until what should be a lofty tree spreads flat like a mat, a springing mattress, covering many square yards of ground.

Wild flowers grow with a luxuriance not to be credited until one has seen the carpets and beds of flowers in some canyon or has waded through the acres of blossoms in some mountain meadow. There are 3 varieties of orchids found in this region, the rattlesnake plantain and 2 hybernaria, and the wealth of yellow flowers is as strangely significant of the yellow metal hidden beneath them as in California. 3 buttercups, the arnica, mimulus, hawkbit, yellow geum or alpine geranium, jewel weed, golden rod, yellow violets, and yellow epilobium complete the golden bouquet. The range of blue flowers is as wonderful, and great bluebells, with cups more than an inch in length, alpine gentian, pansies, asters, lupin, violets, monkshood, fleur de lis, and forget-me-nots star the beaches and the heights. Angelica, grass of parnassus, smilacina, streptopus, spirea, daisies, anemones, violets, cyclamens, bunchberry and thimbleberry, bryanthus, and the exquisitely fragrant moneses garland and deck the earth with their white blooms. The black Kamchatka lily (fritillaria) is a royal and most fascinating flower, and the rich tones of convolvulus, the rosy cups of the dwarf mountain laurel, and the pale pink buds of the heathery bryanthus brighten acres of canyon slopes and mountain meadows. Epilobium grows rankly and dyes the youngest moraines with its vivid crimson. The devil's club, reaching its thorny stalks 12 and 20 feet to spread its large thin leaves to the sun, and the great skunk cabbage (Lysichiton Kamschatcensis), unfolding leaves 5 and 6 feet in length and looking like a banana tree

half buried, give a tropical look to these forests. In June and July the weighted blueberry bushes give a tinge of new color to far reaches, and the salmon berries hang in red ripe and gorgeous yellow clusters overhead. The ground raspberry, the bunchberry, and the moroshka succeed it, and in places wild strawberries grow luxuriantly.

The prospector sinks in brush, mosses, and pitfalls of logs. Mosquitoes and gnats are man's only pests, and the only other living things are mostly worthy of a hunter's aim. Mountain sheep in the Sumdum region, mountain goats everywhere, and black, cinnamon, and grizzly bears afford the hunter of big game sufficient incentive. Black-tailed deer, small red deer, wolves, and marmots abound. Grouse, ptarmigan, geese, swans, red head, teal, and mallard ducks, eagle, and snipe invite the gunner. Huge crows croak in the trees and sidle over the beaches at low tide, hunting their daily clams, and all along the shores one may hear the exquisite song of the russet-backed thrush. Hummingbirds nest near Sitka, and one drummed in my ears in a canyon beside Muir glacier.

The marine life is even richer, and in forms ranges from shrimps to whales. The salmon is omnipresent, but this staple, a little cod and halibut, and herring oil are all that figure in the list of exports. Sea otter were exterminated during the free fisheries of 1824–1834 and have rarely reappeared among these islands and on the coast below Yakutat. Hair seals abound in the waters of Cross sound, or Icy straits.

Of the 4,737 Thlingits of Alaska few live beyond Yakutat or below Prince Frederick sound. While living in permanent villages and enjoying trade with the whites ever since the beginning of this century the most astonishing changes have come over these people within 10 years. Closer trade relations, resulting from the establishment of so many canneries, have brought them more in contact with the whites, and they have been almost too quick to lay aside their old ways and adopt others. Wars and uprisings are wholly a thing of the past; witchcraft and slavery have about disappeared; cremation has given way to earth burial; the one lodge with a central fireplace where several branches of one family lived under a patriarchal rule, has given way to log cabins or clapboarded and bay-windowed cottages; the blanket is cut and sewed into a fitted garment, and ready-made clothing is the men's usual garb. Government schools and mission schools have taught the young generation, and the mines, canneries, and sawmills have been so many industrial schools for the elders. These intelligent and industrious Thlingits were never to be confounded with the plains Indians, and are far from being a savage or uncivilized people. It is the Thlingit's aim to dress and live as the white man, and he fills his home with beds, tables, chairs, clocks, lamps, stoves, and kitchen utensils, and even buys silk gowns for his wife. He is no longer picturesque, distinctive, or aboriginal. Even his canoe has cotton sails instead of the old bark mats, and the oar works simultaneously with the paddle. The blanket and the beaver skin are not currency nor units of value, and he occasionally hoards silver in sums ranging from $8,000 to $10,000. They have been keener than the whites in seeing the possibilities of the tourist trade and sell their heirlooms and the crudest copies of their heirlooms for fabulous sums. Each year the cedar-bark baskets are more coarsely woven, and the traders' dyes have long replaced their own soft and harmonious colorings. They weave Chilkat blankets of coarse German yarn instead of the silky fleece of the mountain goat, and they manufacture antiques, even stone-age relics, with the shrewdness of Europeans. The Thlingits borrowed much of their art and ornament from the Haidas. Potlatches are now comparatively rare, and recently a mock war of reprisal and revenge between the Hunas and Sitkans showed that they were able to carry it out as a ceremony and dramatic entertainment illustrative of old customs. The winters are given up to rest, and recreation of milder kinds than of old, card playing, dancing, and other travesties of the white man's ways, delight them. Soon there will be only the color of the skin to distinguish these fishermen, miners, and day laborers from any others around them, and already the children at the Sitka mission school resent being called Indians by the tourists. "We are Alaskans", they explain.

The accompanying reports illustrate some of the peculiar customs of the people and show the spirit which animated them a few years ago:

REPORTS OF G. C. HANUS, MASTER, UNITED STATES NAVY, ON DISTURBANCES AMONG CHILCAT INDIANS.

47TH CONGRESS, 1st Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 81.

CHILCOOT, ALASKA, July 1, 1881.

SIR: The following is a detailed description of the fight which has recently taken place among the Chilcats. I shall report the whole story, because it is not only in my opinion true in every particular, but also because it illustrates many remarkable traits of Indian character. The cause of the disturbance was, as usual, hoochinoo. The Chilcats are divided into 2 tribes and subdivided into 4 families, namely, "Cinnamon Bears", "Crows", "Wolves", and "Whales". The first of these is considered as being the highest in rank and descent. The members of these different families intermarry freely, but even marriage does not absolve the individual from allegiance to the family to which he or she originally belonged. The children belong to the family of the mother. Shatevitch, the head chief of the Chilcats, is a Cinnamon Bear; he is very friendly to white people and exceedingly anxious for peace, though in his younger days he was known as a fighting chief. When the present disturbance commenced he was absent in the Stick country.

A Crow, by the name of Gancheo, brought a barrel of molasses to the village (he had bought it of the Jew trader, Martin, at Rockwell, Alaska) and gave a feast. The usual results followed, all the Crows getting drunk. Toohokees, a Whale chief, received a heavy blow from a drunken Crow for refusing to participate, but being sober he took no notice of it and retired to his house. His first wife, a Crow woman, was angry that he should have refused the hospitality of her family, and being drunk, entered a house where she

found a nephew of her husband's drying some seaweed. She stepped up to him and taking the seaweed from him threw it in the fire. The young man noticing her condition paid no further attention to her, merely asking her if she thought that he and his wife were slaves. This quiet conduct on his part exasperated the woman and she commenced abusing him to the best of her ability.

Toohokees' second wife carried the report of this slight difficulty to his first wife's mother, very much exaggerating and misrepresenting the affair. The old woman made her appearance and brought up old troubles which had arisen on account of ill treatment of her daughter, exasperating him. He got a knife and cut her head badly; he then bit off a portion of the wounded scalp, throwing it and the woman out of the house together.

Chilcat Charley, nephew of the old woman, witnessed this assault, and, in order to avenge his aunt's injuries, he went on the street and using his knife cut the first 3 Whales whom he met. One of these was Toohokees. A general fight ensued, during which Toohokees killed a young Crow chief by stabbing him.

According to the Indian custom, it was now necessary that a Whale of equal rank should be killed to make things even; so Toohokees detailed his nephew to die for his family. The young man accordingly dressed in his best suit of clothes and commenced dancing the peculiar death dance the people indulge in when they die for glory, as they consider death under such circumstances; but the Crows refused to shoot him, saying that he had done nothing, and demanded the life of his uncle Toohokees, but the latter would not show himself. Both parties commenced firing at each other, and one of the Crows was badly wounded.

The Crows again called for Toohokees to come out and die and thus end the fight, but he still refusing a constant firing was kept up all night. As both sides were sheltered no one was killed. Whenever Toohokees came forward his wife, a Crow woman, protected him by remaining in front of him. She was the cause of the disturbance; but being now sober, she declared her intention to die with her husband. In the morning the latter consented to die. So his wife came out with him and requested her people not to kill him until he should descend to the ground, since she was afraid that his body might be bruised if he fell from the top of the doorway. The Crows regarded her persistent protection of her husband as treachery to themselves, and one of them killed her. Toohokees, her husband, and all the Whales, then retired into the house to permit the Crows to carry off the murdered woman, because after death she belonged to her own tribe. An armistice was then agreed upon until after the cremation of this woman. The next morning Shatevitch, with a party of Crows, arrived from the Stick country and found the opposing parties ready for another fight. Sidnootz and his sister, two of the Crows who had just returned, on learning of the death of their friend, at once joined in the fight. Shatevitch endeavored to stop the fighting, but was unsuccessful. The sister of Sidnootz tried to entice Toohokees out of his house by inviting him to come out and kill her, reminding him of an old feud which had never been settled between them and could be disposed of now. Toohokees killed her from inside the house by shooting her through the heart. Her brother Sidnootz then rushed forward to revenge her death, but, being wounded, had to be carried back.

Toohokees now came out and commenced to dance the peculiar death dance spoken of before; a number of Crows fired at him, slightly wounding him; he dropped and feigned death. It seems that when a person is killed in their most peculiar struggle all parties stop fighting until the dead can be removed. Sidnootz came forward to look at his enemy, when Toohokees jumped up and shot him through the heart, killing him instantly. Toohokees then took a keg of powder, a bag of bullets, and a bag of caps and retired to the woods, accompanied by some of his friends, and commenced firing at the Crow houses, threatening to kill every Crow before he died. During the firing another woman was wounded. Toohokees' mother, sister, and uncle, who were left in the house alone, considered that he was a coward not to die after having killed so many people; so, for the credit of the family and that it might not be permanently disgraced, they dressed up in their best clothes and came out one at a time and were killed one after another. Shortly after this Toohokees was killed, having been several times wounded first.

The above is the record of the fight, and all other points are discussed in my general report on affairs here.

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CHILCOT, ALASKA, July 1, 1881.

SIR: I have the honor to report that, in obedience to your orders, I arrived at Chilcot, Alaska, at 7:10 p. m. on June 25, and learned that negotiations for peace among the opposing factions of the Chilcots had failed, and that fighting would be resumed on the following day. The Chilcots were afraid to go as messengers, but finally, through the influence of their chief, the Chilcot doctor, 3 men volunteered. I sent for Shatevitch, the head chief of all the Chilcots, the leading man among the Crows and Whales (the two opposing factions), and all others whom I had orders to invite to Sitka. While waiting for these people to come down I interviewed the Chilcot doctor, and found that he was in fear of his life because he had told Lieutenant Commander C. H. Rockwell of the troubles in Chilcot, and I could obtain no information from him. I found that this man had exerted his influence in the interest of peace, and that there were no complaints against him whatever. Mr. George Dickenson, who keeps the Northwestern Trading Company's post at this station, is a man easily scared, and I found him and his Indian wife thoroughly frightened on account of the serious difficulty at the upper Chilcot village. It was impossible to get a precise statement from this man. Nearly all his information consisted of vague reports and rumors.

Nearly all the trouble in this country is caused by hoochinoo made from molasses. The Northwestern Trading Company have sold none since the commencement of the fighting, and are moving the quantity stored here by the steamer Favorite this trip, so that in future, if other parties do not introduce it, one fruitful source of trouble will be removed.

I next interviewed the man whose brother hanged himself in Sitkap; after thoroughly explaining to him your action in the case, he expressed himself as much pleased with what you had done and wished me to thank you; also, that he would be satisfied with whatever you should decide as a just settlement, but that he alone was irresponsible, since the head of his family, Donowak, who is chief of the two lower Chilcot villages, is at present absent in the Stick country.

When the news of the suicide first arrived Donowak is said to have made some remarks blaming the whites for not punishing the man who caused the death of their kinsman, but on learning of your action in this case he must have been thoroughly satisfied, as just before he left for the Stick country, the trouble in Chilcot having commenced, he called a council of his people and told them to protect the trader and his property and to die in his defense if necessary. Kokee, an Indian who it was reported had threatened the trader, came to the store and slept there to afford protection, if necessary, when the serious trouble at the upper village commenced. This Indian is also absent in the Stick country. In view of the fact that Donowak and Kakie are absent it would be useless to send the brother of the man who hanged himself to Sitka. The Chilcot doctor told me he would go if I ordered him, but as the other leading men of his tribe were absent he did not wish to go just now. Shatevitch, the head chief of the Chilcots, sent word to the trader not to be afraid, but should any one make threats to send him word, and that he (Shatevitch) would have to be killed before the trader should be harmed.

The messengers returned from Chilcot on the morning of the 27th ultimo and reported that all the people sent for were coming down; but as they had not arrived by the evening of the 28th, I concluded they were not coming, and being thoroughly convinced that many foolish and vague rumors which were reported to me were false, I decided to see the leading men, even if I had to go to the upper village.

In company with the interpreters I crossed the trail to the lower Chilcot village, when, just as we were embarking in canoes, Shatevitch arrived with Katnatz, a young Crow chief, and several other men. He apologized for not coming sooner. He was giving a feast when he received my message, and informed me that he had brought leading men of one faction only; that the others could not come, as, being at the upper end of the village, they could not pass the blockade. I learned that 8 persons had been killed (4 Crows and 4 Whales), several had been wounded, and 1 of the wounded Crows, it was expected, would die. The trouble was the result of drunkenness, and I learned that the molasses had been furnished by the Jew trader, Martin, at Rockwell. Shatevitch explained that when the fighting first commenced he was absent, and that he had done all he could to promote peace. He also said this was the greatest tribal difficulty they had ever had.

I delivered your letter and had it interpreted, but I saw that no settlement could be made of the matter unless both sides could be interviewed; so I determined to go to the upper village with the interpreters. The latter is about 25 miles from the lower village, and can only be approached in small canoes. The current is swift, and the water in some places so shoal that even the canoes ground frequently. Mr. Brodock, a photographer, who had come here for the purpose of taking pictures in the upper village, volunteered to go with me, and learning the Indians had been expecting him I permitted him to go.

We arrived at Chilcot at about 9 o'clock in the evening and were hospitably received by Shatevitch, who had sent the young chief known as Murderer to receive us. A large house in which the chief keeps his treasures had been prepared for our reception; a fire had been built; an American stove for cooking purposes was brought in, and we were furnished with dishes, blankets for beds, and toilet articles. Servants were detailed to wait upon us, and some 60 callers paid their respects within a few minutes of our arrival. Our house was guarded during the night by some one sent by Shatevitch. In the morning about 100 people assembled in the house, but I found they were all Crows, and was informed that the Whales did not dare to pass the barricades. I endeavored to get them to select men so as to have their troubles settled by you in Sitka, but though they listened to all I had to say with respectful attention and wished me to thank you, they declined to go. I then made them a long speech and urged them to stop fighting. Several expressed their willingness to make peace if the Whales would pay 1,000 blankets. This was afterward reduced to $1,000, and still later to $500.

I next visited the Whales and found that their houses were barricaded. The houses in this village are all forts, having portholes cut at intervals. I spoke to these people as I had to the Crows and found them all anxious to end the fight, because they live in the upper part of the village and could not pass the houses of the Crows to go fishing or trading. The houses in which the councils were held are about half a mile apart. I passed from one to the other a number of times, and about 3 o'clock in the afternoon the Crows agreed to make peace if the Whales would make a promise to pay in my presence and that of Shatevitch. This the Whales finally did. The amount could not be decided for some time, since it depends on the death or recovery of a wounded Crow. The excitement among the Indians of the councils was intense, but all were respectful to me. I had invited Shatevitch to go below, but he does not wish to leave his people just now; besides, his son is a Crow and he wants to meet him as he comes from the Sitka country to prevent trouble on his part. Peace having been made, the Whales and Crows will now meet everywhere, and on account of the recent deaths of their friends and the bitter feeling which still exists, it is possible that disturbances might recommence before the final settlement, and I have therefore left the corporal and 2 privates who accompanied me to this place at the Northwestern Trading Company's post to protect the lives of the trader and family, as also the property at the post, and I inclose a copy of Mr. Vanderbilt's request, as also of the orders I gave to Corporal Jacobs, in charge of the detachment. In obedience to your orders I will return to Rockwell, Alaska, and report to Lieutenant Commander C. H. Rockwell for duty.

In contrast to the condition 10 years ago is the life in the log cabin villages now surrounding the Chilkat and Pyramid harbor canneries. Last summer I watched the arrival and departure of several canoe loads of Chilkats who came to Juneau on a shopping tour. The men bought generously for their wives, who were intent on having particularly gorgeous gowns, shawls, and kerchiefs for the Fourth of July, which is celebrated with great zeal in all the Thlingit villages adjacent to white settlements. One Chilkat, choosing a piece of yellow satin, produced a shoe and asked the Juneau dressmaker to make the dress to fit the woman who wore that shoe. Not possessing a paleontologist's constructive skill, the dressmaker shook her head, and the Chilkat himself served as lay figure for his absent wife.

George, the son of Chartrich, was arrested and taken to Sitka to be tried for some trifling charge. As it was in the height of the salmon season, and 6 weeks would elapse before his trial, George was released on bail, Lieutenant G. T. Emmons pledging $1,000 for his return when wanted for trial. When the government steamer, upon which George was to go back to Sitka, reached Chilkat, one of the fearful windstorms peculiar to Lynn canal was drafting down the long canyon and fiord and lashing the water to a foam. George made three attempts to reach the ship and each time was swamped or upset and obliged to swim back to shore. The ship sailed away without him, but George, paddling for a day and two nights through the lulling storm, managed to overtake the ship at Juneau and reach Sitka in time for trial.

For the past 9 years Lieutenant G. T. Emmons, United States navy, has voluntarily carried on ethnological and archæological studies among these people.

Looking from Wrangell narrows the northern wall of Prince Frederick sound presents one of the famous scenic reaches of the coast. The mountains tower abruptly and glaciers pour over divides and fill the deep valleys between their peaks. The Patterson glacier spreads a frosted mantle over one great slope, and above it rises that remarkable monolith, the Devil's Thumb, named by Captain Meade because of its resemblance to that other mighty thumb on the Greenland coast. A few miles to eastward the first tidewater glacier on the coast hides at the end of a long fiord and sends out myriads of tiny icebergs to sparkle along the sound. This Hutli, or Thunder glacier of the Indians, is small as compared to the greater ice streams beyond, but it is picturesquely set, debouching from a steep canyon at right angles to the narrow Hutli bay (*a*), which is forested close to the glacier's front. It has a

a Hutli glacier and Hutli bay have since been named Le Conte glacier and Le Conte bay in honor of Prof. Joseph Le Conte, of California, by the United States coast and geodetic survey.

frontage of half a mile on the water and the high walls rising so steeply all around it echo grandly to the falling ice. Even the stolid Stikines had imagination enough to liken these crashes and reverberations to thunder, and Hutli's rough syllables suggest a consonance and further emphasize this apt naming of the place. Prof. John Muir was among the first white men to visit this glacier in 1879 and as a scientist he has described this deeply crevassed and superbly colored ice stream, which lies less than 10 miles off the regular path of commerce.

The Baird glacier descends almost to the sea, sweeping from névés near to the source of the Patterson glacier and pouring down a broad defile that fronts upon a large bay to westward of it. With these rumpled, blue, and beautiful glaciers on the heights, and the snow-capped range rising to greater peaks as one traces its crest inland, Prince Frederick sound presents a noble panorama.

Green islands cluster along shore, often seeming to float upon the glassy waters in certain conditions of this strangely white and luminous atmosphere, and as the favorite breeding ground of whales the sound often sparkles with graceful jets of water; black backs arch and huge tails whisk in air above its surface.

Cape Fanshaw is the great landmark along these waters, and fronting to southwestward gathers about it all the storms that drift in from Cape Ommaney, the storm king of the coast. Prospectors and Indians have often been storm bound for weeks before daring to round Cape Fanshaw in their small boats or canoes. As the bubble of each new mining boom drew prospectors northward and left them stranded with its bursting, the adventurous ones drifted from Fraser river to Cariboo and Cassiar, and then began desultory search for another golden river beyond the Stikine.

In the last 15 years all the shores from Cape Fanshaw to the end of Lynn canal have been searched. Shucks, the first mining camp in Alaska, was established at the end of Windham bay, the first indentation of the coast above Cape Fanshaw, in 1876. After a few years these placers were abandoned, but within a few seasons a company has driven a tunnel under the first basin and began hydraulic mining on a large scale. There is an old Hudson Bay Company's house and an Indian village at the entrance of the bay, but the miners are 7 miles in from Stephens passage. The bay is full of rocks, ledges, and tide rips, but is a most picturesque fiord, a twin waterfall leaping from a high terrace at the end, and a broad salmon stream winding away southward. The first placer miners washed here and there along the beach, drove a tunnel, and turned the stream from its bed in the first basin, but left almost untouched this granite bowl filled with a deposit of auriferous gravel, which it is estimated can not be washed out in 20 mining seasons. A second smaller basin, 2,000 feet above the sea, holds another rich gravel bed, and the Uncle Sam basin, still farther up, is even richer.

The last basin is near the top of the divide separating Windham bay from the southern arm of the great Sumdum bay of the Indians, which Vancouver renamed Holkham bay. Placer miners were camped in Sumdum bay the season after the discovery of the Shucks basin, and the beds of old glaciers yielded fine gold dust, ground up by those remorseless mills of the gods. The magnificent Sumdum glacier faces the wide opening of Sumdum bay, and at the end of its far-reaching arms are other ice streams, 4 of which reach to tide water and send fleets of bergs adrift on its surface. Besides its many rich quartz veins, upon one group of which a mill is being erected, the Sumdum region is rich in game. On its heights the mountain sheep, or big horn, are found, those wary animals, as a rule, keeping to the interior ranges and nowhere else showing themselves along the great sea wall. The big white mountain goat leaps these peaks and crags as well, and with black, cinnamon, and grizzly bears in its forests, the bay offers much to hunters of big game who seek a camp ground.

Port Snettisham is the third camp on this mineral belt for which a great future is foretold, and beyond this inlet Taku mountain lifts its symmetrically rounded, splendidly green cone as a landmark for the entrance of Taku inlet, one of the great show places of the coast. Every variety of Alaskan scenery is presented between the inlet's mouth and the river at its far end, which was once a great artery of the fur trade. With each receding tide myriads of icebergs come drifting out of this deep recess, and the wind and currents sweep them up Gastineaux channel and beach them before Juneau house doors or carry them down to join the fleets setting sail from the Sumdum glaciers.

The long, forest-walled fiord, with snow-capped ranges behind the bold heights enfolding it, leads by many windings, with hide and seek views of far silvery ribbons and vast white plains among the clouds, to a deep basin or amphitheater in the heart of the mountains. There ice floes cover the water and glaciers of different types surround all. The steeply descending Taku glacier sweeps around a great ridge and pours straight toward one, its mile wide vertical front a vision of finely fretted, fairily fantastic frostwork. The glacier is fissured and crevassed for all its visible length, and apparently fills its rocky gorge from wall to wall, no lateral moraines being seen to mar the sharp contrast of the silvered stream and the dark granite banks. Where the front breaks so squarely into the sea, this jeweled wall rises 200 feet above its level. A party of French Alpine club members, who camped in the inlet in 1889, made some exploration of its ice streams, but Viscount de la Sabatiere and his companions did not attempt any measurement of its advance.

The Norris glacier, a couple of miles westward, is much greater in size, but is of the common Swiss type, and its dull gray lifeless front is little regarded while the Taku's sculptured and faceted wall is in range. The Norris is more broken than the Mer de Glace or the Aletsch glacier, and is six times the width of the former and

three times that of the latter, where it presses through its last gateway and turns from the gorge to descend toward the inlet and spread itself in a broad, even, deeply ribbed fan front. Only a short geological time ago this glacier broke off into the inlet, too, but it has receded until a sandy moraine more than a mile wide lies before it, and the water is shoal for half a mile farther out. Trees have begun to grow upon the farther edge of the moraine, and in midsummer acres of epilobium crimson the ground close to the edge of the ice hills.

From the Taku open, where the junction of Taku inlet, Stephens passage, and Gastineaux channel brings winds and tides together in fierce conjunction at times, one may look up the long reach of the channel and see the town of Juneau lying prone at the foot of the perpendicular Bald mountain, that advances its fore foot boldly into the channel. For a dozen miles the continental shore is an abrupt, smoothly green palisade, down which snow banks stretch until far into the summer, and threads of foam slide with continuous roar. By the strangest chance and blind luck of mining discoveries the very men who made the first discoveries near Juneau in October, 1880, had prospected and camped along Gastineaux channel years before.

In the summer of 1880 some Indians brought rich quartz specimens to Captain L. A. Beardslee, United States navy, in command of the United States steamer Jamestown, at Sitka, claiming to have found them in the largest creek emptying into the narrow channel between Auk glacier and the Taku. In September Joseph Juneau and Richard Harris were grub-staked by Mr. N. A. Fuller, a Sitka merchant, and sent to the Taku region. They found Gold creek on October 1, 1880, followed its bed to the basin 3 miles inland, and discovered the rich quartz vein on its western wall, the present Campbell claim, or Fuller, the first mine. On October 4 the 2 men held a miners' meeting on the beach, elected Richard Harris recorder, and formally made entry of this first quartz location, and made their placer locations on October 12. When word of their discovery reached Sitka and Fort Wrangell the wintering miners hastily decamped for Taku mines, as they were called. A semicircle of tents lined the beach of Miners cove before the new year. The Auk Indians, who had a village 10 miles above, and the Takus, who lived 12 miles below, flocked to the new camp until bought off by blankets and induced to settle themselves in separate camps, one on either side of the white man's canvas village. The commander of the Jamestown declared martial law May 2, 1881, and with his skeleton guard of marines on shore preserved such order that the first year was the most peaceful and well ordered the place knew. The officers laid out and plotted the town site, surveyed the harbor, and made a chart of Miners cove (United States coast and geodetic survey, No. 734, 2), as the anchorage was known. After being called Pilzburg, Fliptown, Rockwell, and Harrisburg, the name of Juneau city was formally adopted at a public meeting in May, 1882. The marine guard was not maintained after the first season, and the little town becoming the resort of the most lawless and desperate characters, a vigilance committee of citizens was organized, which held this element in check until the skeleton form of territorial government was established in 1884. The semicircle of tents between the beach and the forest has grown to a neat little town of 1,253 inhabitants, with its churches and schools, a hospital and opera house, and well supplied stores. The population is greatly increased in the winter time, when many of the mines are closed down and prospectors return from their wanderings, and the Indian villages hold double the number they do in midsummer.

The mines at the head of Gold creek, 3 miles back in the mountains, have now passed from the many independent placer miners to a few large companies, one of which, the Silver Bow Basin Mining Company, bought some 50 odd claims, covering nearly the whole level floor of the basin. By a tunnel 3,350 feet long they reached the gravel deposit, 90 feet below the surface. Hydraulic monitors are tearing out a vast pit in the basin's floor, and the flood of débris leaves its gold dust in the sluice boxes as it rushes down through the tunnel. By the use of electric lights the work is kept up night and day from May to November, and the success of this hydraulic mine has determined other companies to work the old placers in the Last Chance basin, near Juneau, in the Lurvey basin, farther back in the range, and on Lemon and Montana creeks, north of the mouth of Gold creek.

The 10-stamp mill of the Eastern Alaska Mining and Milling Company is at the extreme end of the Silver Bow basin, below the foot of the Silver Quiver fall, and the ore comes to it in buckets on a wire tram that reaches up to the Jumbo mine among the clouds and eternal snowbanks of the basin's highest wall. A 20-stamp mill will soon begin its play upon the ore of the Groundhog mines beyond it, and the Campbell mill has been crushing ore for 2 seasons. There are 2 mills, the Coulter and the Webster, in Gold Creek canyon, the latter the pioneer mill of the district. Since the many small claims were acquired by a few large companies, mills and expensive plants were built, and wagon roads made along either side of the canyon, Juneau has taken on new life and counts upon a long period of prosperity. The expenses of operating and the short season discourage the development of any but rich claims, but the numbers now worked and those upon which preparations are being made for extensive work would seem to prove that the region is all that its pioneers claimed for it.

2 miles down the beach from the Juneau wharf Sheep creek canyon opens to the channel, and a wagon road winds up its steep sides and is carried along perpendicular walls as a shelf or bracket in midair to reach the Queen, the pioneer silver mine of the territory. There is a little Alpine valley or basin at the top, whose straight mountain walls are deeply grooved and glisten with glacial polish on one side and uphold a great snow field with a green gem of a glacier on the other. All the level is carpeted with flowers, and pine groves, alder thickets, and rushing streams compose the most charming landscape. The silver veins crop out on the north wall, the divide between this basin and the Silver Bow, and continuing southward reappear on the same side of the divide, between

it and Grindstone creek, which empties into Taku inlet. Only one mine in this "argent district" is being worked to any extent, and its 10-stamp mill has fulfilled the prophecies of the most sanguine. Much ore has been sent to the smelter at Tacoma.

The best known mine in Alaska, the Paris, or Treadwell, is on Douglas island, 2.5 miles below Juneau. In April, 1881, 2 miners, Bean and Matthews, who reached the place too late to take up any good claims on the mainland side, prospected and staked off claims on Douglas island. John Treadwell, who advanced them $150 and took their claims as security, finally became the owner by default, and next bought the adjoining claim of French Pete, or Pierre Joseph Ernsara, for $300. For this comparative trifle he secured the largest solid body of ore known on the coast, a mountain of gold-bearing quartz, which is worked from the surface or quarried in open pits like building stone. The early history of the mine was full of incident. Squatters almost drove Mr. Treadwell away; a mob took off the Chinese miners and set them adrift in a small schooner, and only the vigilance, patience, and extraordinary character of this first owner saved the property for him. As soon as civil government was established in the territory work was begun on a large scale. The mill has 240 stamps, and, running night and day, crushes from 600 to 700 tons of ore in each 24 hours. The mill has not been stopped in 7 years, except for the short time needed to connect new machinery. The company has expended over $800,000 in its plant, and between May, 1882, when Mr. Treadwell turned the water on his little 5-stamp mill, until May 31, 1890, this mine has yielded $3,109,164.77. The operating profits have been large for a couple of years past. Over $300,000 was spent in experimenting with different processes of chlorination, and even now it is believed that more gold will be saved by some future process. The ore averages from $3 to $7 a ton in value, but is so soft, and by the situation of the mine is so easily handled, that it is milled for less than $1.25 per ton. 200 men are employed in the mine, and by the use of electric lights and both steam and water power work goes on continuously. The whole claim has been stripped of its forest cloaking, and the deadly fumes from the chlorination works have killed all near vegetation. 2 vast pits have been quarried in the hillside, and from 50 ore chutes in their floors the ore is fed to cars in tunnels beneath and run into the mill, and every tunnel driven and every shaft sunk show that the ore body extends solidly to the edge of the claim and to unknown depths. Ground up, leached, and roasted, the fine essence of the rock emerges from the laboratory in slender gold bars, while the refuse running down to the channel has been impounded to form one broad terrace beyond the original beach line, and is fast building up bars and shallows off that shore. Mr. Treadwell and his partners, Messrs. Jones, Fry, Hill, and Freeborn, were sole owners until May 31, 1890, when it was made a stock company and incorporated as the Alaska Treadwell Gold Mining Company, with offices in London and San Francisco.

The Treadwell's ditch is 18 miles in length, and one may walk along its banks and boxes, following all the curves and spurs of the island range to a point 8 miles above Juneau, seeing stakes, abandoned cabins, and marks of camps at many places in the wilderness.

Douglas city, 1 mile north of this mine, was the direct result of its successful working, and it was further built up and boomed by the promise of the working of the Bear's Nest mine, which adjoins the Treadwell property. The Bear's Nest was sold in London for $1,125,000, of which $800,000 was paid in cash. After all preparations were completed for work on the largest scale disagreements between mining engineers and stockholders resulted in its abandonment. Douglas city lost the fever of its boom, but it has retained a population of 402 souls, whose public spirit and faith in the future of the mine have not failed. The ambitious little city has steam ferry communication with Juneau, Treadwell, and Sheep creek, and its houses, crowding to the water's edge, and even beyond the tide line, ramble up a stump-crowded slope, with a church and schoolhouse at the outposts.

While every foot of the island shore has been prospected and its interior well traversed, stakes mark all the Gastineaux front, and the surveyor's map shows an extended belt of mineral claims, the Treadwell remains the one mine in actual operation on Douglas island. Nothing similar to this "bulge" or "blow out" on the side of the mountain has been found, although the same vein has been claimed to run through and crop out on every tract offered for sale within 10 miles of it, and ruined cabins, abandoned mills with rotting tramways, and wharves tell of broken hopes and disastrous ventures.

Gastineaux channel was little traversed by the natives previous to 1880, as in addition to the bar which Gold creek has built across it, until steamer navigation is arrested at that point, the great Auk glacier, 15 miles northward, has built such an effectual barrier across to the head of Douglas island that even canoes can only pass at high tide. Only a short geological time ago the ice of the Auk glacier must have filled the bed of Gastineaux channel, but it has now retreated to the mountain side, and, pouring down turbid gray streams, is reclaiming and building up tide lands on such a scale that Douglas island will soon be a peninsula, and the Auks may cross dry shod to its shores.

These barriers impose some 40 miles of extra steaming for vessels bound due north from Juneau, and, almost circumnavigating Douglas island, they may then follow the continental coast line again. Beyond the Auk the Eagle glacier gleams on the heights, a guardian rock in the form of an eagle, winning this name from Captain Beardslee in 1879. Thence Lynn canal leads to the very heart of the northland. There are glaciers in view on either side all the way along that deep, straight fiord, which is a counterpart on a larger scale of the vaunted Norwegian Lyngen fiord, and without crossing the arctic circle the tourist may sit on the deck and count glaciers

by the dozen; nor are the Lynn canal glaciers mere ribbon threads, festoons, fringes, and stalactites, pendant from one parent ice sheet, as on the Lyngen fiord.

The Davidson glacier, on the west wall of the fiord, is of the Swiss type, but the most symmetrical of its kind on the coast, and the ice stream, narrowed to a width of 3 miles where it passes the last gateway of the mountains, spreads out in the most evenly rounded, steeply sloping face to its terminal moraine, long since covered with a broad belt of spruce forest. The broad forested moraine of this glacier is such a swamp, and so full of watery pitfalls, that few have persisted in their attempts to reach the foot of the ice; but Professor Davidson, stood upon the ice some 20 years ago.

At Berners bay, near the entrance of Lynn canal and 45 miles north of Juneau, there have been 2 mining camps for several years. The placers were rich, but the attempts at quartz mining have not all been successful, the ledges lying so high up and far back from the beach that the heavy winter snows destroyed tramways and works and prevented profitable operation. The log cabins of Seward city show bravely on the shore, but it has never been large enough to become a port of call for mail steamers or to need a postmaster, communication with it being by canoe or steam launch from Juneau or Chilkat.

At the head of Lynn canal the rival canneries at Pyramid harbor and Chilkat have drawn considerable settlements about them. During the fishing season the villages up the Chilkat inlet and river contribute nearly all their people to these settlements, and Indians of other tribes make summer stays as well. Pyramid harbor is an old Hudson Bay Company anchorage, and to it came all the furs of the interior in earlier days. It is picturesquely set, and the green mountain Labouchere rises so steeply beyond the beach as to seem to overhang the place. A snowslide in the past winter wrecked one cannery and nearly destroyed the whole settlement.

Across the inlet the rival company has drawn a considerable settlement about it, and several hundred natives, 100 whites, and some 40 odd Chinese are gathered at Chilkat. 20,000 cases a year is the average output of the Chilkat cannery, but in some seasons the salmon have not been plentiful enough, or difficulties with the native fishermen have reduced the pack. The Chilkats resented the presence of white fishermen as strongly as they did the interference of Taku and Auk packers on the Yukon trail a few seasons ago, and in each case the presence of the governor and a man-of-war were required to settle the troubles. The Chilkats are a superior people, but they have had less opportunity in proportion to their numbers for enjoying the educational and mission advantages than the other Thlingit tribes.

There is a good trail leading across the peninsula from Chilkat to the Haines mission station, on the Chilkoot, the head of navigation on that arm and the miner's point of departure for the Yukon. 12 miles from Haines the trail reaches the summit of the divide, and from that point, it is claimed, is gained the most magnificent mountain view on the coast, the eye ranging over leagues of snow peaks and forested slopes threaded by glaciers, with Lynn canal lying as a silver ribbon at the bottom of its canyon. All the Chilkat country is a paradise for a landscape lover, a scientist, or a sportsman. William H. Seward was the first pleasure traveler to penetrate it, and he could not sufficiently extol its charms nor ever forget the details of his visit to the great village up the river where Professor Davidson observed the eclipse of 1869. The Doctors Krause, of the geographic society of Bremen, spent the year 1880 in a study of the people and exploration. Their sketches and maps were of great assistance to the United States coast survey, being the first work of the kind undertaken there, and their work, "Die Thlinket Indianer", is the most important contribution to the ethnology of this region since Veniaminof's time.

Late in the autumn of 1879 Prof. John Muir and Rev. Hall Young found and explored a large bay on the mainland side of Icy straits, where Vancouver had charted a straight shore line. The Hunas declare them to be the first white men ever seen in that bay, which had been a special preserve of seal and otter for their tribe for generations. Returning to the bay the next July, Professor Muir was followed in a few weeks by Captain L. A. Beardslee, United States navy, who made a hasty exploration of its lower half, and with Ensign Hanus drew the first chart of this wonderland. Captain Beardslee aptly baptized it Glacier bay, and so argued its marvels to the commander of the regular mail steamer, Captain James Carroll, that he ventured in during the July trip of 1883 and pushed his steamer to the end of Muir inlet, close to the front of the great tide-water glacier. Since then a visit to Glacier bay has been the great feature of summer excursions, and some thousand tourists have been landed for a day's stay at the glacier. This Muir glacier drains an area of 900 square miles and spreads an ice sheet 364 miles square between the mountain ranges. The ice plain, sloping down from a mountain wall 15 miles back, narrows to a width of 3 miles, where it presses through the last gateway of the mountains and rests its splintered front for 1.75 miles in the water of the inlet. 26 tributary streams unite to form this great sea of ice, and each tributary has its branches and arms. The main stream comes in from the northwest, that broad arm of the glacier stretching back for 20 miles with but one curve and issuing from névés 40 miles distant. The eastern arm of the glacier is almost dead, showing little motion and only waste. Since Professor Muir's first visit the ice wall has receded more than a mile up the inlet, and Prof. H. F. Reid, of the Case School of Applied Sciences, of Cleveland, Ohio, who made a careful study and survey of the glacier during the summer of 1890, estimates the daily advance at that season at from 7 to 8 feet a day at the center of the stream. The ice cliffs rise 250 to 300 feet from the water, and the ice plain slopes back at a grade of 100 feet to the mile. Mount Case and Mount Wright, at the east shore of the inlet nearest the glacier's front, rise to heights of 5,000 and 6,000 feet, respectively, and no greater heights

show in that quarter from the loftiest outlook. There is little vegetation on the moraines or lower slopes of the mountains, but on the heights at the 1,000, 2,000, and 3,000 foot levels there are hanging gardens, whose luxuriant vegetation is the same as that of the high mountain meadows farther south. Acres of lupin, violets, forget-me-nots, gentians, and bryanthus bloom on these sunny terraces, and mountain goat, marmots, grouse, and ptarmigan live there. Indian traditions point to a time about 20 years ago when the ice sheet extended to Willoughby island, 7 miles below the present terminus of the Muir, and the sides of Mount Wright show that the ice sheet was once 1,000 feet above its present level. At the edges of the present ice sheet, however, an older moraine is visible beneath the ice, and in its gravel and clay strata are the branches and trunks of trees that must have grown there in earlier times. On either moraine the streams are uncovering the standing stumps of old spruce trees, and these buried forests afford proof that the glacier has alternately receded and advanced in centuries past.

The steamers have never gone to the front of the larger glaciers at the end of Glacier bay proper, and only Professor Muir and a few prospectors are known to have succeeded in canoeing up its berg-strewn reaches. The ships attempting it have been glad to make an escape after a few miles of scraping and bumping, and both Professor Wright and Professor Reid had to give up their efforts in canoes, cross the peninsula on foot, and view the Hugh Miller and Pacific's long fronts from the heights. The first inlet on the west shore of the bay above Willoughby island holds the Geikie glacier, which presents a much narrower front to the water than the Muir. 5 miles beyond it the Hugh Miller glacier descends in a direct line from a great cleft in Mount Crillon's side and spreads out in a vast ice plateau that fronts for nearly 2 miles upon the water. At the extreme end of the bay the Pacific glacier draws its still longer line of ice cliffs against the sea's advance. The Pacific derives its ice mainly from the snow fields of Mount Fairweather, and, with the Hugh Miller, furnishes four-fifths of the ice that drifts down the bay.

The Hunas have always had summer fishing villages in the bay, and its seal and otter hunters have known its reaches well, but they seem to have made but little land exploration and to have applied few names. The ice spirit, Sitt'h-too-Yehk, is a power of evil, and they dread and avoid his realms. Their traditions tell of times when the glaciers have advanced and destroyed their villages and dammed up salmon streams. Icebergs, as they broke and turned, have crushed and swamped many canoes, and within a few years 6 otter hunters were swept from the beach of Muir inlet and drowned by the great waves following the fall of a section of the ice wall. The white man's settlements in the bay have been confined to the salmon cannery in Bartlett bay, just above the eastern entrance. An English nobleman hunting for bear and mountain goat camped just above Bartlett bay in 1884; Professor Wright camped at the lower end of the east moraine of the Muir glacier in 1886; Professor Muir and Professor Reid and his staff camped on the same moraine half a mile below the ice front in 1890, and a party, including 2 ladies, occupied Captain Carroll's house on the moraine the following year. The government has not yet made surveys or explorations of the bay, but private enterprise has made its wonders known, and Professor Reid's map and report upon the Muir region give much information.

Each bay and inlet along this strip of continental shore holds tide-water or alpine glaciers at its head, but none are accessible to ordinary travel. The prospector is almost the only white visitor the Huna villages ever see, and they, following the coast in canoes, whaleboats, or small schooners, report that gold is found in many places. Beyond every height shines that wondrous trinity of peaks, La Perouse, Crillon, and Fairweather, and the eye has the unusual chance of following the spurs and slopes from sea level straight to Crillon's summit, 15,900 feet in air.

Admiralty island, which is seamed by great inlets and is really an archipelago in itself, has been much visited by prospectors, who bring to Juneau news and proof of great mineral wealth within its confines. At Funter bay, on its northern peninsula, the discovery of the "tellurium group" of mines caused a small camp to spring up. The erection of and the successful results from Huntington mill have made it a permanent settlement, and the working of other mines promise soon to add to its population. The Admiralty coal mines, which were first discovered in 1868, have been rediscovered several times since, but as the benefits of the coal laws were distinctly withheld in the act of Congress of March 3, 1891, the commercial value of these lignite and bituminous veins is no more certain than when specimens and tests were shown to William H. Seward in 1869.

Killisnoo, on the little island of Kenasnow, just off the Admiralty shore, is the site of a large factory for the manufacture of herring oil and fish guano. Killisnoo was first established as a whaling station, but after difficulties with the natives the catch was changed to herrings, which are much more easily secured and managed. During the winter season schools of herrings fill Chatham straits for miles, and a steam tender tows scows to and from the seining grounds, even bringing the fish from Peril straits and Sitka sound. 1,000 tons of guano and over 150,000 gallons of oil are produced each year. During the last season a bark was loaded at Killisnoo with a cargo of guano for Liverpool, being the first ship to clear from southeastern Alaska for a foreign port loaded entirely with Alaskan products. The Killisnoo factory and settlement constitute the model industrial establishment on the coast. It is well built and tidily kept, the cottages and log cabins of the employés standing on the cleared level of the beach, and a Greek chapel and a government schoolhouse on the high terrace above them. Almost the whole island has been cleared of trees and many garden patches are cultivated. Some 45 of the Hutznahu tribe are employed in the factory, and the old chief Saginaw Jake, as native policeman, maintains order among these people and in the villages tributary to this trading post and settlement.

Chichagof island remains a wilderness, the mission station and Huna villages being its only settlements. The saltery at Idaho inlet has been closed for a few seasons, and the small fishery at Peril straits is only occupied at times. The prospectors have not reported any mineral discoveries to tempt other white settlers to the shores of Chichagof. The hot springs on Tenakee passage have great repute among the Hunas and their neighbors, the Hutznahus. There are many places along the Chichagof shores where level and even grassy lands invite cultivation, and a score of inlets that would be celebrated for their scenery in a less favored region. Chichagof island is a happy, almost untouched hunting ground, and its southern shore hems Peril straits, a matchless landscape stretch, where exciting navigation between reefs and rocks and tide rips divide attention with the green shores.

Baranof island, on which there has been a considerable settlement of whites since the beginning of this century, has never had its entire shore line surveyed, nor has it been crossed from shore to shore. From the summits of the mountains near Sitka overlapping ranges and sharply pointed peaks show that the interior is the roughest mountain country, and that the explorer following its narrow valleys and deep canyons must hew his way from ridge to ridge through the same jungle of undergrowth all the way to Chatham straits. Despite the mineral discoveries made immediately southeast of Sitka in 1871–1872 and at different periods since, prospectors do not report any rich deposit in other parts of the island. The mills erected a few years ago on Silver bay are closed, the works abandoned, and only prospecting and assessment work are being done in the Sitkan region.

Sitka, with its foreground of green islands and still waters, and its background of snow-capped mountains, is picturesque from every point of view, and its history and the traditions and relics of other people and other ways of living invest it with much charm. The neglected castle and the old tea house, each crowning a hill, hold the heart of the town between them, and the cupola of the Greek church rises greenly above the mossy roofs. Sitka is but slightly changed within these 10 years. The parade ground at the water's edge, the one street leading to the door of the Greek church, and then encircling it and following the curving shore to the mouth of Indian river, shows few new houses, and several of the older structures have disappeared. Juneau's prosperity and activity grates a little on Sitka pride, but that restless mountain mining town by the sea lacks a little of Sitka's climatic attractions. While the tramp of hundreds of nailed boots, the boom of blasts, the roar of the great stamp mill, the shriek of the little locomotives, and the puffing and buzzing of the sawmill opposite echo in that narrow fiord and fill the Juneau air with a constant undertone, Sitka broods and suns itself in silence. Its calm and lethargy are as much the result of its quiet, soothing, restful atmosphere as of any of its recent political or industrial conditions. Traditions of Russian military and naval rule survive, and its white inhabitants and the natives pursue a very even tenor, little disturbed by the semimonthly mail steamers, and soon recovering from the excitement of the summer excursion steamers.

The governor of the territory resides in one of the buildings on the parade ground, used as officers' quarters during military occupancy, and the other civil officials are housed in the barracks, castle, customhouse, and government buildings facing on the same quadrangle. The place is fast losing all traces of Russian days, and those old buildings that have not suffered neglect and demolition have been furbished up and clapboarded out of all Muscovite semblance. The castle or governor's residence has been let fall half to ruin, the ill usage and vandalism of the past 10 years leaving it stripped and despoiled of every portable feature of its interior finish, and sadly defaced. Different attempts to have the building preserved and repaired for government use have failed entirely, and as the castle plot was not made a government reservation its site may be taken up by any claimant, if the building should burn to the ground. The stockade, separating the Indian settlement from the town, has been removed, and in this decade every native house has been rebuilt or clapboarded, until the Indian portion no longer has any individuality or character of its own, and is as much a Yankee fishing village as a Thlingit village. Only the canoes and an occasional salmon rack on the beach give it any picturesqueness or color of its own.

Around the original building of the Sitka mission quite a cluster of buildings has been added, the carpenter shop, hospital, museum, extra class rooms and dormitories, giving needed accommodations for the staff of teachers and the pupils. Model cottages for the pupils of this school who have married from the mission have been built on adjoining land, and the mission is almost a separate town.

A presidential proclamation reserved the land on either side of Indian river as a public park and preserved that most interesting bit of woodland from destruction. This reserve furnishes one of the greatest attractions to Sitka's summer visitors, who reach the heart of an Alaskan forest by bridges and dry footpaths, and may marvel at its wonderful tree growths, its ferns, mosses, spreading devil's clubs, and berry thickets. The hundred spruce-clad islands of the harbor, with the cratered cone of Mount Edgecumbe drawn on the western sky beyond them, constitute another scenic pleasure ground for these visitors, and all the miles of the Baranof shores, with their magnificent mountain walls, excite the greatest enthusiasm. Jamestown bay and Silver bay are worthy the seemingly extravagant descriptions of many writers, and the latter bay matches the best of Norway's Hardanger fiord. He who climbs Mount Verstovoi and looks down upon the indented shore, the scattered islands, and the open ocean beyond, looks out over the wilderness of Baranof peaks and then across the Chichagof's ranges to the vast white tent-roof summit of Mount Crillon, nearly 100 miles to northward, finds it a picture seldom approached in the most famous scenic regions of the world. Mount Edgecumbe's summit commands a different view, but the interest of its ascent is in visiting the extinct craters. Lissiansky climbed Mount Edgecumbe in 1807, and in 1886 Professor Libbey, of Princeton college, ascended it and made a report upon its geology.

The redoubt settlement of the Russians was at the end of the long, narrow Ozerski bay, and occupied the narrow neck of land between it and Glubokoe lake. The Russian saltery was succeeded some years ago by a large cannery, but for the past season this cannery has been closed and the company owning it has transferred its works to Redfish bay, some 30 miles down the coast, and the redoubt is again deserted. The Indians having wantonly destroyed the buildings at the Hot Springs, a Sitka merchant erected several cottages and a bath house and provides accommodations of the simplest kind for visitors. The waters are strongly impregnated with sulphur, soda, iron, and magnesia, and are of sovereign value in rheumatism and skin diseases. The cottages receive many invalids each year, and anglers and sportsmen find their shelter a most acceptable home camp from which to make their trips. Petition was made to have the Hot Springs tract made a government reservation, and its neighborhood promises much for the future when the growth of the different settlements and the increase of tourist travel will warrant the erection of buildings suitable to a pleasure resort and sanitarium.

In following the mainland coast beyond Cape Spencer prospectors have encountered great dangers and hardships, the Pacific beating upon a bold, rocky coast with but 2 bays of refuge between the entrance of Cross sound and Yakutat bay, at the foot of Mount St. Elias. A company of Juneau miners has been working rich placers in Lituya bay for several seasons. This bay is a most dangerous haven to reach, as the tide, rushing in in a great wave or bore, has nearly ended many prospectors' careers. La Perouse lost 2 of his boats in this bore in 1786, and many native canoes have met the same fate. The Thlingit legend tells of the two men of Lituya, evil spirits, who hide at the entrance of the bay and stretch a sail cloth across just hidden under the water. When a canoe has reached the sail the men shake it, just as they might toss a man in a blanket, and away go canoe and occupants to destruction.

There is a trail leading over the plateau and foothills from Lituya bay to Dry bay and thence to Yakutat bay. Dry bay has not been favored with any considerable camps of miners, but Yakutat bay has had its boom, and the black sand excitements of 1886–1887 made it well known to prospectors. The black sand beaches extend for miles, and with the rotary amalgamators used on the California gold beaches the miners were realizing $40 to the ton when a series of misfortunes befell them. First, thousands of dogfish were cast ashore, and under the intense summer sun poisoned the whole neighborhood, and, decomposing, saturated the sand with oil until the mercury could not act upon it. A tidal wave next washed the beach clear of this drift, but swept away the black sand, and the miners left and did not return, although the sea has since deposited the black sand in places.

The Yakutat village of 300 natives, with a mission station and a trader's store, has been little visited heretofore by whites, but the establishment of a mail route from Sitka to Unalaska gives Yakutat regular communication with the outside world for 7 months of the year. A considerable trade in furs, baskets, and curios is carried on between Sitka and Yakutat, and the extension of tourist travel to the foot of Mount St. Elias is one of the certainties of the future that will greatly improve the fortunes of this place.

In 1886 an expedition was sent out by the New York Times to explore and climb Mount St. Elias. Lieutenant Frederick Schwatka was in charge, and his assistants were Prof. William Libbey, jr., and Lieutenant H. W. Seton-Karr. The party landed at Icy bay and reached a height of 7,200 feet before they were obliged to turn back. In 1888 Mr. Harold W. Topham, of London, and his party landed at Icy bay and reached an elevation of 11,460 feet before they were driven back.

During the summer of 1890 and in 1891 joint expeditions were sent to the Mount St. Elias region by the National Geographical Society and the United States geological survey. While the final summit was not reached at either time, the observations and investigations of Prof. I. C. Russell, in command of both these expeditions, have added much to our knowledge of the geography and geology of the region. The brief exploration made by Captain C. L. Hooper, United States revenue marine, in 1890, proved that the Disenchantment bay of Malaspina extended many miles beyond any charted lines, and he took his vessel, the Corwin, to the fronts of the Hubbard and Dalton glaciers, which pour their bergs into these tide waters.

ADDITIONAL TO FIRST DISTRICT.

THE NATIVES. (a)

All the Thlingits are divided into 2 clans, Wolf and Raven. The Wolf clan is subdivided into 17 phratries, the Raven clan into 20 phratries. Each phratry has a headman or chief, whose power depends entirely on his wealth and personal influence; it was never absolute and it is steadily becoming weaker.

The phratries are scattered among the several villages according to the will of the individual; hence each village is composed of members of several phratries. A native never marries one of his own clan; the children are of the mother's clan and subphratry.

All wrongs are punished by the payment of an indemnity by the transgressor or his nearest subphratry kin to the injured or his nearest subphratry kin. If such payment is refused, the injured person or any of his friends are held to be justified in inflicting a corresponding injury on the one who had done the injury or on any one of his subphratry.

The typical Thlingit is lighter colored than the Indian, varying from yellow-white to light brown. His weight is about 145 pounds, and height about 5 feet 5 inches. Owing to the prominent cheek bones, wide jaws, and low, broad nose, the face is flat and wide. His black or brown eyes are small, and with orbits which rise in an oblique line from the nose to the temple. The mouth is large, with heavy lips and large white teeth. The facial expression, though varying much in different persons, is, as a rule, good natured and submissive. His form is badly proportioned, a long, deep-chested body, and short, misshapen legs making him physically an unprepossessing person. He walks in a slow, ungainly fashion with the feet "toed in".

The primitive native passed much of his time in a canoe, hence his defective legs and awkward movements. At the present time the canoe is no longer a necessity to a considerable number of the Thlingits, who have learned to make a better living as laborers, and these are appreciably improved in form. The members of the different tribes possess certain physical and mental characteristics peculiar to the tribe. The Sitkas having been influenced by civilization for a longer time than any of the others are of the lightest color, best dressed, and most intelligent. The Chilkats and Takus are taller, better featured, and more self-assertive than the average, and the former are particularly shrewd traders. The Auks are badly formed and unintelligent. The Yakutats are the darkest colored and most primitive. The Hutznahu are the largest in stature.

The strongest trait in the character of the Thlingit is imitativeness, and it is chiefly this faculty which has enabled him to quickly adopt the easily acquired and plainly apparent features of civilization. A willingness to work and handiness with tools, shrewd bargain driving, and quick observation complete the list of his good qualities.

Their faults are many and glaring. They are born liars and grossly immoral; drunkenness is the rule and not the exception, and all these vices have been strengthened, not checked, by contact with civilization. I have never known a Thlingit to act as if he possessed a conscience or to exhibit the least sign of gratitude. Theft is natural, but this propensity has been considerably modified by fear of the law. Gambling is usual among the men, and both sexes of all ages use tobacco.

Nearly all their barbarous customs are less strictly observed than formerly, and some have been abandoned. Slavery, though it existed as late as 10 years ago, is now extinct, so that killing a slave is no longer a part of the funeral ceremony when a chief dies, nor is that act at present a part of the festivities which attend the erection of a new house by a man of rank or wealth. In those villages where contact with the whites is most frequent none but the old people cling to the savage traditions in which Yehl is the central figure, but in the most remote villages a considerable number retain the primitive beliefs. Their belief in witchcraft and shamanism, with their attendant superstitions, is also dying out, although much more slowly.

Polygamy and polyandry are practiced less than formerly. The former custom is not general and the latter is rare.

The potlatch, one of their most interesting customs, is less frequent and extravagant than formerly. The ceremony is a grand free distribution of any and all kinds of property, usually blankets, calico, food, and money. Dancing and feasting are also a part of the potlatch, while drinking and gambling are incident thereto. The purpose of the entertainment is that the one providing it may gain high rank in the community, rank in Thlingit society being determined by the number and extravagance of the potlatches. Some of the occasions when it is considered necessary to "potlatch" are to make reparation for an injury, to become a chief or shaman, to marry, to build a house, and finally, when the native dies, the potlatch still pursues him, for his heir must provide a potlatch fully commensurate with the rank of the deceased.

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a From notes of Henry Boursin, special agent Eleventh Census.

The Thlingits still retain the disgusting custom of painting the face with a pigment composed usually of soot or powdered charcoal mixed with grease. When traveling in summer this custom is resorted to as a safeguard against the attacks of clouds of mosquitoes and sand flies, and also to protect the face from being burned by the reflection of the sun on the water. It is also used as a sign of mourning. The women daub their faces at certain periods, and also whenever their vanity demands a fairer complexion than nature has bestowed, for after the pigment is removed the skin is several shades lighter than the natural color.

The mechanical ingenuity of these people is apparent in the large, well-constructed houses, the grotesque totemic carvings, the basket work, the Chilkat blanket, the canoe, and the unique carving of metal, bone, horn, and wooden ornaments and utensils. Nearly all their carvings are of traditional or totemic subjects and unintelligible to the ordinary observer. Their fast waning faith in traditions, the adoption of modern goods and utensils, and a ready application of all the vices of civilization is causing the abandonment of totemic carving and also of weaving. The Chilkat blanket, made from the hair of the mountain sheep, is now woven by only a few of the Chilkat women.

That the Thlingits are decreasing in numbers is a well-known fact, clearly apparent in the number and size of the deserted villages, in the disproportionate birth and death rates, and by the unvarying statements of the old natives. The chief cause is syphilis. This vile disease came with the first white men. Handed down from generation to generation, the syphilitic taint is probably in the blood of every Thlingit; at any rate, the disease is so common that it is not regarded as a thing to be ashamed of. The astonishing prevalence of consumption, scrofula, rheumatism, repulsive ulcers, and necrosed bones are for the most part traceable to venereal taint.

The Thlingits' staff of life is dried salmon with seal oil, which, with berries preserved in oil, is their chief subsistence in the winter. Dried halibut is also a staple article. Venison, bear, mountain sheep, porcupine, and groundhog are dried or else boiled and preserved in oil made from hair seal, herring, salmon heads, ulikan, or porpoise. The codfish is not esteemed by them; clams, crabs, mussels, cockles, and other shellfish are in demand, particularly in winter. In April and May a certain kind of seaweed is gathered, dried, pressed in boxes, and put away to be eaten in winter. In the spring, when the sap runs, the inner bark of the hemlock is scraped off, dried, pressed, and preserved in oil. Wild fowl are not in great favor, although the different kinds of ducks are plentiful. Sea gull eggs are a great delicacy, and not less so when the egg has acquired a ripe old age. Putrid salmon and herring eggs are a luxury. Salmon and halibut heads are buried in the beach, and when putrid are taken out and boiled to obtain an astonishingly foul-smelling oil, which is considered a great delicacy. On one occasion when the wind was favorable, or rather unfavorable, I distinctly smelled an oil factory of this sort at a distance of 1.5 miles.

Vegetables, chiefly potatoes and turnips, are grown in small patches of land near the beach. Those natives who have more contact with the whites purchase an ever-increasing proportion of their food from the trader's stores. Thus, the natives at Juneau and Douglas island, and in a less degree Sitka, are largely dependent on provisions purchased from the stores.

A remarkable change in the physical characteristics of the native population strikes every observant traveler on passing the boundary separating the island regions of British Columbia and Alaska in the vicinity of Dixon entrance. The first Alaskan tribes we meet with on our northward journey belong to the Thlingit family, represented here by the subdivisions of the Tongass and Cape Fox tribes. They are superior in stature as well as general physical development to the apparently stunted, ill-fed, and squalid fish-eating tribes that inhabit the seacoast and islands of British Columbia. This may be due to ethnical differences, but can be fully accounted for in the fact that the natural conditions pertaining to a coast more exposed, and even the inland channels of great width and tempestuous waters, have produced more robust and better developed people than those inhabiting less exposed regions. These changes may really first be noticed a little south of the line among the Tsimpseans, the greater part of whom have of late transferred their homes to points within our boundaries.

Of the outward appearance of the Thlingit as well as of the Tsimpsean it may be said that while there is considerable uniformity in the general physical characteristics of all tribes on the northwest coast, a practiced eye can detect the differences between them.

The hair is coarse, straight, stiff, and dead black in color. The men wear it short, while the women allow their tresses to grow, either hanging loose around their shoulders or in two braids down their back. The shamans, medicine men or conjurers, allow neither scissors nor comb to come in contact with their matted locks, which present the most filthy and disgusting appearance. During adolescence and early manhood the males pluck out the hair from the body and face, but later in life a scanty mustache and beard are allowed to grow.

The eyes are large, in color black or dark brown, overhung with small eyebrows. Their noses are somewhat more prominent than those of their southern neighbors. The mouth is very large, the teeth white and even, but they become much worn by constant mastication and gnawing of hard substances, such as dried salmon and halibut, tough meat, and the bones and gristle of animals. The wearing down of their teeth is much accelerated by their careless way of cooking and handling their food, which often has sand and ashes blown upon it. Prominent cheek bones and a bushy growth of hair make a naturally large head appear still larger.

In former times, when their primitive mode of life required constant travel in canoes, the lower limbs of both sexes became stunted in development and distorted in shape, resulting in a certain awkwardness of gait. This feature, however, is rapidly disappearing with the introduction of habits of civilization.

The hands and feet are small and well formed, but the latter become callous and distorted from the universal habit of going barefooted regardless of season.

The complexion of all these tribes is remarkably light, a fact noted by the earliest voyagers among them, and therefore is not to be ascribed to mixture with whites. The women are well proportioned and comely in youth, with rosy cheeks, but though by no means compelled to bear more than their fair share of domestic labor, and generally warmly clad, they fade early, not in strength, but in those concomitants which constitute good looks in our eyes.

The habit of bathing in the sea at all seasons of the year, though confined to the males, who are inured to it from earliest boyhood, not only hardens the individuals, but has left its impress upon the whole race by weeding out as it were such as were unable to withstand the shock and strain and might have transmitted disease and infirmities to their offspring. As it is, disease and death from natural causes are due chiefly to reckless exposure and the densest ignorance of the laws of sanitation or the care of the sick.

As a race they are not long lived. Individuals showing the frost of age upon their locks are rarely met with, but on the other hand we must consider that deterioration of the pigment of the hair occurs with them much later in life than is the case with the scanty covering of busy brains within the sphere of enervating influences inseparable from civilized life. Blindness and granular ophthalmia are chiefly due to exposure to the glare of snow in winter or the smoke of fires always burning in either house or camp; but this only affects individuals, for as a race they possess visual organs of remarkable scope and power.

FOOD AND COOKING.

Among all the Thlingit tribes the staple food consists of fish and berries, both of which exist in the greatest abundance and variety throughout the islands and coast inhabited by them. Wherever the Thlingit dwells, either permanently or in a temporary camp, there can be seen flakes of halibut drying upon frames or salmon suspended in the smoke. The halibut is found on its regular "banks", well known to the natives, from March till November. The salmon is caught during its annual run while endeavoring to ascend to the headwaters of the stream for the purpose of spawning. Throughout this period of the year the Thlingit people, men, women, and children, are engaged in securing and preparing the harvest of the deep. The abundance of fish is such that their capture at no time taxes their time or energies to any considerable extent. The whole fishing season is with them apparently one of leisure, feasting, and rejoicing; not a period of danger and arduous labor combined, as it is with our daring fishermen on the eastern coast.

Any surplus of fish remaining from the result of the day's exertion, after immediate wants have been supplied and a due proportion has been set aside for use in the winter, is always converted into oil by a simple process. The fish is cut up small and thrown into a wooden trough or a small canoe partially filled with water. Large stones are laid upon a pile of wood, which is then ignited. As soon as the stones have come to a red heat they are lifted off by means of sticks and primitive shovels and deposited in the trough or canoe. The water boils up immediately, partially cooking the fish. The mixture is then allowed to cool, and the oil rising to the surface is skimmed off with large wooden ladles. The oil thus secured from the surface is considered of the best quality and is carefully deposited in bladders. Subsequently the half-cooked fish remaining in the receptable is taken out and pressed between planks, affording an inferior quality of oil, generally used for immediate consumption.

The oil obtained from fish, as well as that from the seal and porpoise, is used as a universal sauce for other food, into which everything is dipped. It serves to make palatable to the Thlingit at least such articles of food as could scarcely be consumed or digested without it; for instance, the hard, solid cakes of seaweed or algæ of various kinds, strongly impregnated with iodine as they are, and certainly not improved by the presence of grains of sand and minute pebbles, added to the unsavory mass during the process of curing.

The ulikan, or candle fish, is eaten fresh during its brief annual run, but the greater part of the catch is also converted into oil. The latter product is stored in wooden boxes containing from 15 to 20 gallons, and constitutes an important item of intertribal traffic.

The herring is treated in much the same manner, but this fish furnishes an additional food supply in its spawn or roe, which is collected upon spruce boughs laid upon the bottom of such shallow bights and pools as the herring frequent. This deposit is looked upon as a great delicacy, both in its fresh state and after being dried in the air. When used dry, the herring spawn is pounded to powder between stones, mixed with a little water, and beaten with wooden spoons into a creamy consistency. The same material is also boiled with herbs and berries and then pressed into cakes in wooden frames.

During the summer season the Thlingit's larder is enriched with roots, berries, esculent weeds, and one or two varieties of snails. Of strawberries, huckleberries, salmon berries, raspberries, red and black currants, salal, and thimbleberries the shady thickets and mossy swamps furnish the greatest abundance. Most of this rich harvest

is garnered, to be stored as a winter's supply. The process of preserving generally consists simply of drying the fruit, but certain kinds are kept in oil, while others again are macerated and allowed to stand in wooden vessels, covered with water, and only consumed when decomposition has set in. Even the nicest strawberries or raspberries, freshly gathered, are vastly improved for the Thlingit palate by being served with a sauce of rancid oil.

Potatoes were introduced by American traders during the first years succeeding the discovery of the northwest coast, and they have always occupied an important position in the domestic economy of the Thlingit since that time. From the Russians they learned the use of seaweed as a fertilizer. Potato gardens can now be found at most of their larger villages, and the more enterprising among the people make a business of carrying these useful tubers to the settlements for sale.

Such meat as the Thlingits obtain from the animals inhabiting their forests and waters is generally consumed fresh, as they have made but little progress in the art of preserving or curing it. The meat of the deer, as well as that of the seal and porpoise, is generally boiled without salt and eaten in a half-cooked state as fast as it comes out of the pot. The excessive moisture of the climate would preclude any attempt at drying the meat for future use.

When the Thlingit first became known to our explorers the boiling of food of any kind was accomplished altogether in vessels of wood or basketwork, the material for the latter being the root of the spruce or yellow cedar. These vessels, of course, could not be set over a fire, and the boiling was effected by inserting red hot stones into the cold water containing the food. In those early times much of the meat and fat of marine mammals was eaten raw. Since their first contact with civilization these tribes have gradually adopted the use of our cooking utensils, and the above described primitive modus operandi can now be observed only in fishing camps for the purpose of extracting oils from salmon, herring, or ulikan. Not possessing metallic vessels large enough for the purpose, they utilize their wooden canoes, heating the water by the old process.

Since the use of flour has become universal among them the Thlingits have to a limited extent acquired the art of breadmaking, but most of the flour is still consumed in the shape of mush and cakes fried in grease.

CLOTHING.

The primitive clothing of the Thlingit tribes consisted almost exclusively of the skins of animals. The earliest explorers and traders of the northwest coast mention no other materials but skins, either in the shape of fur or tanned leather. Both sexes wore loose outer cloaks of fur and undergarments or coats of tanned leather. The cloaks of sea otter skins, loosely tied with latchets, attracted the notice of the first white visitors and were eagerly bought up, and the rapid growth of this traffic resulted at a comparatively early date in the abandonment of sea otter skins as an article of dress, as the whole skins could be disposed of at what seemed to be a fabulous price as fast as they could be secured.

The northern tribes of the Thlingit family, especially the Chilkats, have long possessed the art of weaving pieces of cloth or blanket from a thread made of twisted bark and the wool of the mountain goat. The warp consists of a twine of finely shredded cedar bark spun into a thread or cord. The woof is of yarn spun from the wool of the mountain goat. In making these blankets the wool is woven into a pattern representing the owner's totem with the assistance of various dyes, generally black, yellow, white, and sometimes brown. The black dye is made with charcoal and the yellow from a species of moss. The blankets are ornamented with a heavy fringe, longer at the bottom than at the sides. Ceremonial cloaks or coats were also woven in the same manner, but the advance of civilization has arrested their further manufacture.

With the sale of their furs and the consequent extinction of sea otters in their immediate vicinity the Thlingit gradually adopted the woolen blanket, purchased from traders, as their chief habiliment. They became "blanket Indians" in the fullest sense of the term, both sexes concealing whatever else they wore under the ample folds of the blanket of American or English manufacture. To such an extent did this custom grow in the course of years that the blanket became the unit of value and the circulating medium among the tribes. The commercial standing of native traders and the political importance of chiefs were gauged by the quantity of this universal commodity in their possession. An insult or crime could be atoned for by the payment of so many blankets, the number running into the hundreds in cases of homicide or infringement of marital rights.

As a circulating medium and standard of value the blanket is still used in the outlying districts, but its formerly universal use as a principal garment is slowly giving way to the cheap ready-made clothing of civilization. Among the more remote tribes of the Thlingit, who still wear the blanket habitually, these articles of dress are frequently ornamented with wide borders of red or blue cloth, upon which rows of pearl buttons, thimbles, and sometimes coins are sewn. Large silk handkerchiefs, generally black, but sometimes red or yellow, are now the favorite headdress of all females.

The early visitors to the Alexander archipelago found the natives of both sexes wearing conical or truncated hats woven of grass or finely split spruce root and painted with totem shapes in different colors, generally black and red. From the same material blankets and mats ornamented with grotesque designs were manufactured and found in general use. They also had a rain coat or rather blanket with a central aperture for inserting the head. These garments were woven from coarse grass with the shaggy side exposed to the rain. The inhabitants of the

southern part of the archipelago substituted the more pliable material obtained from cedar bark for grass and roots. Mats and cloths manufactured in this way are still in general use throughout the Thlingit tribe, and they are applied to every imaginable purpose, from carpeting a house and lining a canoe to packing cases, bags, and coverings. In cases of emergency they also serve as garments and bedding, while nearly everything the Thlingit brings for sale to the settlement is carefully wrapped in cedar matting.

In connection with the use of mats and basket ware by the Thlingit tribe, I can not do better than to quote from the valuable contribution to Alaskan ethnology, "The Coast Indians of Southern Alaska and Northern British Columbia", by Ensign Albert P. Niblack, United States navy. On pages 311 to 313 of the report of the National Museum for 1888 Mr. Niblack expresses himself as follows:

While the Tlingit, Haida, and Tsimshian are essentially wood carvers, this is by no means their only talent. Out of the abundance of their resources they have not only adapted wood to their every need, but along with it have developed many other industries. They are, as well, expert carpenters, basket makers, weavers, and metal workers. Their tools are crude, but with them they accomplish the most surprising results. Along with the totemic system we find the identification of the individual with his totem carried out in the carving or painting of his crest on every article of personal property. The simplest implement or utensil is ornamented with some pictograph relating to the legends of the totem to which he belongs. Tattooed on the body, woven into fabrics, etched on the metal bracelets and ornaments, painted on the house fronts, drawn on the canoe outfits, emblazoned on the household boxes, carved on the huge columns, commemorated in metal, wood, and stone, the totem of the Indian is his earliest and latest care, yet it is all subservient to the ever-recurring struggle to live. In the circuit of the seasons a regular routine of duties is observed. In the time not devoted to hunting, fishing, and the procurement of food the various arts and industries are practiced. In the summer camp odd hours are spent in cutting down trees, collecting furs, bark, and grasses, roughing out lumber, and in general collecting the raw materials which, in the winter's leisure, they convert into the various implements, utensils, and finished products for their own use and for trading purposes.

RAW MATERIALS.—Various kinds of grasses are gathered, and after being dried are dyed and trimmed to finished dimensions. Spruce roots are boiled until they become pliable, beaten with sticks, and the fibers picked into threads. The cedar bark gathered for industrial purposes is from the inside of the outer bark, that for food being scraped from the trunk itself. The former is soaked in water for several days, then beaten to make it pliable enough to enable it to be stripped into shreds. * * *

Other kinds of vegetable fiber, such as wild nettle and a species of wild hemp, are beaten on the rocks, shredded, and spun with a rude distaff and spindle into a strong twine or thread. Wood for canoes, houses, columns, paddles, dishes, masks, helmets, spear shafts, arrows, floats, hooks, etc., is also gotten out during the summer season and roughly worked up in camp, the finishing being often left for the winter leisure. At this time also the trading is done to obtain supplies of cloth, horn, copper, shell, etc., for the accessories of costumes for ordinary and ceremonial occasions. Fiber of cedar bark, hemp, and goat's wool are spun into threads for use in weaving the blankets for which certain tribes are famous.

ROPES AND CORDS.—The simplest cords or lines are those of kelp, sometimes single, sometimes laid up into two or more strands for additional strength as rope. The neatest ropes and cords, however, are made from strands of spruce root or bark fiber, the small stuff being dexterously twisted between the hand and thigh. The cordage for raising large timbers and columns is regularly laid up and twisted like our own ropes. A few of the most important uses to which the different varieties of native cordage are put may be enumerated as follows: Warp for blankets, fishing lines, canoe anchor lines, sheets for sails, lashings for boxes, grommets for heads of chisels and wedges, headdresses, girdles, guys for erecting columns, and dipping lines for turning the smoke-hole shutters of the houses.

MATS.—These are made principally of bark and are used for bedding, for sails, and as covers for canoe cargoes. The coarser kinds are thrown over the canoes to protect them from the weather and as screens for building temporary camps at night in traveling. The use of mats, however, for sails and tents has given place to the substitute already mentioned, cotton sheeting. Among the Tlingit, on ceremonial occasions, the chiefs were carried on mats borne by the slaves from the canoes to the houses, or in embarking in state. Matting from the different parts of the northwest coast can be distinguished by the patterns and texture. * * * In general the mats of the southern Indians are made of soft, red, pliable cedar bark, while those of the northern are stiffer, coarser, lighter in color, and bordered with black strips interwoven into the texture of the fabric.

In regard to the emotional and intellectual characteristics of the Thlingit I again quote from Ensign Niblack's paper, pages 238 to 241, as follows:

Their habits of life are quite regular, and, when undisturbed by war, they carry on a definite routine throughout the different seasons, collecting food, furs, and raw materials at one season to serve them for the next.

They are self-possessed, dignified, and reserved, although much less taciturn than the hunting Indians of the western plains and the interior. They have the usual Indian stoicism under suffering and bear extremes of cold, heat, hunger, and exposure with fortitude. They are quite venturesome, going well out to sea in their canoes. The Kaigani go out to Forrester island for birds' eggs every spring, 20 miles off the coast. Dixon (1787) states that he sighted a Haida canoe 8 miles out at sea, and though caught in a fog it reached land in safety, as he afterward met the same party close in shore. They often make trips of hundreds of miles in their canoes along the coast and interior waters, although in early days this was not so feasible, owing to the warlike relations of the different tribes. They are fond of parade and display and are scrupulous observers of ceremony and etiquette. Many of their deadly feuds originate from trifling causes based on breaches of etiquette or custom. Dancing and singing are a part of their ceremonies of welcome, trade, and war, and to the early voyagers to this region the Indians seemed entirely given over to these exercises. Their narratives express generally the impression that these natives were aggravatingly and immoderately fond of dancing, because they could not trade with them until they had finished singing and feasting. They are equally fond of long speeches and addresses, it all being intended to impress the observer with the rank, importance, and influence of the individual who provides the entertainment. They are also great sticklers for justice and for custom. When smarting under the sense of a real injury or imaginary wrong they are cruelly and unreasonably revengeful, although ordinarily friendly. They impressed the early voyagers as being somewhat hospitable and generous, although this was largely, as now, founded upon the expectation of an equivalent return.

Their bravery is relative. If stronger than an opponent their warlike demonstrations are quite pronounced, but in the presence of a superior force they are inclined to be submissive and peaceful, although ready to take an underhand advantage. Ambush, surprise,

and superior numbers are the favorable conditions of coast Indian warfare, and no mercy is shown to women and children, except perhaps to make slaves of them or to hold them for a ransom. While slavery was practiced, before its abolition by our government in 1867 slaves were treated with cruelty.

It is the universal testimony, as voiced by Portlock (1787), that "they treat their wives and children with much affection and tenderness". In the approach to political and industrial equality of the sexes, and the respect shown for the opinions of their females, these Indians furnish another refutation of the old misconception concerning the systematic maltreatment of the women by savages. Such a thing is incompatible with the laws of nature. Good treatment of the female is essential to the preservation of the species, and it will be found that this illtreatment is more apparent than real.

By nature they are rather indolent, but their love of the power and the display incident to wealth has changed their disposition since 1775, so that they have become more enterprising. Originally the chiefs conducted the trade of the tribe, but in time the natural abilities of the other sex in driving bargains has resulted in the predominance of the influence of the women in such matters.

They endeavor to impress others with their importance, wealth, and power, but are guarded in their expressions of wonder, surprise, or enjoyment at what they see elsewhere. They have come now to rely upon European medicines in sickness. When through carelessness, recklessness, and ignorance of the laws of health they come to grief they incontinently dose themselves with all sorts of patent medicines, which they buy from the traders.

Missionaries have been comparatively successful among them, the Greek and Presbyterian churches having made considerable progress with them. The opportunities for long addresses, prayers, experience meetings, and singing in some of the Protestant forms of worship appeal strongly to native predilections; the influence of the Greek church being principally about Sitka. The missionaries, however, discourage their dancing, and have influenced them in many localities to cut down the totemic columns and abandon cremation for inhumation-at-length as practiced by the whites.

One sees many strikingly intelligent and attractive faces among the older men and women, where experience has given decided character to their expressions. The stolid, imperturbable moodiness attributed to the Indians of the interior here gives place to a more alert expression of countenance. They acquire knowledge readily and the children at school make fair progress. They are quite ingenious and especially handy with tools, picking up a trade with surprising readiness and turning their hands to almost any sort of business. They are quite imitative and progressive, but have shown good sense and conservatism in retaining many native implements and methods where better adapted to their needs. They have a keen appreciation of the value of money, work for wages, and have considerable business judgment. It would seem that with their ideas of acquiring wealth we have little to teach them in habits of thrift. Of necessity they have a good knowledge of the topography and hydrography of their region and of the habits and best modes of capture of all sorts of marine animals. On shore they are rather disappointing as hunters, as they are not at all cool-headed. Their superstitions, beliefs, and practices of witchcraft, sorcery, slavery, and shamanism do not necessarily place them on a very degraded intellectual plane when we compare their practices and beliefs with those of other savage tribes.

They possess a fair knowledge of human nature, have good oratorical powers, are communicative when diplomatically approached, have a keen sense and appreciation of the grotesque, and have a great sense of wit and humor, as they laugh immoderately at the antics of the dancers, the witty remarks of the clowns, and the grotesque carvings erected in ridicule of the whites or of their neighbors. Placing implicit confidence in the truth of their legends and the reliability of their carved columns, they have an immense respect for graphic characters. Anything written on paper or carved is, per se, credible, and they attach the greatest value to a letter of recommendation written by a white man, irrespective of the sentiments expressed by the writer.

Judged by our standard, these Indians of the north have fallen by the wayside. Judged by their primitive ethical conceptions, as compared with those of the surrounding tribes when they first came in contact with the whites, they may be said to be distinguished by the great progress they have themselves made in morals. When first visited by the early voyagers these Indians, like all others on the coast, were bold, arrant thieves. With them it was not dishonorable to steal, and if caught restitution settled the matter. On the other hand, they discriminated and seldom or ever stole from a guest and never robbed one of their own totem. With them to-day an unwatched camp or an unlocked house is sacredly respected, and the most valuable property cached in the woods, as is the Indian custom, is as safe from other Indians as if guarded night and day. Unfortunately, white men have set very bad examples in this respect, and the Indians have more often been sinned against than sinning.

They have great respect for the aged, whose advice in most matters has great weight. Some of the older women, even bondwomen in former times, attain great influence in the tribe as soothsayers, due as much to their venerable appearance as to any pretense they may make of working medicine charms. They are remarkably fond of and indulgent to their children, rarely chastising them. As between the sexes, the rights of the women are respected and the terms of equality on which the men and women live are very striking to most visitors of this region. Although marriage is essentially by purchase and the question of morality and immorality of the wife solely one of sanction by the husband, yet even this restriction is centuries in advance of their northern neighbors, the Aleuts and Koniagas, with whom promiscuity and the most bestial practices obtain. Early voyagers invariably mention the modest, reserved, and decorous bearing of the Thlingit, Haida, and Tsimshian women. Unfortunately, in recent years, the purchase of women and the practice of sanctioned prostitution have had, under the spur of artificial needs of finery and luxuries, a most demoralizing effect upon them, and, with the rum question, are the serious problem which confronts the friend of the Indian. In their inveterate addiction to gambling and their craving for tobacco and alcohol they possess simply the vices incident to savagism. In their disregard for the lives or feelings of slaves, and in their practices of compounding murder and other crimes by the payment of indemnity to the relatives of the injured, we see simply the operations of custom which with them has the force of law. Murder, seduction, wounds, accidental killing, loss of articles belonging to another, refusal to marry a widow according to law, casus belli in general, any wrong, may be righted by payment of an indemnity in the currency of the region. To such an extent was this question of indemnity carried, that when the Russians at Sitka tried to interfere with the killing of slaves on ceremonial occasions they were only successful in preventing it by ransoming the proposed victims. A narration of the exactions of the Indians for damages on account of the accidental deaths of relatives in the employ of whites would fill a chapter.

These Indians are exceedingly fond of singing and dancing, have considerable artistic taste in the use of colors, are advanced in the arts of carving, and have fair abilities in drawing and designing. Their carvings in slate show the height to which their art rises, and would seem to easily place them at the head of the savage tribes of the world, especially when taken in conjunction with their industrial development. They bathe frequently in the sea, but on the other hand continually daub their faces, bodies, and heads with grease and paint, although this latter fashion is now dying out and has almost disappeared, except as an occasional custom. They were formerly indifferent to the stench of decayed animal and vegetable matter about their houses and villages, but the influence of the whites has wonderfully improved them in this respect. They are still, however, indifferent to all sanitary laws of ventilation, and their fondness for putrid salmon noses and herring roe is very trying, while the smell of rancid grease destroys the esthetic value of many otherwise interesting curios from the region. A visit to an Indian house is to the uninitiated still somewhat of an ordeal, although

nothing to what it formerly was. Through living in such intimate relations in the houses there is an absence of a becoming sense of modesty in family life, although the offenses are chiefly to be laid at the door of the men, who in the summer months go almost naked, whereas the women dress very much the same in all seasons.

Contact with the whites has staggered and arrested these Indians in their development. They are now adjusting themselves to a new mode of life. Although much reduced in numbers, they are far from being near extermination. Much is to be hoped for in the recent establishment of industrial and other schools and in the general interest now taken in the Indians. In the prohibition and prevention of the sale of liquor to them a great step has been taken. Much more needs to be done in the suppression of prostitution, in the recognition of Indian rights to hunting and fishing grounds, and in medical assistance to a people childishly ignorant of the simplest laws of health. Their Indian doctors are fast disappearing, and with them much of the degrading superstition of an ethnical group capable of almost any rise in the scale of civilization.

PRIMITIVE MORTUARY CUSTOMS.

In view of the rapid adoption of civilized habits by the Thlingit and a gradual abandonment of the former custom of cremating the honored dead I insert here a description of the latter process and the ceremonies attending it. It may be stated here that though slavery became nominally extinct with the acquisition of Alaska by the United States the descendants of slaves still occupy an inferior position.

The Thlingit burned their dead upon funeral pyres, with the exception of the bodies of shamans or sorcerers, which were deposited in boxes elevated on posts. The dead slave was not considered worthy of any ceremony whatever; his corpse was thrown into the sea like the carcass of a dog. When a Thlingit died his relatives prepared a great feast, inviting a multitude of guests, especially if the deceased had been a chief or a wealthy and prominent member of a clan. The guests were chosen from a strange clan; for instance, if the deceased belonged to the Raven clan the guests must be from the Wolf clan, and vice versa. No certain time was set for the cremation or for the festivities; this depended altogether upon the magnitude of the preparations, and it frequently occurred that the corpse was in an advanced stage of putrefaction when the time arrived. Poor people who were unable to defray the cost of such ceremonies took their dead to some distant cove or bay and burned them without any display. When the guests had assembled and the pyre had been erected the corpse was carried out of the village by invited guests and placed upon the fagots. The pyre was then ignited in presence of the relatives, but the latter took no active part, confining themselves to crying, weeping, and howling. On such occasions many burned their hair, placing the head in the flames; others cut the hair short and smeared the face with the ashes of the deceased. The Thlingit of Prince of Wales island boasted of torturing themselves in the most reckless manner at the time of cremation, slashing and tearing their arms with knives and beating and bruising the face with sharp rocks. When the cremation of the body had been accomplished the guests returned to the dwelling of the deceased and seated themselves with the widow, who belonged to their clan, around the walls of the hut; the relatives of the deceased then appeared with hair burned and cropped, faces blackened and disfigured, and placed themselves within the circle of guests, sadly leaning upon sticks with bowed heads, and then began their funeral dirges with weeping and howling. The guests took up the song when the relatives were exhausted, and thus the howling was kept up for 4 nights in succession with only a brief interruption for refreshment. During this period of mourning, if the deceased had been a chief or wealthy the relatives formerly killed 1 or 2 slaves, according to the rank of the dead, in order to give him servants in the other world. This was the only indication of the existence of a belief in a future life by the Thlingit. At the end of the period of mourning, or on the fourth day following the cremation, the relatives washed their blackened faces and painted them with gay colors, at the same time making presents to all the guests, chiefly to those who had assisted in burning the corpse. Then the guests were feasted again, and the ceremony was at an end. The heir of the deceased was his sister's son, or, if he had no such relative, a younger brother.

The festivities of the Thlingit consist almost exclusively of singing, dancing, gorging, and a distribution of presents. The dance consists of very rapid motion and passionate action, according to the wording of a song or the significance of the feast. All the festivities I have thus far mentioned belong, with the exception of cremation, to occasions of minor importance; of the same class are the festivities on the occasion of moving from one dwelling place to another, which form a parallel to the house-warming of civilization; and so also are the sorceries or incantations. This subject, however, will be more properly discussed with the religious views of the Thlingit. It sometimes occurs that dancing and singing are carried on without any apparent motive, and on such occasions imitations of the actions during the greater festivities are given, apparently with the object of keeping them fresh in the memory of the people by repetition.

The festivity in memory of a deceased relative is by far the most important celebrated among the Thlingit. They call it "to glorify the dead", and frequently monuments are erected during such occasions, not so much in honor of the deceased as in memory of the feast and its giver. However, as only the wealthy are able to celebrate such feasts, and the expense is exceedingly great, they are of rare occurrence. Guests are invited from many distant settlements, and all these must not only be fed, but also loaded with presents. It frequently happens that the giver of a feast thus squanders not only his whole possessions but also the dower of his wife, the result being a life of greatest penury for himself; but he is satisfied with the honor of having celebrated the memory of his deceased ancestor in a dignified manner.

Sometimes these festivities are confined to one family, sometimes a whole settlement is invited. Long before the period agreed upon arrives messengers are sent out near and far to call the guests from distant clans or tribes, not by name, but simply saying that all may come who wish to do so. Frequently women and children accompany the guests. The house designated for the celebration is cleansed as much as possible, or perhaps a new house is erected for the purpose, ornamented within and without with the totems of the possessor. When the guests arrive the feast begins with dancing and singing, lasting until the following morning; then comes the grand repast, of which only the guests, who always begin the festivities, have a right to partake. For many days and nights singing and dancing are only interrupted by eating, and the whole celebration continues as long as the giver of the feast is able to feed the visitors. On the evening of the conclusion of the ceremonies the host, accompanied by a slave, retires to a corner of the house and is there adorned with garments used only on such occasions and kept as heirlooms in the family. The garments vary in the different clans, and consist chiefly of parts of the animal represented by the totem of the clan. This dress formerly was ornamented with sea-otter teeth, ribbons, strips of ermine skin, etc. The slave who assists his master in dressing for this feast always receives his liberty.

As soon as the host emerges from his concealment in gorgeous array, surrounded by slaves, the whole assembly breaks out into the cry of the animal representing the family totem. Holmberg states that in accordance with the peculiar tone or inflection of this cry one or more slaves were killed. Upon completion of this sacrifice the relatives of the host begin the traditional songs of their clan, singing of the origin of the family and the deeds of their ancestors. Then the host seats himself on the floor, and the presents intended for distribution are deposited before him. The distribution is by no means equal, the wealthy and the most prominent individuals receiving the greater number of presents of the greatest value, often consisting of slaves, while the poor had to be satisfied with worn-out blankets or even fractions of the same. This virtually ends the festivities, but frequently a repetition of the whole affair occurs in the next house, and so on until the whole settlement has contributed to the splendor of the occasion. As has already been mentioned, the giver of such a feast has a right to adopt the name of an ancestor on his father's side.

Another festive occasion must be mentioned, which also belonged to the more important feasts, and was intended to give social standing to the children. Great expense in the shape of presents was connected with this feast, but at present it is rarely observed. It is very similar to those already described, differing only in a few minor ceremonies. No slaves were killed on these occasions, but on the contrary a number of them, equal to the number of children in whose honor the feast was given, were liberated. For this occasion a new house was erected with the assistance of the invited guests as well as of the people of the clan. All who participated in the labor, without regard to family, received presents, while at all other feasts only the guests were thus remembered. After singing and dancing and the distribution of presents the children were introduced one by one and subjected to the operation of piercing the ears. As soon as the awl was introduced and the puncture made all persons present gave forth a hissing sound, probably with the intention of smothering the cries of the children. After the operation presents were again distributed and a final repast indulged in.

The slaves of the Thlingit all sprang from prisoners of war (but frequently the prisoners of one clan were purchased by members of another) or were born of female slaves. Though under the Russian rule wars among the Thlingit tribes became of rare occurrence the number of slaves did not diminish. The supply was kept up by barter with the more southern tribes, and at that time a majority of the slaves belonged to the Flathead Indians of the British possessions.

The slave enjoyed no civil rights whatever among the Thlingit. He could not possess property, and if he acquired anything by labor or by gift it was still the property of his master. He could not marry without his master's consent, and very rarely was he allowed to do so at all. As already mentioned, slaves were killed on festive occasions or liberated. The liberated slave was invested with the rights of the lowest grade of the Thlingit, and was counted with the clan to which his mother belonged. This rule held good with the slaves from the British possessions, as there also the natives are divided into the Raven and the Wolf clans. An able-bodied slave was rarely slaughtered on festive occasions, as he was looked upon as merchandise of the greatest value, difficult to replace. If an intended victim managed to escape or to conceal himself he was allowed to live, and might return after the conclusion of the festivities at the house of his master without incurring punishment. It frequently occurred that powerful chiefs assisted favorite slaves on such occasions to make their escape. The universal rule was, however, to select for the sacrifice only the old or diseased slaves, who were more of a burden than profit to their masters. After death the slave was deprived of the honor of cremation.

With reference to various industries of the Thlingit tribes I again quote Ensign Niblack, United States navy, in his paper published in the report of the National Museum, 1888:

CANOE MAKING.—The primitive tools used in canoe construction are so simple as to excite our surprise. The principal and almost only one used is the adze of some pattern or other. The logs for the purpose are usually gotten out in odd hours about the summer camp, the finishing work being left until winter. The trees are generally selected near some water course and felled in such a direction as to admit of launching them into tide water. The log is trimmed where felled to rough dimensions, launched, and towed to summer camp, where the preliminary work is done. Often by combined labor numerous logs are gotten out in this way at one time, made into a raft, and by means of sweeps and sails, and by dint of working the tides, brought to the village or to the neighborhood of the camps. Good trees for canoe purposes are sufficiently rare to make their selection difficult and expensive in both time and labor. The best wood

for all purposes is the yellow cedar (Chamæcyparis nutkænsis), found on the Queen Charlotte islands and in spots around the southern Alaska boundary. The smaller canoes are made from the Sitka spruce (Picea sitchensis), and the very largest from the giant cedar (Thuja gigantea). The whole process of canoe construction may be briefly described as follows: The tree is felled with an ax (formerly stone ones were used). The trimming and rough hewing is done by wedges and sledges. The rest of the work is done by patient cutting with an adze. The canoe being roughly worked out is widened in beam by steaming it with water and hot stones placed in the bottom of the canoe, stretchers or thwarts of gradually increasing sizes being forced in as the wood expands. The long spur ends in large canoes are neatly scarfed on to the body with a dovetailed joint and finished down as part of the whole. The smoothing work on the outside is often done with a chisel, but usually the interior of the canoe shows the chipping marks of the adze. The smoothing work on the exterior to lessen the friction of the water is furthered by the use of sandpaper, sandstone, or shark's skin. The conventional colors used now in painting are black outside and white inside, with a red strip on the inside of the gunwale running quite around the canoe and up on the bow and stern spurs. * * * The lines of these canoes are remarkably fine and good, and when of considerable size and intelligently handled, they are remarkably good sea boats. Trips are often made in them to Victoria, British Columbia, and the Kaigani visit the outlying islands of the Prince of Wales archipelago in the early summer in search of birds' eggs, about 25 miles out to sea.

HUNTING AND FISHING.

SALMON.—The first run of salmon occurs about the middle of July, when they swarm in myriads into the mouths of the small fresh water streams. It is difficult to picture in the mind the abundance of these fish and the mad abandon with which they hurl themselves over obstacles, wounded, panting, often baffled, but always eagerly pressing on up the streams, there to spawn and die. In some of the pools they gather in such numbers as to almost solidly pack the surface. When there is a waterfall barring their progress they may be seen leaping at the fall endeavoring to ascend it, often as many as 6 or more being in the air at once. The flesh, at first hard and firm, on contact with fresh water soon loses its color and palatableness, so that the sooner they are captured the better. The species of the first run vary along the coast. They are comparatively small, do not remain long, and do not furnish the bulk of the supply, although at the canneries now erected as many as 2,000 to 5,000 have been known to be caught with one haul of the largest seines. About the middle of August the tyee or king salmon arrives, the run often lasting the year out. When they first appear they are fat, beautifully colored, and full of life and animation; but soon are terribly bruised, their skin becomes pale, their snouts hook-shaped, their bodies lean and emaciated, and their flesh soft, pale, and unwholesome. In Wrangell narrows is a waterfall of about 13 feet. At high tide the salt water backs up the stream and reduces this fall to about 8 feet, but never less even at spring tides, but the king salmon leaps the falls and numbers of them may be found in the fresh water above. The whole of the territory on the northwest coast adjacent to the Indian villages is portioned out among the different families or households as hunting, fishing, and berrying grounds, and handed down from generation to generation and recognized as personal property. Privilege for an Indian other than the owner to hunt, fish, or gather berries can only be secured by payment. Each stream has its owner, whose summer camp, often of a permanent nature, can be seen where the salmon run in greatest abundance. Often such streams are held in severalty by two or more families with equal privileges of fishing. Salmon are never caught on a hook; this method, if practicable at all, being too slow. At the mouth of the streams they are speared or caught in nets. High up the streams they are trapped in weirs and either speared or dipped out with dip nets. The Indians are beginning now to use seines and to work for salmon on shares, but the older ones are very conservative, and cling somewhat to primitive methods in a matter even so important to them as the capture of salmon, their chief food supply.

HALIBUT.—These may be taken at almost any season in certain localities, while they are most numerous during certain months in others. The Indians make the subject quite a study, and know just where all the banks are and at what seasons it is best to fish. Often villages are located on exposed sites for no other reason than to be near certain halibut grounds. This fish varies in size from 20 to 120 pounds, and is caught only with a hook and line. This fish stays close along the bottom, and is such a greedy feeder as to be readily caught by the clumsy hook. In fishing for halibut the canoe is anchored by means of stones and cedar bark ropes. The bait is lashed to the hook, a stone sinker attached to the line, and the contrivance lowered to the bottom. Sometimes the upper ends of the lines are attached to floats, and more than one line tended at a time. A fish being hooked is hauled up, played for a while, drawn alongside, grappled, and finally dispatched with blows of a club carried for the purpose. It requires no little skill to land a 100-pound halibut in a light fishing canoe. A primitive halibut fishing outfit consists of kelp lines, wooden floats, stone sinkers, an anchor line, a wooden club, and wooden fishhooks. It is impossible, with our most modern appliances, to compete with the Indians in halibut fishing. With their crude implements they meet with the most surprising success.

HERRING AND ULIKAN.—Herring are found in the summer months on numerous parts of the coast, depending on the nature of the feeding ground. They run in large shoals, breaking the surface of the water and attracting in their wake other fish, porpoises, whales, whale "killers", flights of eagles, and flocks of surf birds, all feeding either on the herring or on the same food as that of which they themselves are in search. They are dipped out by the Indians with nets or baskets, caught with drag nets, or taken with rakes. Ulikan, or "candle fish", run only in the mouths of rivers, particularly the Skeena, Nass, and Stikine, in this region. They are considered great delicacies, and are dried and traded up and down the coast by the Indians who are fortunate enough to control the season's catch.

Cod are caught with the skil hook. Dogfish, flounders, and others are caught with almost any kind of hook, there being no special appliances used or required.

SPAWN.—For taking fish eggs that have already been spawned the Indians use the branches of the pine tree, stuck in the muddy bottom, to which it readily adheres, and on which it is afterwards dried. When dry it is stripped from the branches and stored in baskets or boxes, sometimes buried in the ground. The spawn gets a pleasing flavor from the pine. Roe is taken from captured fish and either dried or buried in the ground to become rank enough to suit the epicurean palate of the Indian gormand.

SEA OTTER.—The custom in former days was to hunt the sea otter either from the shore or in canoe parties. They were shot with arrows from behind screens when they landed to bask on the sand or on the rocks, or approached noiselessly by canoe parties when asleep on the water. Very thin paddles were used, and if the Indian could get near enough the sleeping animal was harpooned. The common custom was, however, to hunt in parties. An otter, being sighted, was surrounded by canoes in a very large but gradually lessening circle, advantage being taken of the necessity of the animal to come to the surface to breathe, when it would be shot with arrows or harpooned from the nearest canoe. The Thlingit and Haida were not so expert as the Aleut, because their canoes were not so well adapted to the exposure at sea. In recent years the few remaining sea otters have been hunted with firearms. The Indians are poor marksmen, and under the excitement of firing the instant the otter rises many accidents to their own number have happened, particularly to those on opposite sides of the circle. By a curious rule the otter and all other game belongs to the one who first wounds it, no matter who kills it. As the otter floats when killed, the same skill is not required as in seal hunting, but so scarce have they become now that not more than 40 or 50 are killed in a season throughout the northern coast Indian region.

SEALS.—Seals are hunted in practically the same way as just described, but from the fact that on account of their bodies not floating it is necessary to harpoon them before they sink the percentage of loss is very large, although they are more abundant than the otter. The Indians rely to a great extent on shooting them in very shallow water or on rocky ledges near the shore.

On shore the Indians are very poor still-hunters, and luck and abundance of game are large elements in their success. Fur-bearing animals, such as bear, lynx, land otter, beaver, etc., are generally trapped, although shot whenever chance offers. Breech-loading arms are not allowed to be sold to the Indians. With the use of muzzle-loaders we find powder chargers of bone and a percussion cap box made from the horn of a mountain goat.

DEER.—Deer are very abundant and form a large item in the food supply of the region. They are hunted in the rutting season with a call which lures them to the ambushed hunter, when they are readily shot. So effective is this call that it is not unusual to be able to get a second shot at them in case of first failure. Still-hunting is very little resorted to, and an Indian seldom risks wasting a charge until he is somewhat sure of his distance and chances. They are often captured swimming, and in winter are recklessly slaughtered for their hides when driven down to the shore by heavy and long-continued snows. The deer call is made from a blade of grass placed between two strips of wood, and is a very clever imitation of the cry of a deer in the rutting season. The wolves play great havoc in this region with the deer, and it seems remarkable that they exist in such numbers with so many ruthless enemies.

MOUNTAIN GOATS AND SHEEP.—On the mainland these are shot with very little difficulty if one can overcome the natural obstacles to reaching the lofty heights which they frequent.

BEARS.—The brown and black bear are the 2 species quite generally found in Alaska. Both are hunted with dogs, shot when accidentally encountered, or trapped with deadfalls. The brown bear (Ursus Richardsonii) is from 6 to 12 feet long and fully as ferocious as the grizzly. The hair is coarse, and the skins, not bringing a good price, are generally kept by the Indians for bedding. This fact, coupled with the natural ferocity of this species, has led to the brown bear being generally let alone. An accidental meeting in the woods with one of them is regarded as a very disagreeable incident by an Indian. When women and children run across bear tracks in the woods, in deference to a generally recognized superstition, they immediately say the most charmingly complimentary things of bears in general and this visitor in particular. The origin of this custom is given as follows:

The bear was formerly rarely hunted by the superstitious Thlingit, who had been told by the shamans that it is a man who has assumed the shape of an animal. They have a tradition to the effect that this secret of nature first became known through the daughter of a chief who came in contact with a man transformed into a bear. The woman in question went into the woods to gather berries, and incautiously spoke in terms of ridicule of the bear whose traces she observed in the path. In punishment for her levity she was decoyed into the bear's lair and there compelled to marry him and assume the form of a bear. After her husband and her ursine child had been killed by her Thlingit brethren she returned to her home in her former shape and narrated her adventures.

This legend is found in other forms throughout the coast. In conclusion, it may be said that the brown bears are expert fishers and frequent the streams in the salmon season along their well-beaten tracks, which form the best paths through the woods.

The black bear (Ursus Americanus) is, on the other hand, rather timid and eagerly hunted, not only for his valuable black skin but for his flesh, which, when young and tender, is very palatable. In the spring they are readily killed along the edge of the woods when they come out to feed on the first sprigs of skunk cabbage and other plants brought out by the warm sun. Later in the summer they are found along the streams, where they feed on the dead and dying salmon.

Taking it altogether, the Indians are expert fishermen but poor hunters, indifferent marksmen, and wanting in that coolness and nerve for which the hunting Indians of the interior are famous. Besides the animals hunted for their skins, as mentioned, there may be added the fox, wolf, mink, marten, land otter, and an occasional Canada lynx and wolverine on the mainland. The method of dressing the skin is not different from that of the interior Indians, so generally described in works of travel.

CHAPTER IV.

THE SECOND OR KADIAK DISTRICT.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

> The mountains we were soon to cross were comparatively low, extending almost at right angles from the high chain of mountains to the eastward and southward of us. These high peaks form the apex of the mountain system south of the Yukon, from which spurs shoot out in every direction. The headwaters of three mighty rivers are located here, the Tanana, Copper, and White rivers. The location of the most prominent peaks, such as Sanford, Drum, Wrangell, Tillman, and Blackburn, as ascertained by compass bearings, does not tend to show the continuity of the range, but could a view have been obtained from the top of one of these peaks a backbone of the system might have been determined, showing its connection with the St. Elias range, with the mountains that separate the Copper from the Tanana, and those between the Tanana and the White. The existence of high mountains behind and around Taral and the high peaks north of Prince William sound led me to believe that the St. Elias range finds an extension at a rather uniform distance from the coast, terminating south of the Kuskokwim; but the mountains we were about to cross could hardly be a continuation of the high mountains to the eastward, unless one be considered a spur of the other. The range lying south of the middle Tanana contains some very high snow-clad peaks.
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> When we reached Lake Suslota, at the foot of the pass, we found a house and 3 or 4 families consisting of 8 men, 6 women, and 9 children. Their main subsistence was a dried fish much smaller in size than the salmon. They were not fishing during our stay. In the lake, which is only 2 miles long and very narrow, small grayling could be seen, but they could not be induced to rise for anything we could offer them, no insects of any kind being obtainable. From Suslota Mount Sanford was bearing southeast, and its peak had an angle of elevation of 4° 2′. It towered above all visible surroundings. The outlet of the lake, a tributary of the Slana, flowed in a southwesterly direction.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

CHAPTER V.

THE THIRD OR UNALASKA DISTRICT.

THE THIRD DISTRICT.

BY SAMUEL APPLEGATE.

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

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

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

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

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

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

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

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

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

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

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

TOPOGRAPHY.

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

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

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

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

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

CLIMATE AND RESOURCES.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

CHAPTER VI.

THE FOURTH OR NUSHAGAK DISTRICT.

THE FOURTH DISTRICT.

BY ALFRED B. SCHANZ.

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

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

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

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

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

TOPOGRAPHY.

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

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

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

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

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

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

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

ETHNOLOGY.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

INDUSTRIES.

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

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

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

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

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

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

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

MISSIONS AND SCHOOLS.

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

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

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

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

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

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

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

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

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

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

CHAPTER VII.

THE FIFTH OR KUSKOKWIM DISTRICT

The Fifth or Kuskokwim district ranks second in Indian population and last in the number of whites enumerated. It embraces within its limits the whole country drained by the Kuskokwim river and its tributaries, and in addition the tundra and lake region lying east of the Kuskokwim river and south of a line drawn from the "divide" on the Ikogmiut portage to Cape Rumiantzof and the island of Nunivak. This district has been affected less than any other in Alaska by contact with white men or by their enterprise. Whole villages of people can be found living here in their aboriginal state, and thousands of individuals beheld in the census enumerator the first white man they ever saw.

Beginning our review at Cape Newenham, its southernmost point, we find the first settlement at Kinegnagmiut, on the north side of a narrow isthmus connecting the cape with the Togiak chain of mountains. The people living here are Kuskwogmiut Eskimo, numbering 76. Their dwellings are underground huts, with frames of drift logs, covered with sods. Entrance to the living rooms is made through a long, low tunnel and a majority of the houses are provided with covered entries and small sheds for cooking. The neighborhood of Cape Newenham, with its many surrounding shoals and reefs, is one of the few places to which walrus still resort at certain seasons. Most of these huge animals are found to the south and east of the cape, and a number of dwellings have been constructed on that side by the Kinegnagmiuts for temporary occupation. Though the walrus is highly prized by these people for its ivory as an article of trade and as material for the manufacture of tools and implements, the people by no means depend upon the meat for food. They hunt the hair seal and the beluga successfully for their meat, blubber, and oil. Sea birds, which roost in myriads around the cliffs and rocky islands, furnish them with meat, eggs, and garments made up out of their feathered skins. The streams and lakes teem with trout, and herds of reindeer feed upon the mossy tundra.

The Kinegnagmiuts obtain tobacco, powder, and lead, and a few other manufactured articles, through native traders from the Kuskokwim, who visit Good News bay and the cape during the winter season with dog teams. Once during every summer these people migrate to the hills in search of ground squirrel skins for undergarments, and also to indulge in their custom of annual physicking by means of a diet of green weeds boiled in oil.

Good News bay, which was thus named by Captain Cook, is a large sheet of water surrounded by hills, but too shallow to make a good harbor. Light-draft vessels can enter, but can not proceed much beyond its mouth. At low water nearly one-half of the bay presents a surface of soft, blue clay.

The village of Mumtrahamiut, on the eastern shore, contains a population of 162 Kuskwogmiuts, who, though making this their permanent home, roam over a vast extent of country, the lake district forming the divide between the Kuskokwim and Togiak basins. They seem to be equally at home in trotting for days after a shy band of "tuntut" or reindeer, or paddling their kayak over the rough waters of the ocean chasing beluga or seal. The sod huts of Mumtrahamiut have been constructed upon a narrow strip of dry soil between the beach and a brackish lagoon. Spring tides frequently flood these wretched dwellings, and the only water supply of the people is derived from the lagoon, which is also the depository of all offal, fish skins and bones, etc. For squalor and apparent misery of circumstances and surroundings the Mumtrahamiut people stand pre-eminent even in this most primitive of Alaskan districts; but this seems not at all to interfere with their happiness and general health. They are cheerful and have increased in numbers during the last decade.

The rolling hills of the surrounding country, covered with a thick carpet of moss, produce abundant crops of several species of wild berries, but there is no timber of any kind, the only fuel obtainable being driftwood.

According to tradition, unsupported by any record, one of the earliest Russian missionaries, Father Juvenal, penetrated westward from Cook inlet as far as Good News bay. We know that Juvenal was killed by natives in the vicinity of Iliamna lake at the end of the eighteenth century, but if he actually reached this neighborhood he

left no trace or record, and the natives profess no knowledge of such a visit. The earliest mention of the Kuskokwim in Russian records occurs in a report made in 1818 recommending the abandonment of the station on Bristol bay (Fort Alexander) and its removal to Hagemeister island, which is described as situated "not far from the great river Kust-Khokan", without any mention of the intervening cape and bay.

About 15 miles north of Good News bay, on the swampy shore of a lagoon, there is another wretched settlement, Kl-changamiut, inhabited by 49 Eskimo. The dwellings here are also exposed to overflow, and the only drinking water consists of a dark brown, strongly flavored liquid dipped up from swamp holes. The desolation of this spot is indescribable, making us wonder what could induce human beings to settle here. The coast is so low that the southwesterly gales drive the salt spray far inland, and for weeks at a time the people live in an atmosphere of salt mist and particles of sand. Walking over the vast plain intervening between the hills and the sea is made impossible by the swampy nature of the ground, and only in the depth of winter can these people move about more freely with their dog teams. The moisture of the summer climate prevents a thorough drying of fish, which becomes maggoty and putrefies rapidly. Here the principal articles of food are fresh fish and seal meat, generally eaten raw.

The sand dunes which separate the large lagoon of Kl-changamiut from the sea, some 20 miles in length, have evidently for many generations been the resort of beluga hunters from the Kuskokwim river. They have erected crude shelters of driftwood in many places, all but the most recent among their structures being almost buried under the drifting sand. In one place only a hole, about 5 feet in depth, has been dug in the sand for the collection of brackish drinking water. Ample proof, however, is extant of the large number of beluga (or white grampus) killed here, in the shape of long rows of beluga skulls laid one by one beside each other, with the pointed jaws to the south and the rounded back part of the skulls to the north. These rows, of which there are between 30 and 40 within a few miles, were begun at the beach, where the skulls are half decayed and moss grown, and continued inland, where the newest specimens are found. I have counted nearly 200 in a single row. The rounded back portion of the beluga skull presents three apertures, resembling in shape and relative position the eye and nose apertures in the human skull, and the effect of these long rows upon the unprepared stranger is at first rather startling.

The reason why this locality has been so much resorted to by beluga hunters is easily understood by noting its topographical features. There is one deep but narrow entrance to the vast lagoon, the waters of which are shallow. With high tides schools of these animals often turn into the opening when on their way to their feeding grounds in the wide estuary of the Kuskokwim. On such occasions a number of natives, forming a line with their canoes across the entrance, can by dint of splashing and shouting prevent the greater part of the school from making their exit with the receding tide, which finally leaves the bewildered cetaceans floundering upon the muddy bottom at the mercy of their enemies.

Such fortunate incidents are, of course, not of frequent occurrence, and much patient watching and waiting is required on the part of the hunter; but the capacity of the Eskimo for patient watching without much exertion is almost unlimited. The Kl-changamiut people assert that each row of beluga skulls on that long strip of beach represents the number of animals killed by successive generations of hunters from some village farther up the river, who are always careful to add only to the trophies of their own people.

Between Kl-changamiut and Quinhaghamiut, for a distance of about 40 miles, the coast maintains the same desolate aspect. The land is low and flat, bounded on the east, some 20 miles away, by low, blue hills, and to the north, west, and south by an apparently unlimited expanse of water. The flood tide, running with great velocity, carries the traveler along in his canoe, but if he be wise he will land when the current turns, no matter how uninviting the place, or he will shortly find himself far from the friendly ridge of marsh grass, with miles of impassable mud, bared by the ebbing tide, separating him from the nearest spot upon which he could pitch his tent. At various points the ruins of abandoned villages or isolated hunting stations can be observed, visible from a great distance, though rising but a few feet above the surrounding flatness. I have seen the hemispheric mounds of an Eskimo village, our next camping place, on starting in the morning, apparently rising immediately from the glassy surface of the water, and it required a long Alaskan summer day of constant paddling to reach them. In one instance I found that a group of sod huts between 4 and 5 feet in height had been apparently visible for a distance of 25 miles. Throughout that day they presented no perceptible increase in size until we were almost up with them in the evening.

At Quinhaghamiut the first stream of any magnitude is found flowing into the sea from the distant hills in the east. The village, containing 109 Eskimo, is situated upon a narrow peninsula between the river and sea. My visits to the place were made during the driest summer weather, but even then we could not pass from one dwelling to the other without wading. Water was standing in many parts of the houses, and a careful search for a camping place failed to reveal any spot large enough to pitch my tent upon from which water did not ooze freely under pressure of the foot. As a last resort, I spread my blanket upon one of the stagings used for drying fish, only to be driven away again by the discovery of an invading army of maggots, bred in stagnant pools filled with fish and animal refuse, making their way rapidly up the posts of my last refuge. How human beings can thrive in such surroundings would puzzle the disciples and teachers of sanitary science.

Quinhagak river is a very crooked, sluggish stream, the outlet of a lake, upon the banks of which these people have another village, temporarily occupied at certain seasons. Their principal food is the flesh and blubber of seal and beluga, but there is also a short run of chavicha or king salmon in the river during the month of June. Owing to the moisture of the atmosphere, but few of the fish are dried.

The houses of this settlement consist of 6 large sod huts, each containing several families, and a large "kashga" or council house, also used as a bath and dance house. Visitors and travelers are always allowed to seek shelter in these kashgas, but as they are nightly crowded by all the unmarried men and boys of the village, who stretch themselves promiscuously upon the narrow platforms, entirely naked, the more fastidious travelers rarely avail themselves of the opportunity.

Every male individual in these communities, from half-grown boys upward, possesses his own canoe, and many of the females, especially widows, are also thus equipped. This custom is an absolute necessity in a country which is practically inaccessible on foot and subject to sudden tidal overflows. As it is, it requires but a few minutes for the whole population of a village to be afloat and ready to paddle away to some place of safety.

But a few miles to the northward of Quinhaghamiut is the present limit of navigation for seagoing craft, at the mouth of the Kuskokwim, and even that point is reached with difficulty and at considerable risk, owing to shoals of unknown extent and shifting channels, and as at this point the anchorage is entirely exposed to prevailing winds and sea, the Kuskokwim river can scarcely be considered open to commerce. At present but one vessel each year runs in when the indications are favorable to discharge a cargo of goods sent up for the Kuskokwim trade by the Alaska Commercial Company, and to carry away the furs collected during the preceding winter. For this purpose a small warehouse has been erected at a small village of 2 houses, Shinyagamiut, containing but 7 people. In the month of June the traders and missionaries from the upper river descend to the place in boats and lighters to await the coming of the steamer, and for a brief period a little town of white tents arises upon the greensward along the water's edge. Canoes from neighboring villages are constantly coming and going, and a brisk exchange of fish, geese, ducks, and "wild eggs" for powder, lead, and tobacco is carried on. As darkness is unknown at that time of the year, a lookout is constantly kept on the roof of the warehouse, but often the people are kept in suspense for a month or 6 weeks before the trailing black smoke along the southern horizon assures them that the news of the world's doings during the past 12 months will soon be in their possession. As soon as the cargo is discharged, and before there has been time to answer any but the most urgent letters, the steamer fades away from view, and all hands apply themselves to the task of carrying stores and supplies upstream against a lively current in boats and skin "bidarkas" propelled by oars and sail.

At Shinyagamiut the opposite shore is still invisible, though the water is fresh at low tide. Passing along the eastern bank, we note the gradual approach of hills to the river and the narrowing of the swampy plain. Islands with winding sloughs and channels between them begin to line the shore, and, with a scarcely perceptible rise in the surface of the land, population increases. The villages of Kuskohkagamiut, Chimingyangamiut, and Ahpokagamiut are all situated upon the banks of sloughs, at some distance from the open channel, and easily overlooked by the passing traveler. Kuskohkagamiut has 115 inhabitants, living in 7 dwellings and a large kashga. This settlement, as well as others on the river, is connected by many waterways with lakes in the interior, upon the banks of which the people have other dwellings for temporary occupancy.

Chimingyangamiut, a few miles to the northward and hidden among willow thickets, has only 40 inhabitants, living in 2 large dwellings. Ahpokagamiut is the first large settlement on the east side of the Kuskokwim, being composed of 11 dwellings and a very large council house, which measures 25 feet square in the interior. The number of people here exceeds 200, and the muddy beach is crowded with kayaks, some at the water's edge ready for launching, but most of them resting on forked uprights beyond the reach of hungry canines. The dogs average in numbers from 4 to 7 to each household, and are looked upon as quite an important part of the community. They are of use only during the winter, as dogs are never trained to hunt, but they are not fed in idleness as long as there is any possibility of their picking up a living without endangering their master's property. During the summer migrations of the people to the various hunting and fishing grounds the dogs, generally preserving their organization as teams, either follow the movements of their masters along the shore, swimming rivers and sloughs and making long detours around bays and bends of the river, or remain at home, taking charge of their master's home or of the whole village, as the case may be. A team of dogs which have labored together during a winter always follow the movements of their leader. They can be seen far away from the settlements, scouting over the tundra and shore in search of game, never refusing any carcasses or offal cast upon the beach, but with the approach of winter they are sure to make their reappearance at home, ready to labor and be fed.

The history of a day as observed at Ahpokagamiut, while waiting for my native paddlers to "set their house in order" previous to departure, may serve as a typical presentation of the summer life of all the inhabitants of this part of the Kuskokwim tundra.

Life and movement do not altogether cease even during the night, as such dogs as are not afield are moving about on a still hunt for any scraps of food carelessly dropped by children or left exposed among the grass and weeds, which grow thickly, not only around the dwellings and caches but all over the sod roofs and walls. An occasional fight will occur when prowlers meet, but the noise quickly subsides. With the first break of dawn the grown dogs trot off, each team following their leader, while the pups are still comfortably snoozing within the

shelter of the houses or cooksheds. Among human beings the women are generally the first to stir. They seem to walk about aimlessly, gazing at the sky and water, exchanging a few words of gossip as they meet. Next a few old men make their appearance, crawling on hands and knees from the low entrance tunnels. Once emerged, they stretch their cramped limbs and slowly ascend to the top of some house, generally the kashga, that being the highest. Here they squat down upon their haunches, drawing their fur or feather garments closely about them, and observe the aspect of the sky and water. Having devoted some time to this study, they slowly return to their families and communicate their opinion as to the weather prospects of the day. Not until this has been done does the day's work begin. Now the women go to the caches to take out provisions for the morning meal, and boys and girls can be seen scurrying around from house to house to "borrow fire" from somebody who has preserved a few live coals through the night. Others gather chips and pieces of driftwood, and before long the thin, blue smoke can be seen curling from many of the grass-grown mounds. When the meal is prepared, be it cooked or raw, the food is divided by the female head of the family, serving the men first, then the boys, the women and girls coming in for the remainder. Wooden dishes with food are sent to the kashga for the unmarried men and youths, and for such strangers as have "affinities" or relatives in the village. But little time is wasted over the morning meal, and it is still quite early when some of the old women start out in search of berries or fuel, while others set to work cleaning fish left over from the previous day. The young men, emerging from the kashga, saunter down to the beach and examine their hunting and fishing gear previous to launching their canoes. A few provide themselves with a dried fish or a piece of seal blubber, intending to prolong their journey, but the majority take nothing but their gear and a wooden dipper. The fishermen proceed directly to their traps, while others, alone or in groups of 3 or 4, cruise about along the shore or to seaward, following up any sign of seal, beluga, or fish. Among the groups thus paddling along conversation never flags and much rough joking is indulged in.

In the meantime the older men and heads of families have been advised by their "tungak" or medicine man that the time is propitious for a bath in the kashga. The boys are set to work at once collecting fuel, which is piled up in the central fireplace and ignited, and rocks smooth and black from long usage are placed among the wood. When the large pile of fuel has been consumed, the men disperse to their homes and leave their clothing. As they return in a state of nature, each throws a dipper or basin of water on the red-hot rocks, filling the gloomy compartment with steam. A few stone lamps are lighted and the smoke hole in the roof is firmly closed. Singing and shouting, the men jump about to assist perspiration as much as possible, and rub themselves with alkaline liquid, which, combining with the oily exudations from their bodies, creates a thick malodorous lather, falling off in flakes as they move about. The atmosphere soon becomes stifling and the stench very offensive, the feeble flame of the moss wick grows dim, and at last the door and smoke-hole shutter are opened and the bathers rush out; some throw themselves into the river or sea to rinse off, others run to their homes, naked as they are, to don again their filthy garments, with their bodies no cleaner than they were before.

A refection of some kind generally follows the bath, and after the kashga has been aired a little the men return to gossip and labor, making weapons or utensils, repairing fish traps or canoes, etc. The women in the meantime attend to household duties, cleaning or drying fish, scraping skins for tanning, weaving grass mats, or making garments and looking after the pups. The latter receive as much attention as the babies, and certainly more useful training. When the pups are but a few weeks old the women of the house fit them with small harness, tie them to a stake set in the ground and let them tug away. The pups complain vociferously but never stop pulling, until at last the woman releases them, holds them to her breast with many expressions of endearment, and feeds them from her mouth with partially masticated blubber. By this means the women, while really torturing them, obtain a hold upon the affection of the young dogs which lasts through life. The men manage their dog teams only through fear and starvation; the women can make them do anything with kind words only.

The children devote the whole of the long summer day to play. They attend no regular meals, but run to their mother whenever they are hungry, and their wants are always supplied without stint. The girls have dolls carved of wood or ivory and dressed in tiny fur garments; they also play certain games, accompanied by singing and dancing, and, like the children of civilization, they take much pleasure in "playing house". The boys, from the time they are able to stand alone, are provided with toy bows and arrows and spears, practicing chiefly upon the unfortunate dogs or young gulls and ducks and other household pets. The older, experienced dogs slink quietly away whenever they see a boy arm himself with his toy weapons.

As the day progresses canoes begin to return with fish or game, each arrival being previously announced by some old man keeping a lookout, perched on the apex of his sod hut, and by the time the landing is made the members of the household to which that canoe belongs are waiting on the beach to carry away its cargo. If the weather be fine, the returning hunters or fishermen lounge about the beach or stretch themselves in the grass, where they are served with food by the women of the household, but generally they refresh themselves at the fireside, relating between mouthfuls every trifling incident of their morning's cruise to the assembled members of the family.

If at any time during the day the dogs of the village gather on the beach and howl in chorus, the people know that strangers are approaching, and the idle and the curious (there are but few others) crowd to the shore to receive them. The distance at which these dogs can distinguish the canoes of strangers from those of friends is astonishing; they never make mistakes. Visitors are always entertained by relatives or by their "kin by choice" or elective

affinities, a rather peculiar institution of Eskimo society. Being a roving people, much given to assemble in the winter time for ceremonial and semireligious festivals, masked performances, etc., they have hit upon a plan which facilitates travel, in so far as it does away with the necessity of carrying provisions for the whole time they are absent from home. During such gatherings individuals from various settlements form friendships, according to their fancy, agreeing to treat each other as brothers at their respective homes, and thereafter they use a special term in addressing each other; generally this term is derived from some character assumed by both during the masked performances at their festivals. Each party of such an alliance is treated at the other's home as a member of the family. In the case of single men (and the agreement is generally entered into in youth) the guest is cared for in the kashga by his host, who places all his weapons, gear, and trinkets at his disposal. With married men the custom leads to a community of wives if the latter do not accompany their husbands on such journeys. The claims based upon such elective relationship seem to be considered stronger than those of ordinary kinship.

Among these primitive people, who have not yet acquired the accomplishment of making or consuming strong liquors, quarrels among men are scarcely ever heard of. Their general disposition is amiable and cheerful, and though some young fellow may feel aggrieved over some joke of more than usual broadness, he will only sulk, not quarrel. Among the women only wordy disputes occur, sometimes provoked by jealousy, though their easy code of morals leaves but little room for that, but more often the cause is some derogatory remark made by one woman on the child of another.

With the approach of evening the children gradually "hunt their holes", curling themselves up in any nook or corner that may take their fancy. The women do much gadding about from house to house to gossip and ascertain the success of the hunters or fishermen of each family, and chiefly to "snuff" in company. The snuff is drawn into the nose through a tube of bone, in powdered form, from boxes carried by all from early youth. Only the most affluent of these people can afford to smoke tobacco, as that process makes an immediate end of the precious substance. The usual mode of indulging in the weed is to chew it, the strength and bulk of each quid being increased by a liberal admixture of wood ashes. In this shape the little package of tobacco affords enjoyment for a prolonged period, not only to the original owner but to his friends as well, being freely passed from one to the other. At intervals between mastication the quid is placed behind the owner's ear, probably affording him by mere contact the pleasures of anticipation. This process, however, by no means ends the career of the precious morsel; it is finally turned over to the women, who, by drying, maceration, and admixture of ashes, convert it into snuff. The use of tobacco has taken a thorough hold upon these people; much time is devoted to its preparation for consumption, and they freely exchange the proceeds of weeks of labor and hardship for a few leaves of the plant. I have seen a man laboring for hours, carefully taking to pieces all the pipes of the household and scraping the inside of the tubes, only to consume in three or four whiffs the result, a fine dust of wood impregnated with nicotine.

While the women visit and gossip the men are assembled in the kashga, gossiping also, or chanting monotonous, meaningless songs, at the same time repairing arms and implements, until at last the fathers of the families pick their way home over the winding paths strewn with garbage and rubbish, and the bachelors strip off their garments and, placing them under their heads, stretch themselves on the platform lining the walls. The old men, who are light sleepers, attend to the fire at intervals during the night. Outside, the prowling dogs are again in possession, while their owners sleep in peace.

Proceeding northward from Ahpokagamiut along the east bank of the Kuskokwim, we find a number of populous villages, resembling in characteristic features those already described. The most important among these are Shovenagamiut and Ahguliagamiut, the latter containing 106 people in 6 dwellings. The surrounding country is higher and less subject to overflow, enabling the people to select more comfortable locations for their settlements. Some spruce timber can be seen in the distance, and its vicinity is also indicated by the better construction of dwellings, the log frames being raised a little above the surface instead of being altogether underground, as in the tundra country.

From Ahguliagamiut to Lomavigamiut the banks of the river are somewhat higher, but the back country is still a level swamp, crossed here and there by slightly elevated ridges. This region is the summer home and breeding ground of innumerable flocks of geese and ducks. The natives gather their eggs in such localities as are accessible to them with their canoes, but the birds are not actively hunted, because their weapons for shooting them, consisting of 3-pronged arrows, are very imperfect, and they are too saving of their small supply of powder and lead to expend it on small game that yields them food alone. For the same reasons the large flocks of ptarmigan remain almost unmolested. Not many years ago large droves of reindeer grazed over the lowlands and hills on both sides of the river and their meat and skins made an important item in the domestic economy of the Kuskwogmiuts, but in this case they did not hesitate to expend their ammunition as fast as it could be obtained, the result being an almost total extermination of the animal.

At Lomavigamiut we meet with the first birch-bark canoes, partially decked over with bark, in imitation of the kayak. These canoes are either purchased from natives living in the timber country or built with material obtained by barter, and they are used chiefly for attending to fish traps or by women and children in search of berries and fuel. For extended journeys, or for hunting seals or beluga, the skin canoe only is used.

Up to Lomavigamiut the direction of the river is north and south, but above this point its general course is from northeast to southwest. A few miles above this bend we find the villages of Napaskeagamiut and Napahayagamiut, on opposite sides of the river but occupied by the same people at various times of the year. The inhabitants, numbering between 100 and 150, do not depend upon the water exclusively for their subsistence. They trap foxes and land otters and make long inland journeys in quest of reindeer and ground squirrels. Their dwellings are well lined with timber and erected on dry soil. The kashga is found in each village, sometimes of quite imposing dimensions, and the burial places are full of carved memorial posts of grotesque designs, hung with articles of clothing and ornament. Many of the graves are quite covered with a collection of masks and fancy trappings, worn by the deceased during some masked dance or festival.

A few miles to the northward of Napahayagamiut, on the western bank of the river, we find the Moravian missionary station of Bethel and the trading post and native village of Mumtrekhlagamiut within half a mile of each other. Bethel was founded in the year 1886, the site having been selected by Rev. A. Weinmann after an examination of the country from Bristol bay to the Kuskokwim. The mission consists of several buildings, erected by the missionaries chiefly with spruce logs which had to be rafted with great difficulty from the forest region on the upper river. They have 2 dwelling houses for the 2 married couples engaged in the work, a large school building, a storehouse, and bath house, all overlooking the river from a bluff. In order to pursue their vocation and to keep themselves and their charges supplied with such food as the country affords, the missionaries have found it necessary to provide themselves with both skin and bark canoes, dog sledges and teams, and a large sailing scow. The latter vessel is used for communicating with the annual supply steamer at the mouth of the Kuskokwim, and for bringing up to the mission the stores of all kinds forwarded in abundance by the managers of the society from Bethlehem, Pennsylvania.

Mr. John H. Killbuck, the missionary, and Mr. Charles Weber, his assistant, who were also engaged in the enumeration of this district, have performed the most arduous journeys in order to reach the people, either with sledges or canoes. Both modes of traveling are exceedingly laborious. The canoe must be propelled either with paddles or poles, and an Alaskan sledge journey but seldom affords the passenger an opportunity to ride. As a rule he must trot along and keep up with the dogs, which have all they can pull in the shape of tent, bedding, and food for man and dog.

The work of christianizing and civilizing the natives of this district is exceedingly arduous and beset with difficulties, and even a partial success in teaching the people to lead better lives in a moral as well as a physical sense still leaves us to be confronted with the question, "What can these people do to support themselves in a more decent and comfortable mode of life?" The country, as far as it is inhabited by Eskimo tribes, is very poor in furs, or, in fact, in anything that civilized man would care to buy. Even the fish with which its rivers teem periodically is not of a quality to command a market now. The brief run of king salmon supplies only a quantity sufficient for fresh consumption by the natives, and the various species of whitefish (coregonus), though very palatable, have not yet found a market; and though the quantity is ample to supply the people with food, these fish do not appear at any time in large schools or "runs", such as would be required for making a paying industry of their capture. The same can be said of the hair seal and beluga, hunted by these people; the number of these animals is sufficient only for home consumption as food, not enough for making their skins or oil articles of trade.

The trading station of Mumtrekhlagamiut has been in existence for many years as a tributary depot of the large trading post at Kolmakovsky, on the upper river. The place was established and maintained for the purpose of collecting the few mink and land otter skins of the lower Kuskokwim and the tundra region to the westward, as well as the oil of seal and beluga in small quantities, to be used in payment for furs among the inhabitants living beyond the reach of tide water. A limited quantity of walrus ivory is also collected here from the people living on the coast of Etolin straits, opposite Nunivak island.

The traders' journeys are performed in large, open skin boats or bidarkas, with oars and sails during the summer months, and with dog teams in the winter.

The station consists of 3 substantial log buildings and a small wharf, surrounded by a few native huts containing 28 Kuskwogmiuts.

To the northward of Bethel the banks of the Kuskokwim rapidly increase in height, and a number of low, willow-grown islands divide the stream into sloughs and narrow channels. As the winding course throws the rapid current from one side of the river to the other, it undermines the sandy soil with its substratum of soft clay, causing large fragments of surface soil, composed of decayed vegetation and the tangled and intertwining roots of trees, to fall into the current. The precipitated earth forms shifting bars, and the trunks and branches of trees incumber the channels and further impede, in the shape of snags, an already sufficiently difficult navigation. Here and there, set up against the steep river banks and partially dug into them, we find small settlements, generally of a temporary character and used only during the fishing season. The permanent villages for the next 60 miles are Kikikhtagamiut, with 119, Akiagamiut, with 97, and Tuluksagmiut, with 62 inhabitants. Situated on high bluffs in the timbered border of the river, and beyond the reach of inundations, these villages bear evidence of long occupation. The buildings are substantial and much larger than those of the tundra people, consisting generally of two parts, one under ground and the other above. The latter, which is generally used in summer and

connected with the other by a tunneled passage, is constructed of logs and roofed with sods; it also contains a central fireplace for cooking, which is utilized throughout the year. The winter habitation differs in no way from the common subterranean dwelling already described.

The skin kayak now disappears altogether and is superseded by the birch-bark canoe, which can be seen skimming over the waters for miles on either side of a settlement. The people do much trapping for foxes and land otters in the winter, and secure large numbers of salmon and whitefish by means of ingenious wickerwork traps, upon which they expend much time and labor. The hurdles serving as "leaders" to these traps can often be seen to extend from one-half to three-fourths of a mile over shallow reaches of the river, so as to turn the schools of fish ascending the current in the eddies into which the traps are moored. The traps are composed of a series of cylindrical and conical baskets, fitting into each other and terminating with a tube with removable bottom, through which the captive fish are extracted. The several parts of this complicated contrivance are prepared within the kashga, generally by skilled old men, but are put together on the spot selected for trapping. Some of these baskets are from 20 to 30 feet in length, and they are secured with stakes driven into the river bottom. Previous to the appearance of ice in the river, in September or October, these salmon traps are all removed and laid away for the winter upon a crude staging of branches in the shelter of the nearest woods. When everything has been arranged to the satisfaction of the owner, the locality is marked by lopping off all but the uppermost branches of some tall spruce tree near by. A set of much smaller traps, entirely submerged, for whitefish and grayling is then placed in the river, to be tended through holes in the ice throughout the winter.

The village of Kikikhtagamiut is situated upon the banks of a slough several miles from the river, and has been rarely visited by white men. Evidently the relic hunter has never been there, as the burial place, immediately adjoining the dwellings, contains a great number of the most interesting carved monuments or memorial posts. Upon the graves masks, charms, drums, belts, pieces of garments, and pieces of dried fish and tobacco are deposited, but the natives are unable or unwilling to explain whether these offerings are made to please the deceased or to keep evil spirits away from their resting place.

The 11 dwellings of this village are all of the composite type recently described, bearing evidence in their construction of an abundance of building material and of the permanent character of the settlement. Both reindeer and moose are hunted occasionally by these people. The graceful, half decked birch-bark canoe is in general use, though to obtain the bark it is necessary to ascend to the upper reaches of the river, where birch forests of considerable extent exist.

Akiagamiut, on the western bank of the river, and Tuluksagmiut and Quiechochlogamiut, on the eastern side, are similar in general features, but, being less removed from the main route of travel, their primitive characteristics are less apparent to the casual observer. Though these villages are separated by distances of some 20 or 30 miles, their fish traps form a continuous line on either side of the river, advantage having been taken of every eddy or gravelly flat favoring the erection of the frail structures beyond the reach of the main channel's rapid current. The number of these traps is very large, and the partially stripped spruce trees, indicating their sites, become a regular feature of the landscape, creating the impression that the population of these settlements must be larger than the enumeration seemed to show. Such, however, is not the case. It is the custom of many Eskimo communities inhabiting the vast tundra and lake country drained by the Kvichavak river to repair annually to this section of the banks of the Kuskokwim to prepare their supply of dried fish for the winter. This movement begins toward the end of June, and for a time the shores are lined with camps and kayaks of the tundra people, mingling with the bark canoes of the permanent residents. The time of this annual visit is regulated by the run of salmon, and its length depends upon the abundance of fish; but it is anticipated and enjoyed by the people as a period of recuperation from the rigor and want of the winter season and for the exchange of social amenities in accordance with their customs. At the same time the lakes and swamps are fairly alive with wild fowl, ducks, geese, and swans, affording both eggs and meat to the hunter, while the ground is covered with berries of various kinds. The tundra people's greatest comfort is probably derived from the abundance of fuel and unrestricted enjoyment of fires, in strong contrast to their winter homes, where they pass the greater part of the season without fire in their dwellings.

Each of the permanent villages on this part of the river has one or two large kashgas, built with logs of great size, for the accommodation of visitors and the performance of masked dances during their winter festivals.

A few miles south of the great bend of the Kuskokwim we find the village of Ugavigamiut, consisting now of 7 dwellings and 57 people. In former times this village was quite an important native trading center for the exchange of oil and fur, and for some years the white trader at Kolmakovsky maintained a depot here, the location being convenient for communication with the tundra people as well as with those from the central part of the river. At present there is but 1 Eskimo trader, who lives in a comfortable log house, provided with chairs, table, and "a real glass window" of 3 panes of various sizes. The remains of 2 large kashgas speak of the former importance of the place. The burial place, which occupies more space than the present village, is crowded with specimens of rough carving and trinkets of native manufacture.

To the northward from Ugavigamiut the channel of the Kuskokwim becomes much obstructed by the precipitation of whole groups of trees into the current which undermines the banks. These form dams and weirs,

extending far into the stream, confining the current and thereby increasing its velocity to such a degree that boats and canoes can stem it only with the greatest difficulty. At the same time the banks of the river rise rapidly in height, and during high water one has to travel long distances before a landing place can be found.

A few miles west of the village of Kaltkagamiut a small stream enters the main river from the north, its dark red, muddy water showing distinctly for miles along the shore against the clear fluid of the Kuskokwim. Entering this tributary with his canoe, the traveler meets with no perceptible current, but glides easily over an apparently oily surface, with large patches of metallic luster. The channel winds through a stunted grove of spruce and poplar trees, with trunks and lower branches discolored by the same red pigment which tints the water, an evidence of flood, caused by "backwater" from the Kuskokwim. About 2 miles up this stream is the terminus of one of the most important routes of intertribal traffic in all this region. A portage trail of less than half a mile over swampy ground, which evidently has been used for ages, leads to channels connecting with the Kvichavak river, an exceedingly crooked stream, which takes its origin from the swampy plains between the Yukon and Kuskokwim, and separated from the latter by a single narrow, wooded ridge. Its general course is at first from east to west, but after tapping and draining a number of large lakes in the tundra region it doubles upon itself and finally enters the Kuskokwim south of Bethel, having covered, with all its sinuosities, a course of several hundred miles. The same portage also serves travelers bound for the Yukon, with its vast tributary river systems. In order to make this journey we leave the Kvichavak and drag the canoes through swampy swales and channels into several connecting lakes, and finally carry them over a wooded knoll 50 feet in height, and involving a portage of half a mile, and deposit them in a wide, sluggish stream of dark brown water, which affords uninterrupted navigation to the great river of the north.

The village of Kaltkagamiut, once populous, is now reduced to 3 dwellings and a small kashga, containing 29 people. They are Eskimo, with a slight intermixture of Athapascan Ingalik, but their habitations are altogether of the former type. The burial place of this village also affords a great display of carved monuments, among them some female figures with four arms and provided with natural hair. Its situation upon a high bluff overlooking the river makes Kaltkagamiut a landmark and favorite resting place for winter travelers, and formerly the inhabitants could always be relied upon for a supply of dog feed (dried fish, the poorest quality of salmon, carelessly prepared). Though the Eskimo element still predominates here, the mode of life approaches that of the Athapascan, the people depending to a considerable extent upon the forests and hills for a living. The women spend much time in collecting berries, bark, and spruce gum, the latter article being an absolute necessity for travel in birch-bark canoes. Wherever a camp of these people is seen on the river bank the women will be found squatting around the upturned canoes, mending the cracks and leaks with a lump of pitch or gum, which they pass slowly over the seams while blowing upon a live coal held closely against it.

The villages on both sides of the river between Kaltkagamiut and Kolmakovsky are small and widely scattered. Some of them are inhabited by Ingalik only, others by Eskimo, while a few contain both elements of population. The Oh-hagamiut and Tulukagnagamiut people are Kuskwogmiut Eskimo, while 5 or 6 other small villages are occupied by Ingalik, with but a few Eskimo, generally females, the wives of Ingalik men. These natives, living on the border land between two of the principal tribes of Alaska, exhibit the characteristics of both, but their dwellings and garments are superior to those of the coast people. The common dress for both men and women is a parka, or shirt, made of the skins of the ground squirrel (spermophilus) or of the whistling marmot, each little pelt remaining doubled, the backs, with pendant tails, forming the outside of the garment and the bellies the inside. The parkas of men and women reach from the neck to the feet; they are drawn over the head, and have armholes with small detachable sleeves. For walking, the men raise up the parka by means of a girdle worn somewhat lower than the waist. In cold winter weather a hood of heavier fur is worn. They also have mittens of various kinds, the warmest being lined with swan's-down. Their footwear is used chiefly during the winter, and consists of top-boots of seal throat or moose skin, which are frequently lined with some light, soft fur. The dwellings still resemble the Eskimo huts in general plan, but are more durable, as considerably more timber enters into their structure. Here and there one finds a dwelling with a small underground compartment added, in which the owner can enjoy a steam bath in privacy. These bath rooms are lined and floored with timber, and are sometimes offered to white travelers as sleeping places.

The animal life of this central section of the Kuskokwim valley is quite abundant. Both black and brown bears are found, and foxes and land otters are trapped successfully during the winter. A few marten skins are obtained from the more distant wooded hills, which, on the south side of the river, rise to a height of 2,000 feet. The open tundra is still resorted to by reindeer, and moose frequent the poplar and willow thickets of the valleys. Veins of cinnabar crop out at various points along the river, but though they are known to contain a large percentage of mercury, their remoteness from shipping has thus far prevented their thorough examination or development.

The number of salmon ascending to these upper reaches of the river is not great, and consequently we no longer meet with the large wicker traps, a more compact appliance intended for whitefish being in general use. The river banks of this region are high and firm, and do not crumble and fall into the stream, as in the lowlands. However, navigation is still beset with difficulties. Gravel bars and shallow reaches extend for miles, compelling travelers to abandon the paddle and propel themselves by means of short, light poles against the rapid current.

The old station of Kolmakovsky, commanding the trade of the whole river system, is situated on a commanding bluff on the south bank of the Kuskokwin, fully 250 miles above the head of ocean navigation at Shinyagamiut. It was founded in 1833 by Luke Kolmakof, a Russian creole in the employ of the Russian American Company, who selected the site after a prolonged exploration of the country to the northward from Bristol bay, where the Russians had occupied a fortified station, New Alexandrovsk, since the year 1818. When this Muscovite pioneer and his companions reached the upper Kuskokwim its mouth and lower banks were still unknown beyond the indefinite outlines of "shoalness" described by Vancouver on his chart of Bering sea, and the Yukon, under the Eskimo name of Kwikhpak, had been described vaguely by native travelers. Kolmakof obtained the good will of the people with whom his countrymen had not previously come in contact, and after building a fortified station of the class known as "redoubts" in the Russian possession he lost no time in exploring the country. In the winter of the same year he first gazed upon the ice-covered Kwikhpak and traded with the Eskimo natives on its banks.

Kolmakof's discoveries were speedily reported to the company's manager at Sitka, who less than 2 years later sent Lieutenant Michael Tebenkof by water to establish a fortified post on Norton sound, to serve as a depot for the Kwikhpak or Yukon valley. Communication between the new post and the Kuskokwim was at once established by means of portage routes across the tundras. At that time the fur-bearing animals throughout all that vast region were still very numerous. Black bear, black fox, marten, beaver, and land otter were the furs most common, and large quantities of these pelts, pressed into compact bales, were transported on rivers and over portages to Alexandrovsk, on Bristol bay, and owing to the exaggerated reports of Russian skippers of the dangers of navigation in Bering sea, much of this valuable freight was carried farther across the peninsula by way of Iliamna or Bocharof lakes.

Of the redoubt as it existed during the flourishing times of Kolmakof but little remains to-day. One octagonal 2-storied blockhouse, which probably formed an angle of the stockaded square, still stands, and also a tumble-down log warehouse, with portholes for musketry, probably of a later date. The stockade has long since disappeared and the space of the former inclosure is filled with neat, substantial log houses and a small chapel of the Russian church, finished with dressed lumber and shingle roofs, erected by the present trader, a native of Finland, who has earned for himself a moderate fortune in the course of 15 or 16 years, being favored above all other Alaskan traders by exemption from competition. Until the last few years he led a life of complete isolation, meeting other white men but once a year and living almost entirely upon the products of the country, but one meets the irrepressible prospector in the farthest recesses even of this the least known Alaskan district, and the voice and influence of the hardy missionary are heard and felt throughout the region which was but a field for conjecture a few years ago.

The trade of Kolmakovsky is still very important, the place being one of the few remaining from which a considerable quantity of skins of the marten, beaver, and black bear is still obtained. The region to the eastward, along the main river and its tributaries, which is rich in peltries, is inhabited by industrious and energetic hunters of the Kuilchana tribe, who in disposing of their furs purchase freely oil and dried fish, bartered at very low rates, from the Eskimo of the lower river, as well as the more costly necessaries and luxuries of civilized life laid before them by the enterprising trader.

The region of alternate mountains and high plateaus drained by the upper Kuskokwim and its tributaries must still be considered as essentially unexplored, though much information as to its physical features and native inhabitants has been laid before us through the efforts of the census taker. Mr. John H. Killbuck names 8 tributaries to the Kuskokwim above the trading post of Kolmakovsky, as follows: the Kwikhpallak, the Toh-Kohtna, the Shalatnuk, the Nunaietah-chak, the Tahliewikshakh, the Tshavonnech-tohlie, the Tahkalkohk, and the Holitnuk. The latter stream has heretofore been known as the Hulitno, but was changed to Chulitna in the latest edition of the coast survey map, No. 900. The only permanent agglomeration of settlements in all this region is Vinisahle, the winter station of a creole trader.

The people of this section belong to the Athapascan family of the North American Indians. They are easily distinguishable from their Eskimo neighbors, not only linguistically, but in their habits, customs, and whole manner of life, Depending chiefly upon the game and birds of the forest and tundra for their subsistence, they live in scattered, often but temporary, small settlements, and as this mode of existence involves constant activity and vigilance, these qualities have impressed themselves upon their character, offering a very agreeable contrast to the sluggish stolidity of the fish and blubber eating Eskimo, who lazily wait for the fish and marine mammals to make their appearance at their very door in each successive season.

The observant visitor among the Kuilchana is struck at once with the unusual traits of industry and intelligent adoption of the comforts of civilization to the utmost limits of their means and natural facilities. A marked change in this respect has taken place in their condition since the greater enterprise of traders from the states, instigated by active and untrammeled competition, has placed within their reach manufactured articles of necessity, and even of luxury, and enabled them to see with their own eyes the many conveniences in housebuilding and furnishing invented by civilized man. We now find them generally (at least in their winter settlements) in comfortable log dwellings, with one or more outhouses, the dwelling furnished with a small cookstove or heater, and even crude tables and chairs. By the conditions of their habitat, monopolizing the trade in the skins of the most valuable

fur-bearing animals found along the course of the Kuskokwim river and its tributaries, the Kuilchana, who are able to dispose of the pelts of the black bear, black fox, marten, and beaver, have become comparatively wealthy, and occupy the enviable position of an aristocracy among the native tribes. Thus far their trade has been carried on with only 2 or 3 white men and Russian creoles, who were honest, intelligent men, honorable in their dealings with the natives, who have thus escaped the evil consequences of promiscuous intercourse with men of all kinds or of no character, who have left their mark with the most deplorable effects upon whole tribes in various sections of Alaska.

For several generations past these people have been members of the Russian orthodox church, but the visits from such missionaries as Russia sends to or maintains in its former possessions are exceedingly rare. The census enumerator who visited them in 1890, himself a missionary of the Moravian church, expressed the opinion that these people "lead conscientious, christian lives, in accordance with such light as they have received". Among them was found one man who, with such tools as he made himself, could repair any part of breech-loading arms of various patterns, replace parts lost, and even rifle a smooth-bore gun barrel. With their early Muscovite semicivilization the Kuilchana have imbibed a strong predilection for tea as a beverage, a luxury in which their relative financial prosperity enables them to indulge. Tobacco is used as much by the Kuilchana as by other Alaskan natives, but is always smoked or powdered and taken as snuff. In former times these natives practiced the arts of making the crudest kind of pottery and of weaving straps and bands from the wool of the mountain goat, as the Chageluk and Anvik people do now; but the influx of better articles to serve the same purposes has caused them to abandon their primitive methods.

When we look upon these natives, exhibiting the most praiseworthy traits of character and eagerly adapting themselves to the habits of civilized life, it seems a pity that there is no apparent hope of their increase or even preservation. Removed as they are from all medical assistance, every cold, to which they are more exposed now by reason of their "improved" mode of life, is apt to result in pulmonary disease; almost any accident may result fatally for the want of intelligent care, and without being exposed to the contaminating and fast-killing vices of the white man, they seem to be dwindling away, with the doom of ultimate extermination already in sight, while their Eskimo neighbors, who still lead primitive lives, devoid of every comfort, and by their poverty debarred from making the slightest improvement in their habitation or garments, seem to thrive in the most squalid and cheerless surroundings, subsisting upon food which the dogs of civilization would certainly refuse.

The territory occupied by the Kuilchana is so large that the fur-bearing animals are in no danger of extermination, and consequently the members of this tribe will probably not lack the means of continuing to live in comparative comfort during their limited period of existence.

The small, scattered settlements on the Holitnuk are inhabited by Ingalik, a few of whom have Eskimo wives hailing from the Tahlekuk or Nushagak river. Their dwellings are illconstructed and mostly underground, as timber can only be obtained from a great distance. The annual overflow of the river causes these people to migrate and to live much in temporary camps in the vicinity of the resort of beavers and land otters.

The villages of Napaimiut and Kwichampingagamiut, though situated considerably above Kolmakovsky, contain about 50 per cent Eskimo population, owing, probably, to the vicinity of several portage routes connecting the Kuskokwim with the Eskimo villages on the Yukon river. These routes are now, however, only traveled with dog sleds in the winter.

The parts of the Fifth district thus far discussed comprise three-fourths of its superficial area and all that is at present known to be of any commercial importance, but considerably more than one-half of its population is contained in the comparatively small section still to be described, the tundra region, lying between the Kuskokwim and Bering sea and the island of Nunivak.

This whole region, triangular in shape, measures about 160 miles along the base on the north and nearly the same along the perpendicular to the apex on the south, indicating a superficial area of about 12,800 square miles. As the population of this section is in the aggregate 3,400, we may consider this the region of greatest density of population in Alaska, at the rate of between one-third and one-fourth of a person to the square mile.

In appearance this deltoid formation, created evidently by the alluvial deposits of two great rivers, presents a perfectly level expanse of swamp but a few feet above high-water mark, from which rise, like islands, a few hills from 50 to 100 feet in height in the southeast near the headwaters of the Elk-kwik river, the Kusilvak hills in the north and the heights of Cape Vancouver attaining an altitude of about 1,800 feet in the west.

Proceeding from Bethel southward along the western shore of the Kuskokwim, over the route followed with his dog team by Mr. Weber, who undertook the enumeration of the tundra people, we pass by Napahayagamiut, previously described, to find the first important settlement at Kenaghamiut, at the mouth of a tidal slough nearly opposite the village of Ahpokagamiut, on the eastern bank, but beyond the reach of vision, owing to the lowness of the land. This village is typical of the better class of settlements in the tundra, consisting of 10 large dwellings and 2 kashgas, inhabited by 257 Kuskwogmiut Eskimo. The people are comparatively prosperous, as they still annually obtain a certain quantity of walrus ivory from the sand bars and dunes frequented by the walrus for "hauling up" at certain seasons. The maklak and other hair seals, as well as the beluga, are very plentiful in the waters of the adjoining sea, the shallowness of which prevents whaling or sealing vessels from approaching the coast.

The spring tides and southwesterly gales drive the waters of Bering sea far inland, leaving each dwelling an island for the time being, and as the inhabitants depend upon swamp holes for their drinking water the quality of the latter is very bad.

The only furs obtained by these people are mink and muskrat skins, the former of a poor quality. Their garments are made of the skins of birds (divers, cormorants, and gulls) and hair seals. The more prosperous among them only are able to purchase ground squirrel and reindeer parkas from their neighbors on the opposite bank of the Kuskokwim river.

The vicinity of this village, as well as the whole densely settled tundra region of the delta between the Kuskokwim and Yukon rivers, with its great network of tide channels, sloughs, rivers, and lakes, offers to its inhabitants an additional food fish of great importance, a small blackfish named the Dallia pectoralis. Dr. Tarleton H. Bean's report on Alaska fishes does not mention this species, which, though but 5 or 6 inches in length, plays a prominent part in the domestic economy of the inhabitants of the tundra. It is found in all the shallower channels and lakes throughout the country in such quantities as to furnish subsistence for whole settlements in the most desolate regions, where nothing else could be found to sustain life at certain seasons of the year. The blackfish, as it is called by the natives, is exceedingly fat, and a good quality of oil is obtained from it by compression. Its presence is of the greatest advantage to the civilized traveler who may happen to traverse this almost unknown region, as it represents the only palatable article of food found there during the winter, and without it he would be obliged to subsist upon badly cured dried fish, seal blubber, and oil in various stages of decomposition. The fish are found in such abundance that old women and children only engage in their capture with scoop nets and other primitive appliances. Great bundles can be found in the food caches in the winter, the frost preserving them in a palatable condition.

Proceeding westward from Kenaghamiut over the tundra, we pass at the head of a tidal river a small settlement of 2 wretched dwellings inhabited by 12 Kuskwogmiuts. The sod huts are in a state of partial collapse, the effect of frequent inundations, but the kuggat, or food caches, are full to overflowing. A semicircle of shallow excavations incloses the dwellings on the land side. These are the "head holes", receptacles for salmon heads, which are deposited here and submerged in muddy and brackish water until they have acquired a flavor "high" enough to suit the Eskimo idea of delicate food. Some of these holes are covered with sods or clay, while others are left open. The latter always exhibit a thick, green scum on the surface of the water. These pitfalls are only dangerous to the traveler at night, but there are others not so easily avoided. It is customary with the dwellers upon this bleak shore to deposit such blubber and intestines of walrus, seal, or beluga as they are unable to consume at once in pits from 3 to 4 feet deep. When the pit is filled nearly even with the ground a thin layer of grass is sprinkled over the blubber and a little earth on top of that. There is nothing to warn the unwary visitor of his peril until he sets foot upon the shaking, slippery mass, and he sinks into a disgusting mass of putrefying fat before he can jump aside. The dogs apparently do not venture to dig into these caches.

A long day's travel over the tundra and across wide streams and channels brings us to Kennachananaghamiut, one of the few villages of the tundra region built upon the seashore. The tides and gales which drive the waters far inland over the flat surface and deposit floating ice fields miles from the seashore have compelled the people to build upon the slightly elevated banks of streams in the interior. This settlement, consisting of 8 dwellings and 1 kashga, inhabited by 181 people, is located upon a sandy ridge thrown up by the sea and surrounded by it during spring tides and southwesterly gales. The inhabitants are Kuskwogmiuts, who add walrus hunting to their other pursuits. The western limit of this tribe on the coast is reached at the next village of Quelelochamiut, situated about 15 miles inland, on the banks of a small river. They number 112, living in 6 dwellings and 1 kashga. During a part of the summer these people occupy camps upon the seaboard for the purpose of hunting walrus and beluga.

A few miles to the northward, on the banks of the same stream, is the small settlement of Annovokhamiut, consisting of a single house inhabited by 2 families of Magmiuts. By this name, which signifies mink people, the greater part of the inhabitants of the tundra region are known, probably because mink skins are almost their only articles of trade. The difference between them and the Kuskwogmiuts is chiefly dialective.

There does not seem to be the slightest trace of tribal organization among the Eskimo in this part of Alaska. The only persons of influence in a community are the trader or middleman and the shaman or medicine man. The trader is only found in the more important settlements, chiefly those on the coast, where intercourse with whalers or white traders takes place. The efforts of the "tungiachpuk", as he is called, are directed altogether to traffic, which he takes good care to cause to pass only through his hands. In domestic or social affairs he seems to have no more voice than any other man. The medicine man uses no medicine and relies wholly upon noise, contortions, and incantations. Sickness and other ills are, in the Eskimo's opinion, the work of evil spirits, and can be cured or remedied only by driving the evil spirit away. To this end the operator gets himself up in the most hideous disguise he can devise, at the same time endeavoring to produce the most unearthly noises with voice, drum, and rattles. He is also consulted in the manufacture of carved designs over the resting places of the dead or in memory of those lost at sea.

When an Eskimo is attacked by disease his recovery depends very much upon the state of his mind as to whether, in his own opinion, he has lived long enough. He is not at all afraid of death, unless it appears in the shape of violence at another's hand, and this is of exceedingly rare occurrence. If he has made up his mind that

his time has come no ordinary treatment will avail, no matter how slight the ailment. Hunger, hardships, and exposure he can bear for extended periods, displaying great fortitude and powers of endurance. On the other hand, nostalgia or fretting under some real or imaginary wrong will quickly wear him out, extinguishing all desire to live and destroying the power to resist any ailment that may overtake him.

The people living in the interior of the tundra region seem physically stronger than their kinsmen on the seacoast. I think this can safely be attributed to the ample supply of blackfish, alluded to elsewhere. These fish are caught at all times, even in the transition period, much dreaded by the Eskimo, between winter and spring, which is known as a period of want and suffering among those who must depend wholly upon stores prepared in summer for the winter; and thus it happens that these "mink people", poor as they are from a commercial standpoint, are physically in a better condition at the advent of spring than any of their more affluent neighbors.

The most populous settlement of the Magmiuts is situated on slightly rising ground a few miles to the eastward of the mouth of the Oksukfeok river, consisting of 17 dwellings, the largest kashga in the tundra country, and a small trading store conducted by a native as agent of the Kuskokwim trader. The permanent inhabitants of this place number 358, but at certain seasons of the year numbers of people come here from various sections of the interior and the coast for the purpose of fishing in the river or hunting the walrus and beluga. In the winter season the westerly gales often drive in large fields of ice from Bering sea well covered with hair seal, affording the Magmiuts an opportunity to gather a rich harvest of blubber and hides. On these expeditions they provide themselves with canoes and small hand sleds, carrying one upon the other alternately as their course leads them over ice or water. Occasionally a hapless seal hunter is carried away to his death by a drifting floe during snowstorms, which cause him to lose his bearings.

Quite a large quantity of driftwood from the Yukon and Kuskokwim rivers is carried into the mouth of the Oksukfeok river by currents and tides, enabling the people of Chalitmiut and a few neighboring villages to construct better houses than their neighbors. Though they have no means of transporting heavy logs overland, they take advantage of the highest spring tides to accomplish their purpose. The huge logs used in erecting their kashga were collected during quite a long period of years.

Within a radius of less than 20 miles from Chalitmiut we find 3 other villages of considerable importance, 2 on the west and 1 on the east bank of the river. Queakhpaghamiut contains 4 houses and 1 small kashga, with 75 inhabitants; Chechinamiut has 7 dwellings, a kashga, and a trading store, with 84 inhabitants, and Tefaknaghamiut, beyond the river, with 195 people living in 10 houses and a large kashga, has been provided with a small chapel, in which the jesuit missionaries of Dununuk hold services during their periodical visits to this populous center. The casual observer may fail to discover the means of subsistence offered by nature to this aggregation of more than 700 wasteful consumers, but the supply must be ample if overflowing "kuggats", or caches, and a decidedly "comfortable" appearance of the people are to be considered as reliable indications. A closer inspection, however, reveals a very important item in the domestic economy of these people; the ribs and bones of whales seem to have entered largely into the construction of houses, and we are told that the same friendly current which provides them with timber also carries to their shores many a carcass of whales struck by the harpooners of the whaling fleet in Bering sea and allowed to drift away, after being stripped of the precious baleen. Thus the people of this group of settlements may be said to live upon bread cast upon the waters by other people, and their general embonpoint is duly accounted for.

Proceeding from Tefaknaghamiut northward we find the village of Ighiakchaghamiut, with 81 inhabitants, within a few miles of the broad tidal channel which connects Baird inlet with Bering sea. On Nelson island, beyond this channel, often impassable during the winter on account of the breaking and shifting ice carried to and fro by changing tides, there is another small village of about 50 inhabitants, and further on, on the southern slope of the mountains of Cape Vancouver, we find 2 other settlements, with an aggregate population of 80 or 90 Magmiuts. These mountains, which rise to a height of about 2,000 feet, were formerly a resort of reindeer, and the people of the vicinity were known as the Kialigamiut (people of the Kialit mountains). The differentiation was, however, noticeable only in their habits, based upon the presence of the deer and ground squirrel. Linguistically they can be safely classed with the Magmiuts.

Two sparkling streams descending from the heights afford the traveler a pleasant break in the dismally uniform landscape of dead level and stagnant water. The first of these, the Duksuk, winds through the southern part of Nelson island, while the other, the Dununuk, runs eastward through a valley and discharges its waters into Etolin straits just south of the cape, at the site of a village of the same name. Here a trading post has been in existence for many years, maintained by a native but supplied from St. Michael. Dununuk is also the only point of communication with Nunivak, to which island the trader voyages once each year in his "angeyok", or large skin boat, to collect the meager spoils of the Nunivak hunters, leaving them a small quantity of powder, lead, percussion caps, and tobacco in exchange. The native population of this settlement consists of but 48 people, living in 5 rather well-constructed houses and one kashga. Close by, on the hillside, a Catholic mission and chapel have been erected by the jesuit fathers, who have their headquarters at Holy Cross mission, on the Yukon river. Supplies are brought to this mission in the summer by means of large sailboats, which come down from the Yukon through its Kashunuk arm and thence along the coast.

From Cape Vancouver northward, after passing the Ninghalik tide channel, the northern entrance to Baird

inlet, the coast is very low again for a distance of 100 miles. Then Cape Rumiantzof looms up like an island, with rugged hills over 1,000 feet in height. The intervening coast, however, though flat and uninviting and cut up with shallow bays, sloughs, and lagoons with muddy bottom and bars, is by no means uninhabited. We find on Nelson island, on the banks of a small stream, the Ukuk, the village of Ugokhamiut, of 6 dwellings, 1 kashga, and 68 inhabitants. Beyond the Ninghalik channel we find a small settlement of a single dwelling and a kashga at Gilakhamiut, on the Mokhowruk (wood) river, and advancing northward over alternate mossy swamps and mud flats we reach Kashunahmiut, a settlement of 20 houses and 2 large kashgas, constructed upon a peninsula between the branches of the Kashunuk river, one of the many outlets of the great Yukon. This is quite an important and prosperous settlement. A large number of beluga is secured here annually. These animals, on their way to the mouth of the Yukon, enter the shallow bays and channel, and being cut off by a chain of canoes from deeper water are left stranded by the receding tide. Many varieties of the hair seal are also numerous, and there is quite a run of king salmon to the Yukon through the Kashunuk mouth. In addition, these people have, like all other dwellers in the tundra, an ample supply of blackfish throughout the winter. The abundance of food and of driftwood from the Yukon serves to attract a large number of Magmiuts to this vicinity, not only as permanent residents but as temporary dwellers, chiefly in the winter, the season of masked performances and social gatherings throughout this region. The 2 kashgas are very large, and are fitted with all the latest Eskimo appliances for stage effects and for the make-up of the performers.

20 miles north of Kashunuk, on the opposite shore of Hooper bay, we find the village of Askinaghamiut, nestling against the foot of Askinaghamiut or Cape Rumiantzof mountains. The inhabitants are Magmiuts, 138 in number, who live in 14 dwellings and 2 kashgas. The natural advantages of this location are fully equal to those of Kashunuk. Food is plentiful and is obtained with but little exertion, leaving the people much time to devote to their social gatherings and superstitious rites. Their domestic economy and intercourse are ruled by the edicts of the tungiak (medicine man), who alone claims to know the ways of the evil spirits and how to circumvent them. Occasionally periods of hardship and scarcity of food have been brought about by the tungiaks' order to the people to abstain from labor of any kind for from 10 to 20 days in the height of the hunting or fishing season. The suffering resulting is, of course, laid to the action of evil spirits, and is borne without a murmur by these patient beings. However, the rule of the tungiak is approaching its end. The missionaries are firmly established at Cape Vancouver, and they are rapidly gaining the love and confidence of the tundra people, who willingly give them their children to be trained at the sisters' schools on the Yukon. Taught by long experience among native tribes, the jesuit fathers do not attempt to break up the gatherings in the kashgas; they simply endeavor to eliminate from them the rites of superstition, substituting amusing exhibitions of another kind, and at the same time they carefully avoid, in their attempts to better the physical condition of their charges, the creation of new wants, but simply teach them to make the most of means at hand.

In the vast lake region lying between Hazen bay and Baird inlet on the west and the Kvichavak river on the east we find 8 settlements of Magmiuts scattered along the water courses and among Lakes Nangavohahamuk, Kagahik, Takhalak, and Dah-lakak. Several of these villages consist of 1 or 2 dwellings each; the larger ones are Kailwigamiut, of 7 dwellings and 1 kashga, with 157 people; Nunachanaghamiut, on the headwaters of a stream running through several lakes into Baird inlet, of 9 houses and a kashga, with 135 inhabitants; Nunavoknak-chlugamiut, among the lakes, of 5 houses, with 107 people, and Tiengaghamiut, of 4 houses, with 60 inhabitants, on the banks of the Kvichavak river, within a few miles of Bethel, on the Kuskokwim.

To conclude the review of the Fifth district we must turn our attention to its only detached portion, the island of Nunivak, separated from Cape Vancouver and the adjoining coast by Etolin straits.

Nunivak island is one of the few sections of Alaska in which no white man has as yet established himself permanently. Its northernmost point was years ago determined and surveyed by a coast survey party under Mr. William H. Dall, but the remainder of its coast is still uncharted and carefully avoided by navigators. Twice within the last 20 years the crews of shipwrecked vessels have spent a few weeks of weary waiting on the island, but even these visitors were seen only by a few of the people and under circumstances that could not impress them with the white man's superiority. It remained for the enumerator of the Eleventh Census to obtain the first view of the whole circumference of the island, its villages and people.

At the southern extremity of Nunivak a large lagoon makes in from the eastward, cutting almost through the island and separated at its head from the sea by an isthmus only 200 yards in width. Here the visitor approaching the island from the south meets with the first inhabitants, and here the census agent was landed from the United States steamer Thomas Corwin to make his way over and around the island. Upon the shores of the lagoon, which still remains unnamed, and of which our maps give not the slightest indication, several settlements are situated. The largest of them is Kwigamiut, which must have been more populous in the past, as the people now occupy three separate sites at various seasons of the year, each containing far more house room than the number of inhabitants would seem to warrant.

The Nunivagmiuts occupy large subterranean communal dwellings, consisting of a number of square or circular cavities opening upon a common hall or corridor with but a single entrance from the surface of the ground. Each family compartment has its separate smoke hole, but these are rarely used, as the object of this crowding together is warmth through exclusion of all outside air, and nearly all cooking is done in the entrance or in sheds erected for

the purpose. Fires are kindled in these inner rooms only for the purpose of indulging in a steam bath, for, strange to say, these Eskimo have not adopted the custom of the kashga, so universal on the mainland. The only explanation of this absence seems to lie in the fact that visitors never reach these shores except in summer, when their own upturned boats afford sufficient shelter. That the Nunivak people are not without their masked dances or performances is evidenced by heaps of finely carved masks and other paraphernalia which can be found deposited at the outskirts of the village. The dances probably take place in the larger apartments of the communal houses, which are found only in the winter villages.

At the time of the enumeration the Kwigamiut people were at their fishing place, at the mouth of a small river on the northern shore of the lagoon. The houses, 6 in number, consist of single dwellings, semisubterranean, and generally provided with a protected entry and outside cooking sheds. A little above the village a low dam has been erected across the stream with 3 cylindrical traps, clumsily constructed from short pieces of drift lumber, lashed together with willow withes. These traps have no depth, and to secure the fish, a very small species of salmon, the men stand on the dam and spear them as they enter or emerge from the cylinders. The rocky banks of the stream are utilized for spreading the split fish upon them for preliminary curing. Later, when they have become somewhat hardened, the fish are set upright on the mossy surface, tails upward, in pyramidical groups of from 4 to 6. The wind passing through these piles slowly dries the fish, but at the same time the insects of both air and earth have every opportunity to deposit their eggs, and consequently, when the dried fish are ready to be laid away in the caches they are fairly alive with maggots. The absence of any material for drying frames is the only reason for the adoption by these natives of such primitive and unsatisfactory methods of curing their fish.

From the village sites well-beaten trails can be seen leading into the interior over the gently rolling surface. A cursory examination of these tracks convinces the explorer that they are traveled only in winter, as they do not follow the sinuous depressions between mossy hummocks, but lead over all moderate obstacles which in winter are covered with snow. At intervals, but generally within sight of each other, we notice monuments of stone piled up loosely to a height of from 8 to 10 feet. These serve as guideposts for travelers from one village to another when the uniform covering of snow has obliterated all the other landmarks.

In the vicinity of Kwigamiut, about 2 miles to the northeast, there is one slight elevation, a saddle-shaped hill less than 100 feet in height. It is used by the people as a lookout seaward at times, and one of the stone piles has been erected on it, not at its highest point, but in the central depression, probably on account of the bearings of certain objective points in the landscape.

The body of Nunivak island is a dark basaltic rock, much worn and broken wherever it is exposed to atmosphere or water, but all elevations present a very light volcanic tufa, very porous and bright red in color where covered with its thin coating of moss or soil. Exposure to air changes the tints of the tufa to a darker hue, verging upon brown.

Having completed the enumeration of the settlement on the Kwigamiut lagoon and desiring to proceed on his journey, the census agent found himself confronted with an unexpected difficulty. In all other parts of Alaska natives can always be hired to assist travelers, but these isolated savages were as yet ignorant of the principle of one man laboring for another for a compensation. If they had understood the object of the agent's journey, or if they had any desire to travel in the same direction, they would probably have offered assistance, but the case evidently presented itself to their minds in some such manner as this: here was a man, unknown to them, who had been left among them by a ship which had gone away. They saw in his possession certain articles which they very much desired, and but very little that looked like food in their eyes. They reasoned that in course of time the man must need food and give in exchange the coveted articles in his possession; consequently they refused to help their visitor onward to other settlements, there to dispose of his valuables to other people. With such views of the situation they even refused to sell a kayak to the agent, and it was the mere accident of a woman coveting a small pair of scissors in a dressing case that induced her to sell her own rather dilapidated kayak. And thus, depending upon his own muscular powers and upon his untried skill in managing so frail a craft along an unknown coast over a stormy sea, the agent was compelled to proceed upon his enumerating journey.

On the map the island of Nunivak presents a slightly undulating outline, without bays or salient points of any kind except Cape Etolin, the only point thus far surveyed. In reality the coast represents a constant succession of bays, shallow, but reaching far inland, and intersected by low, rocky headlands, with small islets and rocky reefs extending miles to seaward.

To the master of a vessel tossed by the choppy waves of Bering sea these large bays may look inviting, as affording shelter and anchorage, but to approach them even he must risk his craft. He will find rocky banks extending far out into the sea, and there is not a single bay where the bottom is not visible from cape to cape at the entrance, though the distance between them may be 10 or 12 miles. The shallow waters break into a tremendous swell with the least wind, causing the natives in their kayaks to keep close under the land and to follow all windings of the coast line in their journey from place to place.

Passing from Cape Mendenhall, at the south end of the island, to Cape Corwin, its eastern extremity, we pass a number of villages set upon low headlands, guarded only by roving dogs. To find the inhabitants in the summer time it is necessary to enter the lagoons, and by following the rock-incumbered winding channels we come upon scattered groups of dwellings, occupied as summer residences only.

The settlements between Capes Mendenhall and Corwin number 5, with an aggregate population of 186, occupying probably not more than 20 houses at any one time, though the number of dwellings, both temporary and permanent, they have at their disposal is much larger. The character of the dwellings is the same in all, communal houses in the winter village and single ones for summer and fishing habitations. As each male individual from 10 years upward has his own kayak, and many of the females (widows and single women) also, much time must be devoted to tanning and otherwise preparing skins of the large maklak seal, with which their canoes are covered. Days and weeks are spent by the men in patrolling the beaches in search of driftwood of size and quality suitable for the purpose of being worked up into canoe frames, and the greatest ingenuity in matching, mortising, and splicing is frequently displayed in putting these frames together. Such drift logs as are water-logged and unfit for either boat or house building are carefully selected to serve as posts for stretching the sealskin lines which form an important item in their trade with their neighbors on the mainland. A single skin, carefully cut, will furnish a quarter-inch line of from 300 to 400 feet and thicker ones of proportionate length. The skins intended for canoe covering undergo various processes, and can often be seen forming white patches upon the green grass or moss upon which they have been stretched to bleach. These natives, as well as those of the mainland tundra, like to have their kayaks as nearly white as possible, to assist them in approaching the beluga or white grampus. Each canoe has some device drawn upon its side or upper surface with pigments obtained by barter from Cape Vancouver. The figures thus far observed are the fox, the whale, and the walrus; boys sometimes have an irrecognizable bird, long drawn out from stem to stern, and others content themselves with concentric rings or ovals. Though representations of the extinct reindeer can be observed upon many implements and ornaments, they are not found upon canoes. These devices, however, do not seem to have any totemic significance, being adopted according to the fancy of the owner or maker of the canoe.

The appearance of the low, rocky coast of this section is extremely desolate and forbidding. One may skirt it for 20 or 30 miles without being able to make a landing through the ever-rolling and ever-breaking surf, even at the head of bays and inlets, and at long intervals only the sight of a cushion of matted seaweed cast over the cruel rocks by the waves, upon which he may draw his canoe, will gladden the heart of the weary paddler. Beyond the rocks of the seashore a narrow belt of low sand dunes is sometimes found, for the presence of which it is rather difficult to find an explanation, unless the sand was carried there upon ice floes from the crumbling banks of the Yukon delta. The interior presents to the distant observer a perfectly level moor, but a nearer view reveals a surface full of inequalities, with numerous ponds and water holes and patches of dwarf willow less than knee high, forming a combination of serious obstacles to the progress of pedestrians through the country.

The formation of hummocks throughout the level moors of this southeastern half of the island of Nunivak reveals some novel and thus far unexplained features in geology. The plain, from a few hundred yards beyond the shore line to the first gently rising swells of the western hills, is intersected with many lakes, between which the surface is a moss-covered marsh, from which innumerable hummocks rise of every imaginable shape, varying from 4 to 7 feet in height. The mounds are covered with a matted carpet of moss and small plants, the roots of which form a tenacious sod. Under this covering, however, the mound consists of a very soft, black mold, permeated with water until its consistency has been reduced to that of thick mush, perceptibly quaking under the weight of a man. The most peculiar feature, however, is that each mound is accompanied by what looks like an excavation, a water hole, generally circular in shape, from 1 to 3 feet in depth, nestling close to the mound on one side or the other. In nearly every instance the bulk of the mound would just about fill the corresponding cavity, creating at the first glance the impression that one must have been dug up out of the other. Around and between the water holes, which vary from 10 to 20 feet in diameter, a luxuriant growth of grasses has sprung up through the moss. The soil of the general level resembles that of the mounds, but exhibits a greater degree of consistency; by digging down one comes upon rock or frozen peat within 2 or 3 feet of the surface. As no explanation or theory as to the origin of this formation, apparently not elsewhere observed, has been offered thus far, I can only state the facts and present an illustration of the peculiar appearance of the interior tundra belt of Nunivak island.

To the northward of the peculiar hummock formation just described rises the only eminence on the eastern coast of Nunivak island. When first observed from the south, it looms up like a high, saddle-shaped mountain, but the most practiced eye will find itself at fault in estimating altitudes in these flat northern countries. The mountain does not seem to gain in height as we approach it, and when we finally reach it we find what looks like an extinct crater, the northern wall of which has disappeared, while in the south there remains a narrow rim, about 200 feet above sea level at its central lowest part. The eastern and western sides rise to an altitude of 900 and 600 feet respectively. Near the center of the southern rim, within 20 yards of each other, we find a hot spring, flowing northward through the crater in the direction of the village of Ingeramiut, and a cold spring, the source of a small stream flowing southward and emptying into the sea about 10 miles southwest of Cape Corwin. From the summit of the crater's rim a fine view can be obtained of the serrated coast and level surface of the island, the straits of Etolin in the east, and beyond, a little to the northward, the dark blue slopes of Cape Vancouver. Turning to the westward, one sees a vast plain, dotted with innumerable lakes, with gray, rocky, vein-like ledges rising here and there a few feet above the surface of green. Far away, on the western horizon, a long chain of blue, undulating hills incloses a scene of monotonous desolation, and shuts out from view the waters of Bering sea, that lave the west coast of Nunivak. From this height the vast plain seems lifeless, although the scrub willow thickets are fairly alive with ptarmigan,

and their chattering cry, sounding for all the world like the croaking of frogs, can be heard rising through the still, clear air of these high latitudes; wild geese and ducks are probably feeding on the lakes, but they are hidden from view, and the cariboo, which once in thousands found here a paradise of plenty, have disappeared before the reckless slaughter of savages intoxicated with their first experience of the range and power of firearms. A few antlers crumbling to pieces on the hillsides is all that remains of thousands upon thousands cast here every season before the war of extermination was inaugurated.

Rounding Cape Corwin and changing our course to the northwest, we enter another deep bay, and at its head find the village of Ingeramiut (Mountain village), consisting of 3 communal houses inhabited by 35 people. The waters of the warm spring flowing from the crater spread out into a series of ponds, which form a favorite resort for all kinds of wild fowl. The birds are said to remain here throughout the year, as the ponds do not freeze over, and this circumstance accounts for the establishment of a village amid surroundings otherwise very uninviting. The inhabitants also claim that berries ripen here much earlier than in other parts of the island. Concerning the hot spring they have the following tradition: "Its water was formerly cold, but one day, a long time ago, 2 hunters killed a reindeer near its head, and kindling a fire began to cook the meat. A strange old man appeared and asked for a piece, but was told to wait, and when the hunters had finished their meal there was not a single scrap left and the old man went away very angry. When the 2 men attempted to put out the fire to prevent it from spreading through the dry moss, they could not do it, though they carried water in the fresh deerskin all day long, pouring it on the flames. They became frightened, and taking all their people they paddled away to another village, but they could see the fire for many days. At last they saw no more fire and smoke, and went back to find the flames extinguished, but the water in the stream was hot and has remained so ever since."

On the deeply indented coast between Cape Corwin and Cape Etolin we find but 2 settlements, each with a winter village on the coast and summer camps at the heads of various bays.

Sites and ruins of abandoned villages are also numerous, and graves, single and in groups, can be seen on every slight eminence or projecting point along the seashore. As the bodies are only laid upon the ground and but partially covered with stones and driftwood, the skeletons soon fall to pieces and become scattered; the skulls, however, are gathered and piled up in small pyramids, which form a regular though not a cheerful feature of the dreary landscape.

Chuligmiut and Upper Chuligmiut, the latter quite an important fishing station, contain 62 inhabitants. A wide but shallow river debouches at Upper Chuligmiut, from which the largest and best salmon on the island are obtained. Quantities of the fish are dried here and packed closely in grass baskets made by the women for trading with people of other parts of the island where salmon is comparatively scarce. Driftwood is quite abundant.

Within 15 miles of this place we reach the northern extremity of Nunivak, Cape Etolin, a low, rocky point, curving somewhat to the east and thus forming a partially sheltered anchorage. The settlement at this point, the most populous on the island, is named Koot. In addition to the winter houses on the cape there is a large summer village with 8 communal houses near the mouth of a large lagoon south of the cape, which has an outlet to the westward, impassable for any craft but canoes. Into the southeastern angle of the lagoon flows Koot river, upon the banks of which there is a continuous row of single dwellings, inhabited only during the fishing season. With the rising tide canoes can ascend Koot river between 10 and 12 miles.

Koot is the point of communication with the mainland and the commercial center of the island. Its trade, with its ramification over the island, is in the hands of a single man, who buys up all the ivory, maklak skins and lines, and oil secured by the people in excess of their immediate wants, giving in return the cargo of a single skin boat brought over once a year by the Eskimo trader from Dununuk. The ceremonial of this annual visit and the manner of transacting business on this isolated spot are interesting enough to be described.

One cold, drizzling afternoon in August the cry of "angeyok" (big boat) aroused the denizens of Koot from their siesta and caused old and young to crawl from their underground dwellings and hasten to the lookout, a "kuggat", or elevated food cache, erected on the highest point in the village. Beyond the low eastern shore of the lagoon a tiny sail could be seen at times when the curtain of mist was temporarily parted by the fierce gusts of an easterly wind. It was surely the long expected angeyok. Public excitement at once rose to white heat, and every household became speedily engaged in the bustle of preparation for the reception of visitors. The strangers' boat in the meantime had made a landing on the outer shore, and presently dark specks could be seen moving over the portage trail across the narrow neck of land between the lagoon and the sea. The crew were carrying the cargo, and presently the upturned boat was taken over the trail on the shoulders of men with their heads inside, resembling from a distance a many-legged beetle crawling over the tundra. At last the boat was launched upon the still waters of the lagoon and, the cargo having been replaced, was propelled toward the village with oars. The men of Koot ranged themselves in a line on the beach and began to discharge their guns, the salute being replied to from the boat. This waste of precious ammunition was kept up until the newcomers stepped ashore. Then the young men and boys rushed to the assistance of their guests, and in a few minutes both cargo and boat were deposited upon the rank grass that springs up around the edges of native settlements.

The cargo consisted of 10 bales of leaf tobacco of 50 pounds each, 8 sacks of flour of 50 pounds each, 3 pieces of

faded calico print (of about 48 yards each), 100 half-pound cans of powder, 200 pounds of bar lead, 1 tin of matches, and 1 small box containing a few cheap knives, needles, thread, thimbles, and fine-toothed combs. This was the sum total of the products of civilization required by the 700 inhabitants of Nunivak.

The goods deposited, no further attention was paid to them that day, the remainder of the day being entirely devoted to the entertainment of the guests. In the largest compartment of the trader's house a fire was built and a steam bath prepared, which the strangers enjoyed at their leisure, coming out occasionally to chat with their entertainers without any covering on their bodies except their own parboiled epidermis. After the bath the feasting began, and boys and girls came scurrying from the various households, bearing offerings of food in wooden bowls and trays and grass baskets. There was oil, blubber, bird meat, fish (dried and fresh), seal meat, and the stalks and leaves of various weeds soaked in oil. From the trader's kitchen came the only foreign luxury, a heaped tray of flapjacks fried in whale oil.

The following day was devoted to trade, which was conducted at the "warehouse", a small, square structure of drift logs, with a door 3 feet square, fortified with all the padlocks, bolts, and bars collected from 2 wrecked ships, until there was considerably more lock than door. The 2 traders sat inside of the box-like building, which now contained not only the Koot trader's purchases during the year preceding, but also the cargo of the boat. Customers were allowed to approach one by one and insert their heads through the narrow entrance to the abode of wealth; and thus, in semiobscurity, they conduct their business, either disposing of some trifling article they had brought with them, a bladder of oil, a walrus tusk, or a roll of maklak line, or receiving payment for similar articles deposited many months ago with the "tungak", who never takes any risk of having shelf-worn goods on his hands, and is generally short on every class of goods by midwinter.

The prices paid to the Nunivak people for their commodities would to us seem pitifully small. A young man from the south end of the island, who had left a pair of magnificent walrus tusks with the trader in March, received in August 2 squares of matches (100 each), 1 pound of leaf tobacco (value 30 cents), and 2 needles. This was the result of his struggle with the huge animal, a winter journey to Koot with the tusks, and another by canoe to receive his so-called equivalent. However, all parties seem to be satisfied. It is all among themselves, and certainly is not a case of oppression of ignorant natives by the white man.

When the angeyok was launched again for the return journey to Cape Vancouver it contained 280 tanned maklak hides, a dozen fox and land-otter skins, 39 pair of walrus tusks (from 5 to 7 pounds to each tusk), about 100 gallons of oil in bladders, and several thousand fathoms of seal and walrus line.

At social gatherings, on special occasions such as the trading visit just described, and around the camp fires of hunters and fishermen among all the Eskimo tribes, much time is devoted to singing and chanting, mostly by 1 or 2 individuals at a time, with a general chorus breaking in occasionally. The words of a majority of these songs are extemporized a sentence at a time with many repetitions, and they generally express the experience, wishes, or hopes of the singer. But few of them seem to contain traditions. The song indulged in on the occasion of the trader's visit to Nunivak in August, 1891, afforded an interesting bit of information as to the rapid spread of folklore or "news" among these people. In June, 1890, the special agent of the Census Office, while ascending the Kuskokwim river, was obliged to subsist chiefly upon the eggs of wild fowls, which he purchased from the natives for needles, carrying a supply of this circulating medium in his vest pocket. On one occasion, traveling through a swamp in his canoe, he passed the nest of a mallard duck. The native paddlers confiscated the eggs, and, as a joke, the agent dropped a few needles on the despoiled nest. The paddlers, much struck with this proceeding on the part of their passenger, related and enlarged upon the occurrence at every village and camp, and transmitted it to their successors, giving the agent much undesired fame. At Nunivak, a year later, the natives of this isolated spot were already singing of "the man who was so eager to trade that he paid the ducks for their eggs", ignorant of the fact that the individual was then among them.

From Cape Etolin and Koot village to the western extremity of Nunivak island, which has been named Cape Mohican, in honor of the United States sloop of war of that name, which cruised in Bering sea in the summer of 1891, the coast is more elevated, sloping down gently from the range of hills running nearly parallel with the seashore.

The villages of this section of the island number 4. Kahmiut, consisting of 3 dwellings with 40 people, 15 or 20 miles south of Koot, is located upon the shore of a lagoon and on a point of land resembling Cape Etolin to such a degree as to lead navigators into dangerous mistakes in thick weather.

Kinegnagmiut, near Cape Mohican, has 76 inhabitants, living in 6 houses, and the 2 settlements of Tunaghamiut and Kanagmiut, between Cape Mohican and Cape Mendenhall, have an aggregate population of 112, living in 8 permanent winter dwellings.

An important salmon stream debouches into Bering sea at Tunaghamiut, and the people of the other villages gather here in the summer to prepare dry fish and to participate in walrusing expeditions to the southern end of the island.

In the appearance and general mode of life these people in nowise differ from the other Nunivagmiut, but the spoils from the wreck of a whaling bark have lately invested them with wealth in the shape of metal, hardwood, and other material precious in their estimation, and caused them to be envied by their less fortunate neighbors.

CHAPTER VIII.

THE SIXTH OR YUKON DISTRICT.

THE SIXTH DISTRICT.

BY WILLIAM C. GREENFIELD.

The mighty stream known as the Yukon does not appear by that name on the map until the confluence of the Pelly and Lewis rivers is reached, about longitude 137° 30′ west, in British Northwest Territory. Both of the latter are large rivers. The Lewis river is the best known, having been used for the past 6 years as the highway from southeastern Alaska to the gold diggings on the Yukon, near the eastern boundary of Alaska. Its length from Lake Lindermann, one of its chief sources, to the junction with the Pelly is about 375 miles, and lies entirely in British territory, with the exception of a few miles of the lakes at its head.

The Pelly river takes its rise about Dease lake, near the headwaters of the Stikine river, with a length of some 500 miles before joining the Lewis to form the Yukon river. The union of these two streams forms a river varying from three quarters of a mile to a mile in width. For many miles on the northern bank is a solid wall of lava, compelling the swift current to follow a westerly course in search of an outlet to the north. The southern bank is comparatively low, formed of sandy, alluvial soil. A few miles above the White river the stream takes a northerly course through a rugged, mountainous country, receiving the addition of the waters of the White river on the south, so called from the milky color of its water, and a few miles farther on the waters of the Stewart on the north. The current is exceedingly swift here, especially at a high stage of water, as I saw it, being at least 6 or 7 miles an hour. From Stewart river to Fort Reliance both banks are closed in by high mountains, formed chiefly of basalt rock and slaty shale. Many of the bluffs are cut and worn into most picturesque shapes by glacial action. At Fort Reliance, an abandoned trading post, the general course of the stream changes to northwest, continuing thus for a distance of about 500 miles, or as far as the confluence with the Porcupine river, which flows from the north.

Some 40 miles from Fort Reliance the mouth of Forty Mile creek is passed, where is located the miners' trading post. On that creek or river we find the chief gold diggings known at the present time. Some 38 miles from there the river crosses the eastern boundary of Alaska. Here was located for the last two seasons the camp of one party of the Alaska boundary survey, having been previously the camp of the Canadian government party. For 100 miles after crossing the boundary the river runs in one broad stream, confined on either side by high banks and a mountainous country, known as the "upper ramparts". It then widens out, and for a distance of 150 miles is a network of channels and small islands. At old Fort Yukon, an abandoned Hudson bay post, it attains its highest northern latitude, being just within the Arctic circle. From main bank to bank the distance has been found to be 7 miles at a point just above the site of Fort Yukon. This place is probably the only serious obstacle to navigation that is met with from its mouth to Fort Selkirk, a distance of over 1,600 miles, the channel here shifting from year to year, and at certain stages of water it is difficult to find. From Fort Yukon to the mouth the river has been frequently traveled and well described, rendering further description unnecessary. Without actually taking measurements, it is exceedingly difficult while traveling on the river to determine the immense volume and magnitude of the stream.

AGRICULTURE AND STOCK RAISING.

The long and severe winter season and the frozen, moss-covered ground are the chief obstacles to be overcome in the raising of crops and stock. The former can never be changed, but the latter, by gradually destroying the mossy covering by burning and opening the soil to the influence of the sun and air in summer time, can be brought under cultivation in very limited areas. Many large stretches of burnt country have undergone a complete change of vegetation after two burnings within the recollection of white men now in the country. There can always be a good crop of vegetables of the hardier sorts raised, and there is considerable land that would be suitable for

cultivation. The cereals have hardly been experimented with, though there is a tradition that the Hudson bay people at Fort Yukon had a small quantity of barley come to maturity. I saw barley this season at Forty Mile creek that promised well, but it was not far enough advanced to judge much about its maturing. Potatoes have done well at all points on the river, but the seed has been difficult to obtain. Distance from market and rigorous climate will always preclude the pursuit of agriculture as a business further than the actual needs of those living there. Stock can be kept by using care in providing abundant winter feed by ensilage or curing natural grass hay and by housing them in the winter. In summer time an abundance of the finest grass is to be found almost everywhere in the neighborhood of the rivers or streams throughout the country.

INHABITANTS OF THE YUKON RIVER COUNTRY.

The inhabitants on the Upper Yukon, from the Rampart house to the boundary, form part of a nation known to the English missionaries of the Hudson bay side as the Tukudh (Takuth) Indians, tribes of which extend over the country inclosed by the Porcupine river, the Peel river to the Mackenzie, the Upper Yukon to the neighborhood of the Stick Indians in the south, and to the southeast in the McMillan river country. They speak of themselves, however, as Yukon Indians. Their language has been put into print by the venerable Robert McDonald, archdeacon, bibles and hymn books being universally read by all from Nuklukayet up. They are of average size, lithe and active, many of them being quite graceful in their carriage. In appearance they approach the typical North American Indian: sharp features, aquiline nose, and high cheek bones, with very small feet and hands. They are nomadic in their ways of life, living in temporary camps both winter and summer, either in the mountains or on the river banks, according to the habits of the game they are hunting.

Some few in the neighborhood of the mining camps are perceptibly changing their mode of life. Around the trading posts at Forty Mile creek there are a number of log cabins built and inhabited by them the year round, and they fully appreciate the advantages of stoves and clothing from the states. The younger men are more fastidious in their dress than the average white man. They are industrious and fairly enterprising, many of them working successfully at mining for wages paid by the whites, and some are mining on their own account. They make excellent boatmen, poling a boat with skill, boats built of sawed lumber being preferred for river navigation to their own birch canoes. Docile and peaceable, both among themselves and with the miners, they are strongly imbued with the teachings of the English missionaries with whom they had more or less intercourse for many years previous to occupation of the country by the United States. Formerly their chief subsistence was cariboo and moose meat, and fish they only used during the summer and fall, but since the arrival of the miners they depend each year more and more on white men's provisions. Obtaining pay for work, they also avoid the necessity of hunting for furs to buy provisions with, as used to be the case in former years; hence the falling off of the supply of furs from that section.

The population is very sparse. At certain times during the year a traveler might pass down the Yukon from Forty Mile creek to Nuklukayet and hardly see a score of natives in a distance of 800 miles. The different villages or communities seem to be under the guidance of chiefs and subchiefs, though there does not appear to be much authority exerted by them, and I could never ascertain that this chieftainship was hereditary.

Their mode of transportation in summer time is by rafts, boats, and birch canoes, and is entirely confined to the streams and water courses; in the winter time sleds are used, drawn by dogs, men, or women. Their language is known to the missionaries as a dialect of Tukudh (Takuth), but they converse with the traders in a jargon called "Slavey", a mixture of Canadian French and hybrid words of English, something in the nature of the "Chinook" of southeastern Alaska.

At Nuklukayet and down to the vicinity of Nulato changes are to be observed in the natives; though very similar in general appearance, they seem to be a mixture of tribes from the Koyukuk and Tanana rivers and of Ingalik from lower down the Yukon.

Their language is different, though many can converse in a dialect that is understood by the Upper Yukon people. They are not so nomadic in their way of life, living in villages, building log cabins and huts of earth and logs. They depend more largely on the supply of fish and not so much on game. They are mostly addicted to paganism, being more superstitious and depending on instructions from the shaman, or medicine man. They also are becoming yearly more dependent on provisions from the states, but have to procure them by trapping fur-bearing animals to a far larger extent than those of the upper river. They are shrewd traders, taking advantage of every point. They do not so readily adapt themselves to the ways of the white man. They are more pugnacious, quick tempered, resenting a fancied injury or insult very quickly with force. Many years ago some of them killed a white woman, the wife of a trader at a post a few miles up the Tanana river, at the instigation of a shaman. 4 years ago, at Nuklukayet, on account of a disagreement with a trader, they broke open the store, scattering the goods about recklessly, and would have shed blood had they not met with adequate resistance. Religious teaching does not seem to have the same effect upon them as on the natives on the upper river. They have had visits from Russian priests and resident English missionaries in past years, without much noticeable effect upon their lives or morals. Their villages are only found on the main river, hunting parties only going into the back country

temporarily, at which time all the members of the families take part in the expedition. The population found on this part of the river is much larger than that on the Upper Yukon. There is no time of the year when more or less people are not to be found in the villages, and we find among them a larger proportion of females than on the Upper Yukon. Some time ago the lack of females was most noticeable among the Indians of the upper river, attributable to hard usage and the work they were compelled to do, as well as to the lack of care of female children. Of late, however, female children have been better taken care of, and probably in course of time there will be more marriageable women among them. Most of the married women to be seen there at present come from the Koyukuk or the Lower Yukon river. The Nuklukayet and Nowikaket people claim to have their origin from the tribes on the Koyukuk river in the north. The Tanana river and Upper Yukon Indians speak an entirely different language, though there is a dialect by which they can communicate with the various tribes.

After passing the Melozikakat river, going down the Yukon, a different type of native is met with, from an intermixture of the Ingaliks from Ulukuk and the Koyukuk river people. These natives are an untidy and shiftless race, querulous and hard to please.

Nulato was one of the oldest established posts of the Russian company, consequently all the older inhabitants speak fair Russian and belong to the Russian church; but for many years they have been without a resident priest and have received no attention from that church.

Many years ago there was a large number of natives speaking the Ingalik language living on the headwaters of a stream called Ulukuk river, which flows into Norton sound 60 miles north of St. Michael, but owing to constant raids on them by the coast natives, or Mahlemiut, their numbers were diminished, and nearly all of them changed their place of abode, moving over to the Yukon, forming a village or tribe at Nulato and intermixing in time with the Takashki and Koyukuk people, who were already established there. Consequently, the different dialects of these various tribes are to be met with in the vicinity of that place. They subsist chiefly on salmon, large quantities of the small red and silver salmon being dried by them every summer and stored away for winter use. In some seasons there are numbers of reindeer to be found on the neighboring mountains, but not enough to be a regular source of food supply. For some years that district used to be a good fur country, but latterly the number of furs has diminished each year, whether from the extermination of the animals or from the increased amount of provisions which the natives receive in payment for work, doing away with the necessity of trapping, it is impossible to determine; probably both circumstances tend to produce the change. They are, like all these natives, keen traders, considerable trade being carried on among themselves and the coast natives, beaver, land otter, marten, and fox skins being exchanged for oil, Siberian deerskins, breech-loading arms, and ammunition.

All the people mentioned so far, though apparently physically strong and well made, seemingly lack vital force and resistance to sickness. They are subject to pulmonary complaints; ulcers and sores of great severity are constantly met with; they soon show the effect of age, so that from their appearance their age is most liable to be overestimated. They have no idea of taking care of themselves, sleeping in damp and exposed places, and wearing in that severe climate clothing that would be no protection to a white man. I have repeatedly seen in the depth of winter parties traveling, and their only bedding would be a grass mat, a small bag for a pillow, and perhaps a ragged old skin garment or rabbit blanket large enough to cover the feet; they seldom seem to suffer from cold, but it tells on their constitution in course of time. The population has undoubtedly diminished of late years on all the upper parts of the Yukon.

From 40 miles below Nulato the population is very sparse until the neighborhood of Anvik is reached, when a type of natives of purely Ingalik origin is met with, the first large village being at Anvik, some 150 miles from Nulato.

On the Chageluk slough, a branch of the Yukon, several villages of the same tribe are to be found. They extend on the Yukon down to Kozerevsky, 60 miles from Anvik. These natives are in many ways similar to Nulato people; the language varies slightly, but their habits and manners are much the same. They profess the Greek religion, but are strongly under the influence of the shaman, or medicine man, and are so steeped in superstition as to affect almost every action of their daily life. They subsist chiefly on dried fish and trap considerable numbers of fur-bearing animals, the furs being traded for goods. Some of these natives are the sole makers of certain kinds of utensils, such as wooden "kantags", or oval-shaped deep bowls, of various sizes, made from the native spruce timber; others again manufacture a certain kind of clay pot, which in the spring and autumn is brought down in quantities to the coast to exchange for seal and beluga (white whale) oil, which forms part of their food supply, constituting one of the distinctive features between them and the upper river Indians, who abhor oil in any shape as an article of food.

The village of Kozerevsky seems to be the dividing line between the upper and lower river, as far as inhabitants are concerned; below that to the mouth of the river a different race is encountered, being allied to the coast Eskimo, speaking a language totally different. They are a round, flat-faced people, averaging under size, docile and peaceable, subsisting entirely on fish and oil. They live the year round in villages on the river banks, their habitations being constructed somewhat on the plan of a beaver house, which the natives say was their

model. Each village, according to its size, has one or more kashga, used for public shelter, for dance house in proper season, and for the accommodation of all travelers and the single men of the village. Though professing almost universally the Greek church faith, they are intensely superstitious, regulating their fishing, hunting for beluga or seals, and almost every action of their daily life by some superstitious tradition. In the commencement of the winter season they devote a great deal of time to dances or "igrushkas" (Russian for "games") in memory of deceased relatives or to celebrate some event, when neighboring villagers are invited en masse to partake of their hospitality, and this is usually kept up until the food supply is exhausted. The guests are privileged to name what they desire as a present from their hosts, and it is a point of honor to obtain what is demanded, a return being made by the guests at some future time when their positions are reversed. The white traders used to make a point of attending these gatherings, often obtaining considerable fur in exchange for goods that were required to supply the demands of the guests.

Down to about midway between Ikogmiut and Andreafsky the birch-bark canoe is used, but from there to the mouth of the Yukon the kayak and angeyok, made of sealskin, are the only forms of boats used. Many villages situated on the low-lying swamps of the Yukon delta away from the main river are utterly devoid of wood for fuel, and the food is consequently devoured raw and in a frozen state. In winter a species of mudfish called blackfish, found in the lakes, is a great food source, being caught in quantities in traps during the fall and winter, allowed to freeze and then eaten raw. Large quantities of waterfowl eggs are obtained in season, also the birds themselves, it being the summer home of many varieties of ducks, geese, swans, and other aquatic fowl. In winter the only means of traveling is in sleds drawn by dogs.

THE FUR TRADE.

The fur trade has undergone considerable change of late years, the catch of furs being considerably less than formerly, partly owing to the decrease of fur-bearing animals, and also to there being more white men in the country, independent of the fur traders, causing the circulation of more money among the natives, with which they buy instead of trading furs. The average catch of land furs for the whole year ranges from 16,000 to 20,000 pelts, usually with a large proportion of mink skins, the lowest-priced fur on the market.

There are 6 trading posts at points on the river in Alaska. The traders, to reach the back country, usually fit out trusty natives with small stocks of goods to travel among the distant tribes. Since the discontinuance of opposition the white traders do not travel in the winter. The prices paid are regulated by the standard price of red fox or marten, called 1 skin, about $1.25. A prime beaver would be 2 skins; black bear, 4 skins; lynx 1 skin; land otter, 2 or 3 skins, and so on. 5 yards of drilling, or 1 pound of tea, or 1 pound of powder, or half a pound of powder, with 1 box of caps and 1 pound of shot, are given for 1 skin; 50 pounds of flour for 4 skins; 5 pounds of sugar for 1 skin. These are samples of the prices obtained by the natives, with but little variation, until the mining district is reached, where the prices are higher, to conform with the prices charged to miners.

MINING.

Mining can not be called a success on the Yukon up to the present time. Since the first excitement in 1886 there have been few instances of individuals taking out of the country more than $2,000 for 2 or even 3 seasons of privation and hardship. There are a few isolated cases of more than that amount being taken out. The majority of the miners are working on prospects, with a heavy account at the store against them. The hardships of traveling to prospect, the short working season, and the frozen ground are obstacles difficult to overcome. The prices of supplies at the store are high considering the small means at the disposal of the miners, but they are not much more than barely remunerative to the trader, owing to the expense and risk of transportation.

The merchandise is carried on the river by means of stern-wheel steamers, the 2 principal ones belonging to the Alaska Commercial Company, 1 of 200 tons, the other of 30 tons capacity, carrying freight and passengers. On the larger boat there is a white man for captain and another for engineer, but both captain and engineer are unlicensed and without papers; the rest of the crew are Indians. There are 3 other small steamers, 2 belonging to the Russian and Catholic missionaries, respectively, and 1 to the trader at Fort Selkirk. All supplies are received at St. Michael, on Norton sound, 80 miles north of the mouth of the Yukon, the furs and gold obtained being turned over to the Alaska Commercial Company's agent there and shipped to San Francisco. Once a year, in June, missionaries and traders assemble at St. Michael and for a few days that place is doing a rushing business. It has become a regular fair for the natives, who gather in numbers from various points on the coast and river, getting a few days' work from the company and having the satisfaction of seeing the new stock of merchandise.

Although the miners have made an entrance to the country, unless some rich developments should yet be made the mining interest will never assume very large proportions on the Yukon. Large areas of the country have been run over by the miners, and gold in small quantities has been found on many of the tributaries of the Yukon, but so far only in placer and bar diggings, no gold-bearing quartz ledges having been discovered.

The influx of miners to the country has produced marked changes among the natives, and not to their benefit morally. The illicit manufacture and use of liquor, both by the traders of the company and miners, is certainly demoralizing the natives to a great extent. It is openly carried on both on the upper and lower river. At Andreafsky, on the lower river, it is a common sight to see intoxicated natives, more especially in the winter, and the natives have now learned the process of making liquor themselves, more particularly on the coast and the Lower Yukon.

MISSIONARY WORK.

Of late years missionaries of various denominations have entered the country, but the progress made so far does not appear much on the surface, though according to the reports of the individual missionaries they seem to be satisfied with the advance made.

The jesuit fathers, under Father Tosi and the sisters of St. Ann, have at Kozerevsky a very promising school, with some 60 boys and girls boarding in their establishment. They have made wonderful progress in teaching half-breed and native children, as was shown by the closing exercises of the summer term, which I witnessed at Kozerevsky last June. Some of the scholars, who 10 months previously I had known as wild Indian children, then spoke good English in conversation and went through a creditable examination before the visitors. They were all healthy looking and well clothed, appearing contented and happy. Though I visited all the other mission stations in the course of my travels, I was unfortunately there at the time when the scholars were not to be seen, being presumably away on vacation.

CLIMATE.

On the coast the temperature varies from 70° fahrenheit in summer to 40° and 45° below zero in winter. The late summer and fall is usually stormy and wet, the snowfall in winter being from 3 to 5 feet on a level. Navigation is closed to the outside for 7 months in the year by heavy ice on the sea. The Yukon river is closed by ice from November to the end of May. In the interior the climate is drier and warmer in summer, but many degrees colder in winter, the thermometer going as low as 60° below zero. The snowfall is excessive, but less wind prevails here in winter than on the coast.

For many miles on the lower river the banks are devoid of timber other than a stunted growth of willow brush, alder, and cottonwood. The first spruce timber is seen some 50 miles below the Russian mission, at Ikogmiut, and from there up to its head the river is more or less belted with timber, spruce, fir, hemlock, birch, alder, and cottonwood being the varieties most predominant. On the low islands and flats the spruce attains a considerable size, but as lumber it is not adapted for any purpose beyond the needs of miners and others in the country, being checked by frost and full of knots. The growth of timber seems to be entirely confined to the margins of the streams and rivers, in many instances being merely a fringe on the banks.

There is a great variety of berries to be found all through the country: high and low bush cranberries, blueberries, salmon berries, red currants, and raspberries. The salmon or dew berries abound on the swampy lands of the Lower Yukon, and are gathered by the natives in quantities, who preserve them by burying them in the ground, using them as a delicacy in the winter, mixed with seal oil or deer fat and snow.

Abundance of grass suitable for making hay is to be found from the coast up into the interior on the banks of streams, but away from the water courses the whole country is covered with a thick layer of moss of various species, to the exclusion of flowers and small vegetation.

In the course of several extended journeys in that country, both winter and summer, my experience, as well as that of others, is that game is very scarce considering the immense stretches of uninhabited country. Numerous signs are to be seen on the banks of the main river, but so far few white men have proved successful hunters, owing to the difficulties of travel. An Indian traveling with no impediments can scour over the country, and being acquainted with every game sign, can obtain some reward for his exertions where a white man would starve.

ADDITIONAL TO SIXTH DISTRICT.

To write of life on the Yukon, to describe the salient features of animate and inanimate nature on the banks of the great river of the north and its tributaries, one should not wait until he has returned to the distracting surroundings of busy everyday life. Facts and incidents which really were of prime importance are apt to seem trifling and insignificant when reviewed from a distance, in comparison with the more vivid and ever changing impressions of civilized existence.

In speaking of the physical features of the great Yukon valley and of its native inhabitants, I prefer to begin with the coast region and deltoid mouth of the river, following up and giving my impressions just as they struck me during my gradual, frequently interrupted advance from the low seaboard to the rocky gorges of the upper river.

The observant traveler, standing upon the deck of one of the small stern-wheel boats laboriously pushing its way against the powerful current of turgid rolling waters, will be struck with the immense area of alluvial soil which has been carried bodily for centuries and ages from the far interior to the verge of Bering sea. The land here is being made and unmade under our very eyes. The ice-laden freshets of each returning spring never leave unchanged the contour of the shores which but imperfectly confine the rushing waters. A solid cake of ice, caught in an eddy and set into swirling motion, grinds against the loosely constructed bank and undermines it until a mass of sand or clay falls down upon it. The impetus given by the precipitated earth drives the ice cake out of the eddy and sends it adrift upon the current, to be carried on and on until stranded again upon the low beaches of the delta or some distant island of the sea, when its cargo of soil will be deposited as a gift from the great Yukon. On the other hand, land making is going on just as constantly. The accidental lodgment of one of the gnarled giants of the inland forests on its way seaward may cause the formation of a muddy bar or island within the space of a few years. Thickets spring up from twigs of willow deposited by the passing flood or from seed carried by the wind and strengthen the new ground, binding together its component parts with their roots until it can resist the ordinary pressure of rushing flood and grinding ice. Even then a sudden rise of a few feet in the water or an unusually heavy formation of ice on the upper river may undo in a few moments what nature has been years in creating. The little island will then dissolve like snow before the sun and its component parts be torn away and carried suspended in the raging flood until the neutralizing action of opposing tides causes them to settle and scatter broadcast over the shallow bottom of Bering sea contiguous to the great river's mouth.

Under more congenial skies this vast accumulation of the richest soil would doubtless attract a teeming population; and who knows whether this mighty water power may not be now building for the future, when some slight deviation in the axis of our whirling globe may unlock the icy fetters that now bind the land, compelling man to rely upon the products of the sea alone for his subsistence, and teaching him to look for but scanty favors from mother earth. Should that time come in some far distant period, there will be here a field for agricultural wealth and greatness surpassing in range and possibilities that of the ancient Nile. The very sea is aiding in building up and enriching this possible granary of future geologic ages by sending its finny denizens by countless millions up into every vein and artery of the vast surging and throbbing water system, impregnating both soil and water with minute deposits of highly fertilizing qualities.

To return from soaring dreams of brilliant possibilities to the dead level of stern reality, it must be confessed that such inhabitants as now eke out an almost purely animal and quasi-amphibious existence on the sodden tundras of the Lower Yukon banks and delta would seem to give but little promise of becoming factors in their country's growth and development. At present their mental horizon is as limited as that of vision on the dead level of the land they live in.

The few settlements scattered over the large, flat islands of the Yukon delta are perched upon the rare points of vantage to be found in this land of desolation and periodical submersion. An elevation of from 10 to 15 feet above the ordinary flood line is considered sufficient for a village site, especially when further protected by adjacent sloughs, through which the waters of freshets may escape from the main channel and spread at will over the tenantless tundra. The first selection of a site is probably guided also by the presence of a protecting chevaux-de-frise of drift logs, affording partial security from the attacks of ice floes; but the shiftless inhabitants can not withstand the temptation to use up their safeguard, and in the course of a few years their homes are unprotected and they scour the river banks for miles to gather fuel for their fires.

Though careless and short-sighted, these people are made industrious by necessity. Any relaxation of their daily efforts in pursuit of seals, beluga, mink, and muskrats, as well as any failure to secure their quota of salmon and other fishes, simply means starvation, and such periods of distress as do occur can always be traced to corresponding ones of idleness indulged in by these superstitious pagans at the behest of their crafty shamans, or medicine men. Living as they do in the direct path of ice gorges and floods, it is not surprising to find traditions among them of the disappearance of whole villages within a night, carried away by evil spirits, according to their belief.

Along the Ap-hun or northernmost mouth of the Yukon, through which light-draft steamers from St. Michael enter the river, the banks are somewhat higher and the small settlements more permanent in character. At Kotlik and Pastolik trading stations have been in operation for many years. At the former place, which is situated at the head of a blind slough, the improvements consist of substantial log buildings surrounded by a strong stockade, including a neat chapel erected by the Russian trader for the convenience of his family.

To the traveler by boat or canoe in summer or with dog teams in winter Kotlik has ever been a welcome place of shelter and refuge, and many would have perished but for the ready hospitality of this oasis in the desert.

The season of rejoicing and prosperity with the dwellers in the delta lands begins with the disappearance of the ice, which is simultaneous with the advent of the salmon. The sun of the long arctic summer day stands bright in the heavens, and under its genial glare the harvest of fish goes on without interruption, and as everybody can once more revel in richest food the pangs of hunger of the winter just past are forgotten. Children roll and tumble over the mossy hummocks of the tundra searching for eggs, for nature, having once thrown off the austere garb of winter, fairly showers her blessings on the wards upon whom she grudgingly bestows her scantiest gifts for 8 months of the year. Busy as they are, both man and beast, gathering and consuming food, they do not miss the first faint whistle of the steamboat, still far away, battling with the shifting shoals that beset the entrance to the river. Through the stillness of the summer air the churning and puffing of the boat can be heard far away, and as it finally rounds the last bend the joyous shouts of women and children are joined by the piercing but dolorous yell of the dogs, who resent all arrivals and departures. The steamer to these people means tobacco, powder, lead, and caps in exchange for mink and muskrat skins. It also means flour and some calico for the women, with the few enterprising individuals who have piled up a few cords of wood on the river bank to sell to the captain at $3 a cord. The captain would gladly buy a great deal more at that price, but the supply is limited by the amount of energy and ambition latent among the men of these scattered communities. The furnaces are arranged for wood, and wood he must have; therefore he finds himself compelled to carry a number of axmen, some on small wages and some working their passage, but all to be fed. With a crew numbering from 20 to 30 it takes from 10 to 15 hours to wood up, and each cord of fuel is made to cost much more than $3. With one-half the energy possessed by the Thlingit tribes the men living on the lower reaches of the river, where driftwood is piled up in huge winrows, could earn money enough each season to better their condition in many ways and place them beyond the reach of want and starvation. As we ascend the river, winding slowly through the innumerable bends, dry land still appears insignificant in area when compared with the boundless watery surface until the first hills confront us not many miles below Andreafsky station. From the bluff, quite insignificant in height, above the small village of Kahmiut we can view at a single glance the many broad outlets of the Yukon diverging from this point.

Andreafsky, formerly a fortified trading post of the Russians of considerable importance and once the scene of summary vengeance inflicted upon a band of Ingalik for depredations committed on the upper river, is now but a shadow of its former self. The strong stockade has been laid low and has probably fed the fires of the Scandinavian trader who for many years collected the furs of the river and adjoining tundra, claiming as his field of operations the vast triangle between the Ikogmiut mission, the northern mouth of the Yukon, and Cape Vancouver. His large "bidars", laden with goods or skins, could then be seen on river, slough, and lake throughout the summer, and in the winter his dog teams were known in every village. Now what there is left of the trade passes through native channels to St. Michael, the headquarters of the Alaska Commercial Company in the Yukon district, and the former trader, now a full-fledged steamboat captain, with gold band around his cap, passes his winters in retirement at the scene of his former activity. The summer traveler who camps at Andreafsky beholds a picture of neglect and desolation, relieved by 2 or 3 log cabins kept in repair, with windows and doors shuttered and barred. The surrounding buildings are wrecks, with falling roofs and gaping walls. A warehouse built by the Russians, of huge logs that still resist decay, bereft of its doors, contains a heterogeneous mass of rusty ironware, oil casks, coal-oil cans, and broken traps. One corner of the ancient structure bears evidence of having been but lately used as a shrine of Bacchus; the place of the wonted statue of the rosy god, however, is taken by a home-made still, showing that the libations made here must have been somewhat stronger than the watered wine of Greece.

From Andreafsky upward the habitations of the natives exhibit an entire change in character and construction. They are nearly all above ground, with walls of upright logs and planks and slanting roofs covered with grass and sods. The only entrance is a round or square aperture in the center of the front wall 18 inches or 2 feet from the ground. Low platforms line 3 sides of the houses, which are from 15 to 20 feet square. A fireplace and corresponding smoke hole occupy the center, and all the available space overhead is filled with sticks and rods, from which dried fish are suspended, making it impossible to move about in an erect position under the malodorous festoons, from which pellucid drops of oil fall gently upon the inmates. Many of these attractive homes are also provided with excavated additions for places of refuge during extremely cold weather.

The "kuggats", or storehouses, in all these villages are large and strongly built, a sure sign that food is plentiful. Occupying a prominent position midway between the dwellings and the beach, these caches are all that the passing traveler sees of a village, and as they are thickly hung with drying salmon throughout the summer they appear from a distance like bright crimson spots upon the green banks of the river.

The inhabitants of this region could easily gain their subsistence by devoting their time to the catching and curing of salmon during the season, but they have many other sources of supply. Both seals and beluga ascend the deep, wide channels of the river. The marshes on both sides of the river are fairly alive with wild fowl, ducks, geese, swans, and cranes; minks, muskrats, land otters, and arctic foxes yield marketable furs, and bands of reindeer still pay occasional visits to their old feeding grounds.

Many populous settlements are located in this vicinity, the largest being the village of Kinegnagmiut (the Razboinitskaya, Robber's village, of the Russians). As we approach the neighborhood of Ikogmiut, the Russian mission, long, wooded ridges come in sight on the northern bank of the river, the villages become more frequent, and no eddy or other point of vantage along the shores is without its fish traps, for which the willow thickets of the sandy islands furnish ample and most excellent material. Birch-bark canoes here begin to make their appearance, and are used in preference to kayaks for fishing or for gathering wood or berries.

The Russian mission buildings nestle among the hills on the right bank of the river, looking down upon the half dozen large native houses and a store and warehouse on the sandy shore. The church now in use is an old and somewhat dilapidated building, but the foundation for a new sacred edifice has been laid. The quarters for the clergy, erected by the present priest at his own expense, consist of substantial and comfortably furnished log buildings. A small stern-wheel steamer, the Explorer, a relic of Lieutenant George M. Stoney's investigations in these northern regions, is now the property of the missionary Zachary Belkof and his brother. The little craft is run with a native engineer and fireman, and is of the greatest service for bringing supplies from St. Michael and for the summer journeys of the priest in visiting his converts or opening up new fields for his labors. In winter the steamer is hauled ashore and the dog teams resume their places as locomotive power. Upon his register and record of baptisms the priest at Ikogmiut claims 5,000 members of his church, but probably this includes past and present members, and not less than one half of that number have long since shuffled off the mortal coil.

From Ikogmiut upward the scenery along the main banks of the river becomes quite attractive, alternating between wooded hills and towering cliffs of sandstone worn into fantastic shapes by flood and weather. The middle of the river is dotted with low islands, divided by muddy sloughs and covered with dense thickets of poplar, willow, and stunted spruce.

From the confluence of the Yukon with the Chageluk slough and Innoko river to the mouth of its largest tributary, the Tanana, its banks are settled by a branch of the Athapascan family known as the Ingalik. Unlike their kin on the upper river and in the interior, these people depend more upon fish for their subsistence than upon game. The close vicinity of the Eskimo, with whom they have intermarried (in former times by forcible abduction), has affected their mode of life and to a certain extent modified their tribal characteristics, although up to a very recent time there was but very little friendly intercourse with their neighbors. They have adopted the oil of the seal and beluga (which the upper tribes abhor) as an article of food, and in many of their villages we find public structures corresponding to the Eskimo kashga.

In intelligence, mechanical skill, and ingenuity the Ingalik excel the Eskimo. They manufacture clay dishes and vessels and weave straps for dog harness and small mats from the wool of the mountain goat or from any textile material at their command. When furnished with models, they carve in wood with the most primitive tools very creditable imitations of artistic ornaments or even statuary. With proper teaching the Ingalik children of both sexes acquire the English language in a very short time, and, unlike the Eskimo, they are not ashamed to use it when once mastered.

HISTORY OF CATHOLIC MISSIONS IN THE YUKON COUNTRY.

On the 13th of July, 1886, Archbishop Charles J. Seghers, bishop of Vancouver island, accompanied by Fathers Tosi and Robaut, S. J., left Victoria, British Columbia, on board the steamer Ancon, for Alaska, by way of Juneau. Having with great difficulty reached the trading post at the junction of the Stewart with the Yukon river on the 12th of September, the bishop left the 2 fathers there, and with a single servant, who subsequently became his murderer, proceeded down the river with the intention of reaching Nulato, if possible. At this place he had spent a winter 7 years before in company with Father Mondaar. But he was not again to see the people so dear to his heart, to whom he had so generously devoted the best part of his life. The circumstances of his murder when within a day's travel of his destination are well known.

In the following year, 1887, the murdered bishop's companions left the upper river, where missionaries of the Church of England were at work, and established themselves at Nulato and Kozerevsky. Father Tosi inaugurated the Nulato mission by erecting a small temporary dwelling and a chapel, and Father Robaut founded a second mission at Kozerevsky, where, during the summer of 1888, having been re-enforced by 3 sisters of St. Ann, he put up hurriedly 2 good log houses, 1 for the fathers and the other for the sisters. During the first winter work was inaugurated with a day school only, as it had been impossible to improvise the necessary accommodations for a boarding school. In the following summer Father Robaut built a schoolhouse, and a boarding school was started with 20 children of both sexes. The success of this first undertaking was something wonderful. Under the care and tuition of the sisters of St. Ann these children were transformed within a year from savage to well-behaved,

happy youngsters, speaking English habitually among themselves, studying cheerfully, and enjoying the games of civilized childhood. The examination witnessed by the census agent in 1890 would have done credit to any primary school of the United States, and at its conclusion the scholars united in a dramatic representation which probably could not be equaled by any body of school children in the country of less than 2 years' standing, without regard to the fact that in this case the children were acting in a strange language but just acquired and representing scenes entirely foreign to their own experience and surroundings. The piece had been arranged by one of the fathers upon the basis of the old tale of a servant's complaint of the loss of a paradise of idleness through Eve's curiosity and his own fall when tried with a box which he is forbidden to open. The part of the servant was taken by a boy 10 years old, who seemed to enter understandingly into the humor of the situation. The other characters were a mother of a family and a nursemaid (taken by 2 of the larger girls) and a number of children.

That such results could be obtained from such unpromising material in so brief a time speaks volumes for the untiring labors of these self-sacrificing dwellers in the wilderness and for the intelligence and practical sense they bring to bear upon their praiseworthy undertaking.

In 1891 the boarding school at Holy Cross mission contained 60 children, all the dormitories will hold. Most of them are able to write good letters without prompting from the teachers, the mistakes being chiefly in the line of spelling, not of construction or expression of ideas.

The boys are taught to labor in the well-stocked vegetable garden, at fishing, wood cutting, building, and general chores. The girls are thoroughly instructed in household duties: bread making, preserving the native berries, curing fish and venison, sewing, and knitting. A beginning has also been made in training some of the smaller girls as lace makers, one of the sisters being an expert in this art from Belgium. The larger girls and the sisters also make undergarments and deerskin boots to sell to passing hunters, traders, miners, and travelers.

At Nulato the location of the mission is less pleasant than at Kozerevsky, but as a central point between the various Athapascan tribes, it will be an educational center of great importance as soon as the boarding school shall have been fairly established with the assistance of the sisters of St. Ann.

The third Catholic mission, in the vicinity of Cape Vancouver, is flourishing in quite an unexpected manner, considering the unpromising material drawn from the semiamphibious dwellers in the tundras. A branch chapel has already been established at Chalitmiut, to the southward.

Under date of July 20, 1892, Father J. M. Treca, S. J., wrote as follows of the missionary and educational work in the tundra country:

> Up to the present time I have been very busy among the people from Chalitmiut (near the Kuskokwim river) to the mouth of the Yukon, a country presenting a vast field for a new mission. I found the people well disposed everywhere, but absolutely ignorant of the meaning of religion. Our experiment with a school at Dununuk proved unsuccessful, and must prove thus on any part of the coast between the Yukon and the Kuskokwim by reason of the scarcity of food and fuel, as well as of the great difficulty of bringing supplies from St. Michael, the sea being extremely shallow, and therefore very dangerous all along the coast. All that section of the country between the Kashunuk river and the Kuskokwim is very badly off for fish. In the winter time the lakes and streams contain only small specimens of blackfish (Dallia pectoralis), tomcod (wakhnia), and sticklebacks, and in the summer there is no salmon. For this reason Father Tosi thought it best to make Dununuk only a missionary station and to establish a big school for all the coast region on the mouth of the Yukon. For this purpose I am now building a house on the Kanhilik (or Kusilvak) mouth of the river, where 1 or 2 fathers will reside during the coming winter, engaged in preliminary work. Another school is to be built on the Kuskokwim river somewhere near Kolmakovsky.

THE KOYUKUK RIVER.

Not far from Nulato the Koyukuk river enters the Yukon from the north. Its headwaters are far beyond the Arctic circle and in the longitude of Fort Yukon, making its course nearly parallel with that of the main river. Near its middle course the Koyukuk is but a few miles distant from the Melozikakat and Nowikaket, also tributaries of the Yukon from the north, and it is chiefly by this route, by means of brief portages, that the inhabitants of the Koyukuk valley communicate with their neighbors in the south, though their own long, winding river is said to have a moderate current and to be quite free from falls and rapids. The northernmost settlement on the river, according to Lieutenant Allen, is in latitude 66° 44′ north and longitude 150° 47′ west, while the most southern one is within a short distance from its junction with the Yukon, fully 500 miles below, as the river runs.

The number of these people in their own country is but little over 300, but quite a number of them are found settled among kindred Athapascan tribes of the Yukon river, making a total of over 500 for the tribe. All readily converse with their neighbors of Nulato and Nuklukayet by means of a trading dialect or jargon similar to that used among the various Kutchin tribes. They do not differ in outward appearance from the Ingalik, except where in the extreme north they have mingled with the Eskimo tribes of the Arctic district. All the Koyukuk people on the river are extremely poor and physically stunted, and they would probably have ere this migrated southward in a body had it not been for the advent of miners and prospectors among them, from whose scant stores a portion dribbles into the hands of the needy natives in various ways. Formerly these natives had the reputation of being warlike and fierce, and it is probably true that the Nulato massacre, during which

Lieutenant Barnard was killed, was due chiefly to the instigation of a Koyukuk shaman and the assistance of his tribe, but epidemics and want have played such havoc with them that they appear no longer formidable. Whatever energies they possess, in this inhospitable region, must naturally be devoted wholly to the daily struggle for existence. Game is very scarce in the hills of the Koyukuk, and the people are forced to depend upon fish as their principal diet. Fortunately the run of salmon, chiefly dog salmon, is quite large, though the fish reaches the upper waters and tributaries in a rather dilapidated and to us disgusting condition after his long journey from the sea, the back and sides being covered with bruises and sores, the effect of contact with rocks and snags and of the debilitating effects of a prolonged sojourn in fresh water. The native's appetite, however, is not in the least affected by the outward appearance of his food. In addition to salmon they have a fair supply of whitefish and grayling, which they trap under the ice throughout the winter.

In their endeavors to better their condition, and driven by want, the Koyukuk people perform remarkable journeys, not only to the comparatively richer regions of the south, but far to the north and northwest, where they mingle with the few nomadic Eskimo who rove along the headwaters of various rivers, some debouching into Kotzebue sound and others into the Arctic ocean beyond Point Barrow. Their furs finally fall into the hands of the trading whalers, while they receive in return a few articles of Arctic Alaskan and even Siberian trade, tobacco and ammunition being the greatest desiderata. The almost infinitesimal ratio of compensation received by them for their furs may be imagined when we consider the number of hands, greedy for profit, through which each pitiful transaction must pass before its final consummation; the wholesale dealer in far Siberia, the wandering trader among the Chukche, the native dealers of the Siberian coast and of the Alaskan littoral, and, finally, the middlemen, forming the link between the seacoast and the desolate regions of the Arctic watershed, all have to be satisfied before the poor Koyukuk man gets his share.

The few miners who have penetrated to the Koyukuk have succeeded by almost superhuman exertion and by battling with untold hardships and difficulties in extracting a few thousand dollars from the gravel bars and frozen subsoil on the river. One of their earliest pioneers, John Brenner, who was a companion of Lieutenant Allen in his explorations, was wantonly killed by a young native who wanted to be taken to see the white man's country and was willing to go as a prisoner rather than not see it at all. To his great disappointment he received quick retribution at the end of a rope at the hands of the miners and traders.

THE TANANA RIVER.

The people inhabiting the banks of the Tanana river, the largest southern tributary of the Yukon, which enters the main river a few miles to the eastward of the trading post and mission of Nuklukayet, have been variously named the Tennan Khotanas, Tananatena, and the Tennan Kutchin, the latter being probably the best known and most significant. They live in small bands, with settlements generally away from the main river, in sheltered portions, and are distinguished only by the name of the chief of each band. The Tennan Kutchin enumerated on the river and at Nuklukayet numbered a little over 300, but a few more were reported who could not be reached by the special agent, among them Hilltah's band, consisting of 73 persons (15 male and 18 female adults and 40 children, composing 16 families), who were residing temporarily across the divide on Franklin gulch in the Forty Mile diggings. Another detached band was reported as hunting on the banks of a big lake to the westward of White river, consisting of 11 male and 11 female adults and 25 children. A third band was reported on Birch lake (Kichutin) numbering only 16 persons in all.

According to Lieutenant Allen the inhabitants of the Upper Tanana river call that stream the Nabesna. In general appearance and manner they do not vary much from other Kutchin tribes. Formerly they clothed themselves almost exclusively in tanned moose skins, profusely ornamented with beads, but the scarcity of game and contact with white miners have wrought a change. They spend the greater part of the year in temporary camps, which can be seen all along the river, creating a delusive appearance of populousness.

The Tennan Kutchin on the Upper Tanana seldom descend the river to its mouth for trading purposes, since the rapid current would prevent them from returning until winter bridged the turbulent flood with ice. There is, however, no urgent necessity for such journeys, as they have several portage routes by which they can reach the trading post at the mouth of Forty Mile creek in from 6 to 10 days.

The Yukon salmon, for some reason not yet explained, does not ascend beyond a certain point near the middle course of the Tanana, but both graylings and whitefish, as well as a few unclassified species, are found in the upper river and form an important item in the domestic economy of the natives.

For land transportation sleds are used in winter, and the dogs are also used as pack animals in summer, the original breed having been much improved by the introduction of larger animals from the Hudson Bay Company's dominions.

The larger game, moose and deer, are still captured by means of long fences of brush and logs, with narrow openings through which the animals are driven, to be either snared or speared by men in ambush.

The houses of the Tennan Kutchin, even where they have been erected for permanent occupancy, are wretched structures, entirely inadequate as protection against the extreme cold of winter, such as is commonly experienced in this region.

The Tanana river region has been prospected by miners for many years, and a few gravel bars have been worked desultorily with comparatively insignificant results. The country is described as being exceedingly difficult of access and unsafe for white men to rely upon for subsistence. The mountains defining the immediate valley of the Tanana are not very high, but in a southwesterly direction from the headwaters very high peaks have been reported, though not definitely determined. The portage routes to the Copper and Yukon rivers do not present any difficulties greater than those usually encountered in Alaskan travel; they are, however, but little traveled.

CHAPTER IX.

THE SEVENTH OR ARCTIC DISTRICT.

THE SEVENTH DISTRICT.

BY HENRY D. WOOLFE.

The boundaries of the country forming the subject of these descriptive notes are: on the south, Norton sound or Norton bay and the northern watershed of the Yukon; to the north, the Arctic shore, and toward the east the boundary between Alaska and the British possessions.

Though I can not assert that I have traveled over the entire area to be described, I can say that the entire coast line and its villages, with but few exceptions, from Norton sound to Point Barrow are well known to me, and from an acquaintance with the people extending over a period of 5 winters in the course of 10 years I have gained considerable insight into the distinctive characteristics, peculiar customs, and general features of this interesting race. From reliable native sources I have obtained information about the interior portion of the country between Point Barrow and the Mackenzie river, while the rest of the topographical description is compiled from notes made during my travels and residence in the country.

It has been the custom to designate the tribes that inhabit the northwestern portion of Alaska as Eskimo, and while I intend to so call them throughout this writing, I fail to see why the term should have been applied. These cognomens of Eskimo, Innuit, and others are no doubt useful from an ethnographic point of view, but the affix "miut" carries with it a significance, pointing to some distinctive district or place occupied by the Eskimo family where the individual or tribe may live.

To give a general and somewhat comprehensive account of these people, I have subdivided the data into the following heads:

1. Names of tribes and their districts.
2. Geography and topographical description of the country.
3. Manners and customs.
4. Superstitions and ceremonies.
5. Diseases and ailments.
6. Dwellings, food supplies, and methods of hunting.
7. Characteristics and personal appearance.

NAMES OF TRIBES AND THEIR DISTRICTS.

Whether the Eskimo had their origin from an Asiatic or purely American Indian source is not within my province to discuss. The subject is one quite too large to be handled briefly and opinions are too diverse to admit of dogmatic assertion. The Eskimo family in a measure has spread south as far as the western slopes of the Alaska peninsula and up the Yukon river to the vicinity of Anvik. At the village of Unalaklik, on Norton sound, we find a hybrid race composed of Eskimo and Ingalik from the Yukon river. This village being the sea terminal of the winter portage from Anvik on the Yukon was in the past the resort of the river tribes, and intermarriages have resulted.

Many years ago, tradition asserts, the natives of the country lying on the shores of Kotzebue sound emigrated to the seacoast and rivers of Norton sound and bay. Their encroachments, however, did not extend beyond certain

limits, which may be defined as situated between 161° and 163° west longitude. In those days the population on the Lower Yukon river and Norton sound was very numerous, and although the language spoken by them is an offshoot of the true Eskimo, and the customs and manners bear a striking resemblance, a bitter feeling existed between the two peoples, which even at the present day has not been quite extinguished; so that when the northerners came to "pastures new" many and prolonged were the faction fights which took place between them. By no other people had this feeling been more provoked than by the Unalaklik men, who were always to be found in the van whenever any raid upon the enemy's settlements was organized. Matters were carried to such a degree that after a memorable raid made by the Unalaklik men, in a manner similar to that narrated in Roman history, as the "rape of the Sabines", the Eskimo settlers on Norton bay requested the aid of their brethren of the north. Responding to the call, a horde of these hyperborean residents came to Unalaklik in the winter and succeeded in almost exterminating the people of the village, wreaking summary vengeance upon many of the other settlements on the sound and carrying the work of rapine as far south as the Yukon delta. The punishment inflicted was sufficient to prevent further attacks, and so lasting has been the lesson that whenever any of the northern people now visit Unalaklik they are received with great éclat, the best of provisions are served, and every consideration is paid to them.

The advent of the Eskimo to the south was productive of numerous mixed marriages between the residents on Norton sound and themselves, so that we find at the villages of Agowik and Shaktolit many families tracing their descent from both sides. The language, too, spoken at these villages is a hybrid, but the difference is so marked that a native of the place betrays his home by his tongue. The principal tribal names of these people are as follows:

From Norton bay to the Kangich, or Buckland river, the Kuangmiut, having offshoots resident on the shores of Golofnin bay and Norton sound along the coast as far as Point Spencer; at Sledge island, the Aziakmiut; at King island, the Ukivokmiut; at Port Clarence villages and up the river emptying into Grantley harbor, the Kaviagmiut; at Cape Prince of Wales, the Kinegan; along the shore line on the south side of Kotzebue sound, the Tapkachmiut, Kugaramiut, and Kuangmiut. On the Selawik river and around the Selawik lake are several villages, the tribe resident being known as Selawikmiut. From this point northward the stature of the people increases and their strong physique is noticeable.

The Kowak, or Putnam river, natives are known as Kuangmiut, and those living on the Nunatak river are called Nunatogmiut.

From Cape Krusenstern to the northwest point of Kotzebue sound and to Point Hope, on the coast line, and extending inland to the west bank of the Nunatak river, we find the remnants of a tribe, the Kevalingamiut. But few of these people remain on the land whence they derive their name. Gradually they have migrated to Point Hope village and even as far north as Point Barrow, disease and want of food being the primary causes that led to the desertion of their own district.

Point Hope residents are known as Tikeramiut, and this tribe has offshoots intermingled with the nomads who wander over the territory lying within an area of several thousand square miles situated between Point Hope on the south, Wainwright inlet on the north, and as far inland to the eastward as Colville river. These nomads are distinguished as Utuka or Utukamiut. They are a very fine race of people, and their intermarriages with the tribes dwelling on the Upper Kowak, Nunatak, and Colville rivers have produced males and females of not only splendid physical appearance but of far more intelligence than any of the northwest tribes.

From Point Belcher to Point Barrow we have the Kukpaurungmiut, Tikera, Sidarú, Nuwukmiut, and Utkeagvik, the last two living in the villages on the low tongue of land known as Point Barrow.

Rounding this northerly point to the northeastern shores of the territory, we find no permanent villages until the Mackenzie river and Herschel island are reached. The island residents are, in common with those living on the delta of the Mackenzie, known as Kukhpagmiut (Big River people), while the tribes that range over the tundra, mountain, and valley lands situated between the Colville and Mackenzie, the Yukon and the sea, are the Itchali.

Beyond the Mackenzie river to the eastward the Alaskan Eskimo know but little of the country or its residents. They speak of the people as the Kangmalik, or far-away men.

I have omitted to note the residents of the Diomede islands, in Bering straits, as they are of a mixed origin, Chukche from Siberia and natives from Cape Prince of Wales and Port Clarence forming a common stock known as Inalugmiut.

The inhabitants of St. Lawrence islands, also of mixed origin, are known as the Umudjek.

GEOGRAPHICAL, TOPOGRAPHICAL, AND MINERALOGICAL.

Norton and Golofnin bays are two deep indentations of Norton sound. Steep cliffs and bold headlands characterize these sheets of water, and upon the rocky slopes along the water side stunted spruce grow thickly. Into Norton bay the rivers Unatolik, Kuyuk, and Iglutalik empty their waters. From these streams the villagers catch their supplies of red humpback salmon and salmon trout, which they dry for winter food. Flounders, tomcod,

and a few smelts are caught in Norton bay. Within a quarter of a mile of the sea groves of spruce grow thickly, but the size of the tree never exceeds 40 feet in height and from 6 to 10 inches in diameter. The wood is poor, full of knots, and unfit for working up, unless to construct log houses or other rude dwellings. Alder of a stunted growth is found all over the district between Norton and Kotzebue sounds, interspersed with the ground willow. Luxuriant crops of blueberries, salmon berries, and a peculiar blackberry with a smooth skin and a bitter taste, grow on the hilltops and slopes. The natives gather large quantities during the month of September, preserving them for winter use in sealskin bags, mixing them with seal oil. Thus preserved, they are put into a hole in the ground and frozen.

Golofnin bay, on its western slopes, marks the limit of the growth of trees of any size. The coast hills that trend toward Point Spencer, near Port Clarence, are devoid of trees, and the supply of material for building and fuel is obtained by the people living in this district from the driftwood that lines the beach in high windrows. The blasting effects of the northerly winds operate against any growth of trees on this portion of the country, but the tree line appears to follow the east side of Golofnin bay, sweeping in a northeast direction to the Kugaluk river, emptying into Kotzebue sound.

Between Norton and Golofnin bays, to the northward, the arboreal conditions are similar, cottonwood and a few birch trees being found in the vicinity of the groves of spruce. The soil is very thin, and within a few inches from the surface ice, frozen ground, and hard, blue clay is found. I do not think that any vegetables or cereals would grow to maturity in this portion of the country, for unless the earth for such purposes is raised at least 2 or 3 feet the labor of planting seed would be fruitless.

Granitic rocks with veins of quartz, sandstone, and slaty formations occur in the hills that line Norton and Golofnin bays. There are spots where micaceous earth is present, while pyrites of iron supply the natives with the means of obtaining fire when their stock of matches is exhausted.

On Fish river, emptying into Golofnin bay and situated 40 miles from the sea, there is a valuable galena mine. It is worked spasmodically by a San Francisco corporation. A few hundred tons of the ore have been brought to San Francisco, and I believe the assay results were favorable. A very large body of ore exists, but the smelting and refining for silver has been carried on at San Francisco. Beyond this mine, I am not aware of any minerals being found in this district. Several prospectors have tried their luck, but have not reported success beyond finding traces of galena in the hilly region extending toward Port Clarence.

Swale, marsh, and tundra lands, with lakes and small streams running through, constitute three-fourths of the area, and it is well-nigh impossible to travel over the country in summer time. Mosquitoes and small black flies are present in myriads, and man and beast suffer alike from their furious attacks. In the winter, when the rivers are covered with a mantle of ice and snow, the natives travel to and fro.

Port Clarence is a very fine, deep, and commodious harbor. On its southeastern side is a long, low sand spit running parallel to the mainland, while on the north side there are high, precipitous hills, covered with luxuriant grass in the summer season. At the head of the port is Grantley harbor, into which the Kaviavazak river empties. This port affords accommodation for the whaling fleet as a rendezvous during the month of July, when the tenders arrive from San Francisco to replenish their stocks of provisions and take in return the whalebone and furs obtained during the spring cruise amid the ice of Bering sea. Port Clarence is the only safe harbor on the entire coast of Alaska north of the Aleutian islands. Immense piles of driftwood lined its shores until within the past 6 years, from which the whaling ships replenished their stock of fuel, preferring to accomplish this work in a harbor rather than to seek wood in more exposed situations. The natives have consequently to suffer, but they are gradually leaving the villages on Port Clarence and its vicinity for other domiciles to the northward, owing to the increasing scarcity of game in this region. Salmon and whitefish abound in the lakes and streams, and smelt and tomcod are caught in the winter through holes in the ice. Off Cape Nome very finely flavored crabs are taken by the natives during the months of February and March, but they appear to desert the locality at other times.

Large deposits of graphite occur in the hills around Port Clarence, but the presence of a heavy percentage of silica operates against the mineral being of commercial value.

The hills that form the westernmost point of the continent, Cape Prince of Wales, are bold, bleak, and barren, with patches of moss and lichen. The village is built on a rising patch of ground, half mud, half swamp in the summer time, and to gain access to the houses one has to wade ashore from a boat and pick a road across boggy and marshy tracks.

The landscape remains the same to the south side of Kotzebue sound, being tame, flat, and uninteresting, an Arctic tundra in its most desolate aspect. Vivid green moss and bunch grass cover the land in summer and a pall of snow in winter. To reach the various encampments in the summer, canoe or boat travel is the only medium. Walking for any distance, except along the sandy beach, is a weary method of progression, the feet sinking into the soft moss or mud and again encountering knobs of half-frozen soil.

The hills that sweep along the Selawik lake trend from a southwestern direction, decreasing in height at the point where the lake receives the water of the Selawik river. Separated by a strip of morass on the south, the Kangich, or Buckland, river empties into Escholtz bay, an arm of Kotzebue sound. Here we find Cape Blossom,

Elephant point, and Chamisso island, where the British ship Blossom wintered. At Elephant point deposits of mammoth ivory and bones are abundant, embedded in the hard-frozen blue lias. Choris peninsula, formed by the Selawik lake on the east, the waters of the sound on the west, and Hotham inlet at its apex, is a stretch of land, hilly and full of valleys, with a splendid growth of moss, lichens, and grass.

Proceeding along the northern coast of Kotzebue sound we find the large river Kowak, or Putnam, debouching into Hotham inlet. Just at the mouth of the inlet the Inland or Nunatak river empties its waters. Belts of spruce, birch, and a bastard pine line the country through which the two rivers flow. Their course is marked by the gradual attainment of altitude by the hills. Gorges and rocky passes are present toward the upper portion of the streams, and beautiful lakes embosomed amid the mountains are prominent features of the landscape. But for aught save very light-draft boats or canoes these rivers are not navigable for any distance. After the ice melts, in June and July, the waters in these rivers rise to a considerable height, but in August and September they fall to such a degree that sand bars and banks prove serious obstacles to navigation. The freshets bring in their mad course huge bowlders and slices of earth, with trees torn up by their roots, to the sea, and the immense volume of water that the Kowak, Nunatak, and Selawik rivers empty into Kotzebue sound combines to freshen the salt water in a marked degree. The timber limit of the Arctic district extends to the west bank of the Nunatak river as far north as 67° latitude; thence it pursues an easterly direction to the headwaters of the Kowak, or Putnam, river, trending gradually in a northeast direction toward the hills that are within 25 miles distance of the eastern Arctic shores near the Mackenzie river.

In the mountainous regions of the Nunatak and Kowak rivers there are without doubt valuable deposits of gold and silver. I have received from natives specimens of ore that plainly indicate large percentages of precious metals; but in common with the whole territory, the difficulty to trace these minerals lies in the fact that the ground is covered with a carpet of matted moss, which prevents any thorough location of the veins. Snow several feet in thickness serves to conceal objects in the winter, so that but 3 months in the year are available to prosecute the search. On the eastern coast of the Arctic to Point Hope the country is diversified in its contour. Flat, swampy lands, with small hills, and lagoons of salt water that have been inclosed with sand and gravel by the action of ice, line the beach. Cape Sepping is a curious hill of a pyramid form, and to the north of it the bold, forbidding cliffs of Cape Thompson loom up. At the base of the cape are many caverns worn out of the rock by the waves and grinding ice. From the side of one of the cliffs a hot stream of water flows throughout the year, which is bitter and nauseous, and tastes very much like the water known as Frederickshall, but has a flavor of iron. Several similar springs are reported by the natives as flowing from the hills on the interior rivers. Granite, slate, and sandstone formations occur in these ranges that continue along the coast for nearly 100 miles, gradually sinking into insignificance as they trend eastward inland. Point Hope is a long stretch of sand, gravel, and earthy deposits with a foundation of eternal ice but a few inches below the surface. It is about 12 miles in length and 2 miles broad at the point of junction with the mainland, and at its extremity barely 50 feet. The existence of the spit is due to the glacial action that for centuries has been at work in building up and tearing down the coast line of the Arctic. Huge floes, grounding on shoal spots, never melting, gradually pile up to a great height; trees and vegetable débris accumulate; sand and gravel are torn from the bed of the ocean by ice and carried along on the cakes and hummocks when the grasp of winter is loosened by the midnight sunshine, all combining to build up necks of land and spits along the Arctic shores. Within the past 25 years the extreme end of Point Hope spit has been carried away by the movement of the spring ice, and there were several storehouses and huts swept off on one occasion. The surface of the greater portion of the spit is covered with the usual growth of moss and sphagnum, with reindeer moss in large quantities.

Pursuing our course along the coast line we reach Cape Lisburne, a forbidding, bleak, barren mass of granite, rearing its precipitous sides from the sea to an elevation of over 850 feet. Rounding this cape is dreaded by the whalemen, as it is rarely passed without encountering furious squalls and winds that sweep in violent gusts down the gulches.

The coal deposits of Arctic Alaska are now reached. Along the beach and coast line from Cape Lisburne for at least 40 miles an extensive and well-defined coal field exists. I was engaged in the work of exploiting these deposits for 2 seasons, and research developed the existence of a body of coal extending over an area of 25 square miles. There are along the coast line for the distance mentioned numerous veins of coal, from which the whalemen obtain supplies of fuel. The coal is of the type known as semibituminous lignite. It makes steam quickly, but there is a very large percentage of ash and clinker, and its constant use causes an early burning out of furnace bars. What the quality of the coal will ultimately prove to be when shafts are sunk and the mineral is obtained at a lower depth is uncertain. At present the whalemen dig out their supplies from the surface veins, climbing the steep declivities of the cliffs to obtain what they need. There is also a primary reason why this coal field can not be relied upon to afford fuel for the whaling steamers. With any wind except from the southeast or east it is unsafe for vessels to lay off the coast, and as the coal has to be carried to the steamers by boats the danger of swamping and breaking the craft is ever present. With the ice pack off shore, a lee with smooth water is afforded, and the work of coaling can be prosecuted with alacrity. The limit of the coal region to the northward is Cape Beaufort, although small, narrow seams of the fuel are seen along the hillsides. Among the coal seams are found fossil

plants and grasses, their fronds and leaves impressed upon slabs of soft, gray sandstone, but no animal remains have hitherto been discovered. Between the seams bands of clear ice intervene, and I have noticed on the shelving banks of a small creek that runs through the coal lands an oily exudation resembling crude petroleum. The top of the land is in summer covered with a profusion of Arctic flora. Dwarfed ground willows, their blossoms affording food for grouse, delicate saxifrage, the dandelion, and other flowers live for a brief space to enliven the somber landscape. Reindeer moss and lichens abound, the vivid orange and red tints of the latter brightening the otherwise tame and dreary background of rocks and gray crags. A small deposit of fine fire clay is found near Cape Beaufort, and the presence of iron ore of the description known as white hematite is marked in many of the valleys. At a place called Pitmigea this ore is found in large nodules, strewn over the ground as if some mighty volcanic force had caused its presence.

From Cape Beaufort the coast line makes an inward sweep in an easterly direction, and here again we find evidences of upheavals caused by glacial action. Low-lying sand banks inclose a series of lagoons that continue until Wainwright inlet is reached. These lagoons contain salt or brackish water. At Point Lay a river called Kukpowrukuk enters the largest of these sheets of water. Landward the flat, uninteresting tundra is found, with the ever present reindeer moss. Slightly elevated hills are to be seen in the distance on a clear day. They are the final spurs of the range that has one arm terminating at Cape Lisburne, and the other springing from the mountains of the interior ranges that form the divide between the northeastern portion of Alaska and Kotzebue sound. It is on this divide, on the southern slope, that the headwaters of the Nunatak and Kowak rivers are situated, while on the north side the unexplored Colville or Nigalek river takes its rise. Other streams that empty their waters into the sea to the east of Point Barrow, beyond the Colville, originate in the same locality.

The waters of these lagoons are fairly supplied with whitefish, a few salmon trout, and with tomcods in winter. Situated as they are, the drainage from the peat soil and decaying vegetable matter seeps into them, and the water is tinged with a brown reddish hue, tasting somewhat irony, and to persons unaccustomed to it anything but agreeable. A most singular fact relating to the water found in these Arctic lagoons, ponds, and lakelets is, that it will eat into tinned and copper utensils in a very short time, making minute holes the size of a pinhead. This action seems to indicate the presence of some acid in the water, but although metal suffers by its contact no bad results seem to follow its drinking.

From Icy cape, which is simply an elevation or knob above the tundra, to Wainwright inlet the gravelly deposits on the beach contain numerous clam shells and black sand, indicating the presence of the bivalves at the bottom of the sea. Off Icy cape are the Blossom shoals, and in bygone years herds of walrus congregated in the shallow waters to feed upon the clams to be found there. It is rare to find any of these animals at the present day off this locality, as they have been frightened away by the whalemen. Wainwright inlet is a good anchorage for small vessels, and is quite a large sheet of water, having a number of small lake streams emptying into it. From this inlet the coast line trends westward to Point Belcher, and between these places, in close proximity to the beach, is a series of "buttes", or low hillocks, broken at intervals by gulches. The Koog river debouches close to the village that bears its name near Point Collie, and on its banks I found in the winter of 1889 large deposits of coal of a better quality and with less detritus than the Cape Lisburne mineral. This coal appears to be of a light but hard lignite, burning briskly and with but little ash. To obtain this coal light-draft barges would have to be utilized, as the river is shallow and has a bar at its mouth. Point Belcher is low lying land, similar in its composition and formation to the spit at Point Hope.

The little hills again disappear, winding along at a distance from the shore around the eastern beach of Pearl bay and the big lagoon near the Sea Horse islands. These two sheets of water contain whitefish, and in the early spring large quantities of the Arctic smelt and tomcods are caught through the ice off Point Collie.

The Sea Horse islands are 2 small pieces of land at the extremity of Point Franklin, the end of a narrow strip of sand inclosing a lagoon. Of but slight elevation, they were in former years the resting place of walrus, but are now entirely deserted by the animal. Short, stubbly Arctic grass and a little driftwood is all that is to be seen on these islands. From Pearl bay to Cape Smythe, 71° north latitude, the low hills again appear on the coast, broken at numerous points by gulches, through which small tundra streams and creeks find egress. The country is desolate; in the summer a quagmire and slough, in the winter and spring covered with a blanket of snow. At Cape Smythe the small coast eminences disappear, and the long stretch of 9 miles to Point Barrow, 71° 17′ 20″ north latitude, is a level spit of sand, slough, and mire, with lagoons of fresh and brackish water. Elson bay bounds the spit on the east, and to the west and north lies the Polar sea.

The Ikpikpun and Kugaru rivers are 20 and 50 miles distant in an east-southeast direction from Point Barrow, and in these streams the natives catch large quantities of whitefish, a few pike or pickerel, and sometimes a stray salmon trout.

The contour of the country for at least 20 days' journey by land is that of an immense tundra. Streams and lakes abound, and bogs and marshes, with spots of dry land here and there. Scant grass of a coarse quality, ground alder, and brush willow can be found on the river banks, but no shrub of any size is to be met with on the coast. Nature, so far as vegetation is concerned, seems to have neglected this cold, bleak, and barren portion of her domain. In the summer months of July and August a few timid dandelions and buttercups venture to flower,

but a cold wind soon blasts the blossoms. The flowers are but things of a few hours, to beautify the somber, brownish tints of the Arctic vegetation. Mosquitoes, however, revel and make a harvest during their short life. No sooner has the snow left the ground than these torments appear in large swarms, disappearing for shelter beneath the blades of grass when a northwest or west wind blows cold. They are found throughout the Arctic and sub-Arctic zone, and are the most bloodthirsty insects of their kind.

The characteristics that distinguish the country before described, namely, lagoons, tundra, and marsh lands, prevail to the eastward of Point Barrow until Harrison bay is reached. There, some 25 miles inland, is a high range of mountains visible from the sea, continuing eastward to the west bank of the Mackenzie river. The natives report the existence of a bituminous lake some 60 miles east of Point Barrow, and specimens of the bitumen have been shown to me. Coal is said to be found on Herschel island. Near the coal deposits on the Koog river there is a large tract of land upon which the snow never rests, melting as it falls on the ground. From native sources I learn that the ground is warm to the touch, and tradition asserts that smoke and flame have been seen to issue from crevices. Nephrite is found in a mountain range near the Kowak, or Putnam, river, but it is of the commonest description and of no utility for commercial purposes.

From inquiries I learn that the territory between the Colville river and the British possessions is of a character similar to that of the country herein described. Timber is said to abound on the dividing ranges of the interior. There are no settlements, as the tribes are purely nomadic, shifting their huts from place to place in their pursuit of game. To conduct a thorough exploration of the interior would occupy several years. I have already mentioned the difficulties of summer travel, mosquitoes and sand flies. In the winter it is impossible for any one to locate the course or direction of a stream, and for a person to depict a river's direction on a chart after a sled trip over ice and snow is simply presumptuous.

MANNERS AND CUSTOMS.

The peculiar manners and customs that prevail among these people of the north can not be learned by a cursory or transient visit. Their peculiarities can scarcely be observed by officers of revenue cutters or whalemen during the brief visits for trading purposes made by natives to the ship, and nearly all official reports made public are from hearsay and inferences made at the time of these visits of a few hours duration. Only to a person residing among the people can their manners and customs be familiar. I propose to give an account of their life from birth to death in as brief and succinct a manner as possible.

The family law of the Eskimo race bears a marked resemblance to the Roman law of paternal succession. Children acquire their family rights by either birth or adoption. The desire common to semicivilized and uncivilized nations to possess male children is very prominent among these people. By custom, if a son be born in a household he is regarded as the inheritor of the property; should there be no male child borne by the mother, adoption either of an orphan by purchase or in some other manner is arranged, and this child becomes and remains a member of the family and inheritor of the property of his adopter. Generally I have found that one wife is maintained among these tribes, but instances have come to my knowledge where wealthy individuals have from 2 to 5 so-called wives. Inquiries and observations develop the fact that these subsidiary wives are simply regarded as assistants for performing household and other duties. If children are borne by these secondary wives they are subject to the will of the father, who has full power to retain them in his hut or permit the mother to take them should she leave the family. Male children are absolute tyrants in a household until they arrive at an age to set up their own establishment, and so long as their parents are alive the wishes and desires of the son by either birth or adoption are regarded without demur. No matter what a boy asks for, from the hour that he can make his wants known, the parents strive their utmost to gratify his request. There are cases that have come under my notice where fathers and mothers would dispose of their most precious possessions to obtain a little sugar, hard bread, or some other article that the son wanted. The boy, if in a pettish mood, does not hesitate to strike his mother, and should she dare to resent the assault, the father speedily inflicts upon the unfortunate woman a severe beating. Clothing and food of the best description procurable falls to the lot of these sons and heirs. While their mothers and sisters have to be content with old soiled garments, the sons and fathers are supplied with the choicest skins and furs. Unless it be that the first son inherits the property on the demise of the father, there is no distinction made as to the treatment between males born in succession. As, however, there is a great desire to obtain a male child in every household, those who are fortunate enough to possess more than 2 sons are invariably importuned to transfer their rights to other parents without male issue.

Notwithstanding the tyrannical manner with which the sons treat their mothers there is a redeeming feature in their conduct that is noteworthy. Whether they are intending to make a journey for trading, visiting, or hunting purposes, before executing any project or entering into any undertaking the advice of the parents is called for. This advice is seldom rejected and is regarded as binding. There are instances where the mother's will is paramount in a family, that is, where she is in the position of the superior or first wife. Eskimo home life in common with our own has many instances of "hen-pecked husbands", but the Eskimo's remedy when he tires of the continuous tirades and talk of his wife is to administer, if he is able, a sound thrashing with either his hands or a stick. Where a woman is believed to have the powers of a shaman, or medicine woman, she generally possesses control over a household.

Second or subsidiary wives are bound to obey the commands of the first wife, and unless undue preference is shown for their company by the master of the family there does not appear to be the slightest jealousy aroused by their presence. There is, however, but little use for the first wife to protest against the introduction of another woman into the household; her permission is never asked, neither is she consulted on the subject. The only manner in which she can show her displeasure is to remain in a sullen mood for a few days or until brought back to her senses by a thrashing. Then she outwardly submits, gradually becoming reconciled to the situation. Offenses against the married state, while condoned in the males, are regarded as criminal if a woman is the culprit unless her conduct is condoned by her lord and master. Should the husband be known as a "gay Lothario", the wife, especially if she be elderly, seeks out the woman or women receiving her husband's attentions and administers a thorough tongue lashing to the Delilah that has enslaved the man of her choice. Blows or fighting are never resorted to, and a sound rating in the presence of an admiring and sympathetic audience of married females generally shames the individual charmer into a course of good conduct. Woman's position in the home life of these people is a degraded one at the best. To her falls the lot of sewing, cooking, helping to paddle canoes, to feed and tend the sled dogs, to carry and bring provisions to and from hunting parties, to drag to the village or hut the produce of the chase over land or ice, and to perform every menial act in addition to the duties of maternity. Where, as is generally the rule, each hut contains from 2 to 3 families, the women help one another in their duties, but the sex are emphatically toilers and slaves to the passions of the men. Girls that have arrived at puberty are speedily selected by the men, both young and old. There are cases of true attachment existing between couples, but when, as is the custom among many of the coast tribes, men exchange wives for a season, or insist upon their selling themselves on the whaling vessels to procure rum, tobacco, cartridges, and other goods, it will be readily conceived that the feeling of love, or anything akin to that feeling, can hardly be present. Still, I can testify to having observed many couples attached to each other, and in one or two instances, when white men who had lived with these women for a time were leaving the country, I have seen the women exhibit the bitterest sorrow and grief, crying and protesting against the separation. I think I may state that in the possession of the finer feelings and acute perceptive faculties the females are more highly gifted than the males.

Courtship is a matter easily arranged among these people. The would-be proprietor of a woman usually commences to make his wishes known by presenting the object of his desire with choice morsels of food or elaborate overshirts, pants, and spotted deerskins. By dint of threats, if the suitor be a shaman influential in the community, or if he is known as a good hunter, parents support the suitor's wooing. Sometimes the parents, brothers, and sisters of the woman object to the match, but this is an exception and not the rule. As I have stated before, Eskimo women are regarded as lawful prey, but if a girl dislikes the man who first obtains her, she after a time severs the relationship by running away from him, either returning to her parents' hut or arranging to become, for a consideration, the wife of some other man who pleases her better, so that before they become finally settled into a permanent hut or household they may have experienced half a dozen matrimonial ventures. For a woman to bear children during these changing circumstances is not regarded as disgraceful. She prides herself on the fact that she is about to become a mother, and should the infant be a male there is no lack of offers for her to become the mistress of a household. As the moral standard among the coast tribes is exceedingly low, it is rare for a girl over 13 years of age to be virtuous. The young men lie in wait, embracing every opportunity to assault the girls, and while at first they naturally resist their persecutors, they have everybody and everything against them. To sum up, virtue as we understand it is an unknown factor in the life of these people. Married and single women have their especial favorites, and in times of scarcity and hunger the females openly offer themselves for a few pieces of hard bread or other provisions.

The bright side of the life of these people is their invariably cheerful disposition. No matter how severely hunger or privation may afflict them, they still hope for the best. Their whole life is engaged in a fight against nature for subsistence, and other people placed in a similar condition would perhaps at times sacrifice morality according to our standard, which is by no means that of the Arctic Eskimo, to necessity.

After gaining a wife the household of a young man is complete. The couple either live in a hut occupied by the parents of either party or share the abode of another family. Then the usual routine of Eskimo life begins; the husband goes out hunting, the wife sews garments and boots, sometimes accompanying her spouse on his trips and at other times remaining at home attending to her duties. In the evening or at dusk the husband returns and the wife repairs his clothing, dries his boots, and generally looks after his material comfort. During the winter and spring months the women go out on the ice to bring home any seals that may have been captured, and in like manner they go inland with their husbands to convey to camp any deer that may be slain. For a male to drag a deer or seal into the village is a very rare thing, unless he knows that the family is in need of food or that there are no provisions in the hut to enable him to get a meal on his return from the chase. Ordinary conditions prevailing, the women are always sent for the game. During the summer fishing and trading expeditions the women accompany the men on their trips, working with paddles and small oars in the canoe and otherwise assisting in the prosecution of the journey.

That infants survive their birth among the natives of northwestern Alaska is certainly strange when it is taken into consideration that if born during the winter their advent into the world takes place in a snow hut, while if born in the summer or rainy season the birth takes place in a tent of thin drilling or in a structure of scrub willows interwoven. The mother is attended during her confinement by either her mother or some old woman with the repute of an expert. A knife of slate or nephrite is used to sever the umbilical cord after it has been tied with threads of deer sinew. Males are not allowed to come within some distance of the hut, and while parturition is going on some old women keep up a din outside of the hut by beating on drums and singing some meaningless chant. Within my experience of 10 years but 1 white person has ever taken part in the delivery of one of these women, Dr. Herbert Yeamans, surgeon on the United States revenue steamer Thomas Corwin, and I believe this may be quoted as the solitary exception. He describes the event in an able monograph contributed to a medical journal, and asserts that the sufferings of his patient throughout were of the slightest, and within 12 hours after birth the mother was up and about.

For a month the mother and infant remain in the hut, the father being allowed to see his offspring after a fortnight has elapsed. Old tin cans or dishes of either wood or tin are used to serve food to the mother during her confinement in the snow hut, tent, or temporary dwelling. These utensils are thrown away after the time of forced seclusion has expired, and every woman throughout the entire country uses a separate cup and dish for eating and drinking during all periods of temporary retirement. The custom of secluding a young girl when she first arrives at puberty is still in vogue among the Selawik, Kowak, and Nunatak river natives. For 40 days the girl is shut up in a snow or brush hut or tent, and if she goes out into the open air a hood of seal intestines is used to cover her face. Food on selected platters is handed in through an aperture of the hut or doorway of the tent by the mother or elder sister, but in no case is a male allowed to approach the dwelling. If the girl should venture near the village, she is assailed with vituperative language from the elderly women and her condition is jeered at by the men. The practice of secluding young girls has now become obsolete among the seacoast tribes.

The proportion of births to deaths may be safely pronounced as being 1 to 5. After the child is born its body is washed in urine, and until within the past 3 years this ablution was about the only one that the natives of some villages ever received throughout their lives; but now a demand for soap for washing their bodies as well as their clothes has sprung up, induced by the presence of white men in their midst.

At points on Norton sound and Kotzebue sound where wood is abundant bath houses are to be found in every large village. In their construction every resident of the village able to work takes part; the men saw and hew the logs, while the women and boys bring sod and moss to cover and chink the building. The males of the village during the winter months patronize the bath or sweat house. Besides its use as a bath house the building serves the purpose of temporary shelter for travelers and as a dance and meeting house. Once a week the bathing process is indulged in. The floor planks of the house are movable in the center, and upon the earth a large fire is built, until the interior attains a very high temperature. Smoke and the fumes of the burning wood ascend through a square hole in the roof, and when the fire burns clear and bright and the building is sufficiently heated the remaining embers are thrown out through the hole in the roof, a gut covering is placed over the aperture, and the bathing or ablution commences. No heat escapes, the building being thoroughly chinked, the small doorway closed by either deer or bear skin, successfully preventing the ingress of cold or the egress of hot air. Previous to closing up the door the women bring into the bath house tubs of urine, and with this fluid the ablution takes place. Perspiration is induced by beating the body with bundles of willow or alder brush and then washing off the exudations with urine. Then the bathers sit upon an elevated platform at one end of the house, the heat alone acting as the drying medium. After a while the men resume their breeches and the women re-enter, bearing dishes and bowls of food for their male kin to assuage their appetites; copious drafts of cold water are also imbibed. Women are not supposed to be permitted the use of the bath houses for ablutionary purposes, but they contrive to gain entrance at times.

From Point Hope to Point Barrow since the year 1884, the date of my first residence among these Arctic tribes, a large demand has sprung up for soap. Its use is mainly confined to washing clothing made from cotton or wool obtained from the stations and whale ships; but I know that many of the people, impelled by a desire to act as white men do, have taken to the use of soap for ablutionary purposes, more especially at Point Barrow villages. At these locations there are 2 or 3 young men and their wives who invariably wash their faces and hands daily and indulge in entire ablution whenever they have a supply of water. Among the native women living with white men at the stations cleanliness prevails to a marked degree. I have no hesitation in stating that the primary reason for the lack of ablutionary practices is owing to a want of water and of a place where privacy can be obtained for the purpose.

Despite their traits of sensuality and disregard for what we call the decencies of life, these people have a decided abhorrence and dislike to exposing their persons to strangers, and even in cases where their diseases require an examination of the affected parts the most pronounced aversion is shown by both females and males to permitting an investigation. Members of both sexes sit in their winter huts devoid of all clothing except their breeches, owing to what appears to them extreme heat, but this exposure of the upper part of the body is not regarded as indecent.

No matter how cold the weather is, whether under cover of a hut, in a snow house, or in a tent of drilling or deerskins, when the time for retiring arrives, the entire family divest themselves of every article of clothing and sleep naked on a winter deerskin, covered with a similar pelt, their garments serving as pillows.

The peculiar custom of carrying infant children is noteworthy. The child is absolutely naked for a year after its birth, and is borne on its mother's back underneath her skin shirt until it becomes at least 2 or 3 years of age. A strap is fastened around the mother's body outside the shirt at such a height that the child is secured from any danger of slipping, and this arrangement permits of its being warm and cozy. Children are rarely weaned until they become 4 or 5 years old, and it is no uncommon sight to see a woman pull a child of 8 or 9 years under her shirt to nurse it when the youngster is in any way fractious or angry. This continuous suckling accounts in a measure for the barrenness of the women. It is rare to find a woman who has borne more than 4 children, and when they are told that white women have families of 10 or 12 children they deem the statement a fabrication. At times of idleness the women avail themselves of the opportunity of visiting from house to house in the village to call upon their female friends, the men doing likewise with their acquaintances. On these occasions the topics of conversation at male gatherings are trading prospects, hunting successes, outlook for the coming deer, seal, or whale catch, and general exchange of opinions upon matters and individuals in the village or other settlements. The man who talks the least is thought to be the wisest, but generally he is the greatest rogue in the community.

At the women's gatherings scandal and innuendoes relating to their own sex are vigorously discussed, and as many characters are torn to pieces by the Eskimo tattlers as are demolished at a civilized afternoon tea. As their little world is circumscribed, it naturally follows that there are but few matters outside of their limited ideas to be discussed. Many of these people are extremely anxious to gain some knowledge of our language and of subjects they observe in illustrated journals and books. They have a keen sense of the ridiculous, and never tire of looking at the cuts that appear in the various comic papers.

Commencing in the month of June, or as soon as the ice permits navigation, the people living on the Nunatak, Selawik, and Kowak rivers descend the streams in canoes to the seacoast of Kotzebue sound. There, on a spot of land called Sheshoalik, or "white whale passage", these inland tribes meet the coast natives from Cape Prince of Wales, the Diomede islands, Port Clarence, and Point Hope, and sometimes from East cape, Siberia. In exchange for furs they obtain seal and whale oil, seal and walrus hides, rifles, ammunition, powder, lead, drilling, Russian tobacco, vile alcoholic decoctions, and other articles of trade. The trading continues for 14 days, interrupted at intervals by festivities, such as dancing and gorging feasts, succeeded by spells of laziness. They are keen traders, and the palm for acuteness and sharp bargaining may be awarded to the Cape Prince of Wales natives, who may be aptly termed the middlemen of the Arctic trade. They obtain supplies of rifles, cartridges, liquor, leaf tobacco, and other articles of trade from the Chukche tribes of the Siberian coast, who in their turn purchase these goods from the whalemen for whalebone and ivory at either Indian point or East cape. Transportation is effected across Bering straits from East cape to the Diomedes, thence to the Cape Prince of Wales village. Furs and peltries obtained from Kotzebue sound tribes are sold to these Siberian natives, and in this manner the supplies for trading at Sheshoalik are obtained. The choice silver gray and red fox, marten, mink, and other furs are forwarded by sled to the Siberian mart of Nijni Kolymsk, and there tobacco, copper kettles, and a few minor articles are bartered and exchanged.

When the trading is completed at Sheshoalik the inland tribes return to their summer hunting and fishing pursuits. Point Hope is the first place upon the Alaskan Arctic shores that the whalemen touch after recruiting at Port Clarence. There the natives having whalebone, walrus ivory, or any products trade with the whalemen for similar articles as those before mentioned. The arrival of the fleet is anxiously looked for, and it is a season when the utmost disregard of all decency prevails. When the ships sail onward on their northern cruise the Point Hope natives, in their canoes, either travel along the coast as far as Icy cape to meet other natives or they go inland for deer hunting. Similar conditions prevail all along the coast as far as Point Barrow. The coast natives abandon their winter houses as soon as the first sign of thaw is visible, erecting tents at convenient spots along the coast where seals can be shot amid the shore and ground ice, and there await the arrival of vessels whose masters are known to be inveterate traders. Off Point Lay, at Icy cape, Wainwright inlet, and Point Belcher are the points of rendezvous for both the natives and ships. Quite a motley gathering of clans can be found at these encampments; entire families can be seen living in tents of various sizes, while in the center of the temporary village is a large structure of deerskin supported by driftwood that serves as a dancing and general lounging tent. Everything in their possession, from large bundles of whalebone to the smallest ivory or bone carving, is brought for trade by these people, and the goods received in exchange are either carried off to a safe locality or packed in their canoes for transport home. At Point Barrow we find a continuance of trading customs that has been in existence from time immemorial. From the latter part of June until the second week of July, that is, the period when whaling is ended, from 10 to 12 canoes, with sleds carrying whale meat, bags of whale skin, and blubber, leave the villages of Utkeagvik and Nuwuk. The shore ice is still strong enough and unbroken, so that the canoes are placed on sleds, and, with the dogs pulling, the route is pursued around Point Barrow as far as the eastern shores of Elson bay and Point Tangent. There the sleds are placed on shore, the rifles, ammunition, and other trading goods, oil, blubber, and other native commodities, with the dogs, are all stowed into the canoes, and through the stretches

and leads of open water along the coast the travelers paddle, sail, and tow their boats until the mouth of the Colville river is reached. On a sand spit at the mouth of this river, at a place called Nigalek, or Goose point, the tribes of the upper Nunatak, Kangiahnach, and Kowak districts are met. In exchange for Siberian spotted deerskins, Russian leaf tobacco, wolverine, fox, marten, and wolf skins the Point Barrow traders give their cargoes of oil, etc. The first two articles are obtained from Siberia by way of Kotzebue sound, as before mentioned. It takes an entire season for these Asiatic products to reach the far north; for example, leaf tobacco and tame deerskins bartered in June, 1890, at Kotzebue sound did not reach Nigalek before August, 1891.

With the balance of their trade the Point Barrow natives, after a couple of days' festivities, proceed onward to the eastward as far as Barter island. Several canoes are left on the beach en route, with the major portion of the women in charge, as it is a general rule that but few females accompany the trading parties to any point where meetings with the Itchali or Upper Yukon and Porcupine river Indians take place. Within the past few years the custom has been relaxed, and in 1890 4 families left Point Barrow to reside at Herschel island and several women accompanied the trading parties to Barter island. A mythical story exists about a feud between the Eskimo and Itchali, caused by the latter stealing some women, which is given as the reason for their being left behind. The Point Barrow natives have a wholesome dread of the Upper Yukon tribes and treat them with respect. Similar articles of trade to those before noted are bartered for wolverine and other peltry and a few tanned moose hides. By the end of August the canoes leave Barter island, stopping en route to shoot deer and for fishing. At the mouth of the rivers Ikpikpun and Kugaru the flotilla is rejoined by the balance of the canoes that have been taken up the streams by their owners to hunt deer, ducks, geese, and other game. Then the party returns to Point Barrow, arriving about the middle of September, some reaching their homes overland, others by following the seacoast.

The work of preparing their huts for winter occupancy now begins, and as the labor is similar all over the northwest, a brief description of the operation will suffice. During the months of May, June, July, and August a thawing out of the ground takes place wherever heated air and sunshine have access. Pools of water form inside the underground huts and passages, dank and moist exudations from the soil are present and render the dwellings uninhabitable. Then, too, it often happens that the thaw causes the earth covering of the hut to fall in and repairs become necessary. By the end of September frost begins to harden the earth surface and water freezes; picks and axes are utilized to clear the huts of the accumulations of débris, and the renewal of any damaged portions forms part of the labor for winter occupation. All being in readiness, the household effects are moved into the huts, places assigned to the occupants, the stone lamps made ready to receive oil for lighting and heating purposes, and a supply of provisions from the caches is stored in a small compartment situated off the main passageway to the interior. When the household is settled down for the winter, which usually takes place in October, the days begin to get short, hunters have returned from their fall trips, and the women commence to scrape and clean deerskins for sewing into garments and foot gear for the winter. The much coveted white spotted tame deerskins are sewed into fancy shirts for both males and females, and the fops of the village exhibit great eagerness to obtain these skins, in order to don them at the annual winter dance that takes place in the latter part of November. In brief, the life of these natives has been narrated in the foregoing sketch.

Upon the death of a person the body, if the demise takes place in a hut, is wrapped in deerskins and passed through the aperture in the roof; but generally, when a person is approaching the last stages of sickness and death is feared, a tent or snow house is prepared at a slight distance from the village, and there the last gasp is drawn. When all is over pieces of black stone are placed on the eyelids of the deceased, and if the dead person be a man, his spears, sled, rifle, and hunting gear are taken with the body on a sled to the village cemetery. Among the coast tribes from Point Hope to Point Barrow the custom is to lay the body on the ground with the head to the eastward. The sled is broken to pieces and the hunting outfit shares a similar fate, the fragments being put on top of the body, and a few sods of earth or stone used to keep them in place. Women have their sewing kits and a few feminine odds and ends wrapped in the deerskins that serve as a shroud. The inland tribes and those resident in places south of Point Hope place the body either on an elevated platform made of logs or cover the corpse with a pile of driftwood in the form of a high-peaked cone. As the Eskimos will not venture near a graveyard or a corpse after burial, there is no danger of any article being stolen from the remains. Good care is taken, however, that the oldest and most worn rifle in the village is placed with the body, and the same is done in every instance where custom demands the deposit of hunting implements. After interment or deposit of the body in the cemetery or burial place, those who assisted in the service return to the village or settlement in as speedy a manner as possible. They do not look back at the spot, fearing the spirit of the dead is regarding them with bad intent.

SUPERSTITIONS AND CEREMONIES.

To state that these northern people are superstitious would be using a very mild term, as from childhood until death claims them their entire life is imbued with feelings akin to fear of the supernatural and mystic. Every movement in nature, in animal life, and in their social relations that occurs in a manner beyond their comprehension is attributed to occult influence. In every tribe there are shamans, doctors, or magicians called onutkoot. Both sexes are gifted with the knowledge or power they ascribe to themselves, the sterner sex predominating in the profession. Spiritualism, ventriloquism, ability to perform feats of legerdemain, and proficiency in chicanery

form the stock in trade of those doctors. Some claim immortality, others contrive to make their followers believe that they may be wounded and not die, and the most popular idea of the powers of these impostors is that they can go into a trance, and in this state their spirit roams about, conquering and subduing the evil spirit that is supposed to have caused the sickness or ill luck of the person who has solicited their services. Probably no greater scoundrels exist in any part of the world than these shamans. I know of individuals who have been bereft of every article and piece of property to satisfy the demands of these thieves. In this manner they become the wealthiest of the tribe, according to their celebrity and number of cures effected or their luck in prognosticating events. The modus operandi of these shamans differs very slightly. For the least sickness or ailment one or more are called upon to drive away the evil spirits or devils that are supposed to have located themselves in that part of the body where the pain lies. In treating a patient only the members of the household and invited guests are in the home or tent. White men are not regarded with favor as spectators, and one of the most celebrated doctors living at Point Barrow has often told me in confidence that white men's medicine was the best. This particular fellow made use of a long string of oaths in his work of exorcism, oaths that he heard used on board of the whale ships, and seeing on one occasion that I felt the pulse of a little boy with a severe attack of fever, he afterward grasped his patient's wrist with the utmost gravity. The hut being darkened, the shaman enters with a slow step and a solemn face. Desultory conversation ensues for a while, and, assuming a grave and portentous air, he produces a drum made of walrus or hair-seal bladder stretched over a hoop. With a thin, flat stick he strikes the drum, producing a doleful sound, and amid the noise he commands and exhorts the evil spirit. The performance is usually inaugurated with mournful sounds, but as the shaman proceeds, he is encouraged by the approval of the audience, who make responses to the incantation, such as "go ahead", "yes, that's so", and queries as to the location of the devil. Gradually he warms up, his utterances become thick and quick, and the symptoms that are supposed to be essential to the driving out of the spirits now appear. The shaman rolls his eyes, his tongue protruding and body quivering, and his whole frame seems to be in a hysterical and highly nervous condition. Many of these impostors at this juncture cover their heads with a coat of seal gut, shaking it to and fro, and under its cover emit ventriloquial sounds, such as the quacking of a duck, barking of a dog, blowing of a whale, and other nondescript noises. With foam exuding from his mouth and features distorted, he extends his arms toward the patient, who lies in the center of the hut or tent. He breathes upon or touches the parts where pain is supposed to be located, drawing his hands from the body upward and downward, as if to drag the pain away. Again ventriloquism is brought into play, and a conversation with replies ensues between the shaman and the evil spirits. With a whoop and a jump he finally declares that the devil has left the patient and then sinks to the ground exhausted. There is a great amount of exaltation and peculiar hysterical conditions visible during these performances, and the shaman, after an extended seance, exhibits all the symptoms of a faint or an epileptic fit. The entire nervous system seems to be unstrung and limp. Great faith is reposed by these tribes in the supernatural powers of the doctors, and if one is not successful in curing the sick person others are called in, until health is regained or death ensues. There are many tricks of legerdemain by which these "onutkoots" mystify the people: driving a knife into the body without marking the skin; bending a long, narrow piece of nephrite; swallowing a bead and later on recovering it from another's ear or eye, and tricks with twine cut into lengths, chewing the pieces, amid heaving of the chest and violent contortions, and drawing the twine out entire.

Then, too, some of these impostors pretend to foretell events by gazing into a tub of water with their heads covered, and after a lengthy conversation with some attendant spirit or familiar, announce various arrivals of strange natives, or that they see seals or whales, or, if in the spring time, the number of moons that will elapse before the ships arrive. Shamans are the curse of the country; they keep the people poor by demanding their entire property for their work, and if the patient's family have nothing on hand that they desire exact promises to pay in whalebone, furs, or ivory.

The Eskimo are profound believers in ghosts. They will not venture very far after dark, and are firm in their ideas that ghosts walk in various forms. During the winter of 1884 I made a journey along the coast from Cape Lisburne to Point Barrow. Within 20 miles of the latter place I desired to push onward to avoid another encampment for the night. With the aid of a lantern the sled tracks on the ice were followed, and about 1 a. m. we neared the village of Utkeavie. A young girl chanced to see the light moving along over the ice, and, rushing into her hut in a state of great excitement, said that "a devil with a big light was coming over the ice". All the residents of the village were scared, and although their curiosity was aroused to ascertain who the new arrivals were, they did not venture to visit the station until the faint daylight dispelled their fears.

Malevolent, angry, and good spirits are supposed to be present in a state of transmigration in animals, winds, rocks, water, etc. The elements, favorable or otherwise, can be controlled by certain skilled shamans. When the wind blows from the west, northwest, or north during the whaling season so as to close up the leads of water, elaborate ceremonials take place to change the breeze to a favorable quarter. 6 old men, skilled whale catchers, sit on top of a hut or eminence facing the sea and commence a long incantation, the fugleman being a shaman, and invoke all sorts of spirits, good, bad, and indifferent, to aid them. Fires of blubber and driftwood are built, and the party walk around the blaze, chanting and howling imprecations and incantations, accompanied by beating of drums. The concluding performance consists in discharging a volley of rifle shots in the direction from which the wind is desired to approach.

Peculiar customs prevail among the Point Hope, Point Barrow, and other coast tribes that engage in whaling. A woman giving birth to a child 6 months before the season for whaling begins is not allowed to leave the village during the time the hunting is in progress, and if the delivery takes place within 3 months of the period her husband is also debarred from participation in the work. If a woman happens to have a miscarriage she can accompany sleds with provisions for the hunters on to the ice, but she must have 2 black streaks on her cheeks, and is prohibited from going within sight of the open lead of water. If she disobeys these regulations the whales are supposed to get scared. Death in a family precludes the partaking of any of its members in whaling, unless the canoe in which their services had been engaged catches a whale, and then they are permitted to share in the catch. Seals when brought to the shore, white whales (beluga) and bowhead whales when secured alongside the ice, previous to the skinning or cutting are offered a drink of fresh water; a little is poured over the snout and the remainder thrown into the sea. This water libation is supposed to prevent the spirit of the whale or seal from returning seaward to inform his fellows that hunters are around.

I know of only one custom peculiar to deer hunters. When a deer is killed, the skin at the fetlocks is cut and turned over, and small pieces are buried in the snow or ground. No blood is allowed to remain in sight; any exuding from the gunshot wound is speedily covered with either snow or earth, as the fear exists that any other herd passing the stained spot would be attracted, recognize the blood of one of their family, and leave the district.

There are among the people resident on Norton bay and within the radius of coast line, including Port Clarence, Cape Prince of Wales, and Kotzebue sound, certain observances similar to the potlatch of the tribes living in southeastern Alaska. I have not seen these observances in other parts of the northwest, and those whom I have questioned deny any knowledge of the custom. The pretext generally given for these observances is said to arise from "a plenty of thinking about a deceased father or brother", and that spirits have ordered the potlatch to enable the giver to show by his munificence that he desires to obey and exhibit his regret and grief at the demise of his relatives, although they may have been dead for years before this particular ceremony takes place. As a general rule the spirits only appear to those who have by chicanery accumulated large stocks of furs, deerskins, and articles obtained from traders. A few days before the date fixed for the ceremony the giver chooses 3 or 4 young men to proceed to the villages where the guests to be bidden to the feast reside. The season chosen is in the winter, generally during November or early in December, before the sun leaves the latitudes just above the Arctic circle. In the evening, previous to setting out, the young men gather in the hut, and after a shaman invokes propitious weather, the names of the invited are recited and full particulars given to the young heralds. Early in the morning the sleds and dogs are made ready, each herald has 2 streaks of black and red alternately on each cheek, a circle of black on the forehead, and red rings around the eyes, and in the hands a number of blunt arrows and a bow. Thus arrayed and equipped, they proceed to the various villages. Arrival is timed so as to reach the village during daylight. When the heralds are seen to advance the residents of the settlement turn out to greet them. They, on their part, stop at a distance of a few yards with their sleds, and, unslinging their bows, take arrows from their quivers and shoot them in the direction of the house where the headman of the village resides; but in order to make a pretense of wishing the heralds to be the recipients of their private hospitality, nearly every male and female of the village rushes down to the sleds and seizes them, striving to pull them to their respective huts. Then the headman or his wife makes a grasp at the bow and arrows, and that being the sign that whoever gains possession of the articles can claim the heralds as their guests, the struggle is at an end. After the first refection the huts of those who are bidden to the gathering are visited. The eating process being gone through within each and every domicile, invitations are extended and accepted. Within a day the sleds and provisions for the road are prepared, and, accompanied by the heralds, the party start for the residence of the host. Arrivals take place daily at the village until the party is complete.

The potlatch at which I was present presented a gathering of at least 100 people, men, women, and children, and the burden of feeding this crowd fell upon the giver of the feast. Whenever a sled was seen approaching the family and relatives of the host drew up in line on the ice, the females with unbound and unkempt hair, a black mark under their eyes, and shedding an unlimited supply of tears. The males had a narrow band of white tanned seal hide around their heads, with a blue bead or a beaver's tooth in front of the forehead. Drums were beaten and a song of wailing commenced, and when the doleful strains ceased the visitors were escorted to the houses. A short time passes; the guests having changed their damp boots, hung up their clothing to dry, and indulged in smoking, their appetites have to be satisfied. The wife and females belonging to the host's household then appear with dishes and trays containing very small portions of dried and frozen fish, blubber, deer meat, walrus or seal liver, a mixture of deer fat and berries, frozen berries, and flapjacks. These dishes were handed to the guests, the males taking precedence, by the hostess in a kneeling position and with averted face, and as each one took a minute piece of food she also with her right hand took another small portion, throwing it through the opening in the roof of the hut, the idea being that the spirits of the deceased in whose honor the festival is given were waiting outside to get some of the food, and that the hungry manes would thus be satisfied. A few drops of water were also spattered through the window to quench their thirst. When this ceremony was at an end the big feast began. Piles of dried salmon, with basins of seal oil, frozen flounders, tomcods, and salmon trout by the score, dishes of

boiled fish of various kinds, heaping platters of seal blood soup, walrus and seal blubber, berries with oil and berries without oil, deer meat, flour boiled with molasses or sugar, stacks of flapjacks, and pots of weak tea formed the bill of fare that was set before the hungry party. The men ate with gusto, gorging themselves until their stomachs could hold no more, then whatever remained fell to the lot of the women. Eating at an end, conversation upon the merits possessed by the deceased relatives of the host commenced, but etiquette requires that no direct mention may be made of the names of the dead persons; they must be alluded to in the third person. 2 days after the arrivals were complete were given over to eating, smoking, and talking. On the third day, before dawn, the shamans engaged for the festivity beat their drums, accompanied by the chanting and howling that distinguishes the native music. All the people turned out into the snow and a dance ensued. At its conclusion a meal was partaken of. Then the entire party proceeded to the largest house in the village to take part in the distribution of prizes. From the window in the roof of the hut the seal gut covering had been removed, and one of the host's most trusted retainers took his place outside with a pile of the presents within reach. Seal-oil lamps shed their dim light over the scene, throwing the grinning and expectant faces of the assembled crowd into bold relief. Again the thrum of the drum was heard, singing commenced, and gradually the blood of the dancers warmed up as each successive beat and howl became louder. The guests were clustered on one side of the hut, the host, hostess, and the family on the other. Then from the host's side a couple of men arose, taking their stand in the center; the song was changed, and they commenced to dance. If they are considered good artists, the audience applaud by crying out "ky-ky", or "go it again", "encore". When they had finished, a girl or middle-aged woman executed a dance. A slight intermission ensued, and at a signal from the most distinguished guests a couple of the invited performed another dance. Then the gifts were lowered down from the roof to each of the guests, and dancing and singing, interspersed with eating at intervals, continued without cessation until the entire lot of presents were distributed. Finely sewed deerskin shirts, pants, boots, and leggings of white deerskin, rifles and ammunition, fox, wolf, wolverine, and other peltries, flour, sugar, tea, drilling, cutlery, and tools were the articles comprised in the list. After a day's rest the visitors returned to their homes.

One incident illustrates superstitious observances relative to the whaling season. In the spring of 1885, at Point Hope, a woman came to the village from the canoe in which she had been employed. She was sick, and died within a few hours after. The old men and women that remained in the village through infirmity held a consultation over the dead body and determined that unless the heart was taken from the body and dropped into the sea through a hole in the ice the whales would pass by and none would be caught. The operation was performed; the woman's heart, covered with a seal bladder, was thrown into the sea, and the next day a big whale was secured.

Festive occasions occur in November or December and again in June or July, according to the locality. The people of one village invite the residents of another one season, and the dispensers of hospitality become recipients at another period. Every day a great spread and dance is given in each hut in succession, and in the evening a dance takes place in the kashga, or assembly house. A day will be devoted to songs and dances about whales, another to seals, others to deer hunting, and others again to old "yarns" and indecent stories. Eating forms the most important part of these festivities.

In June or July, when the whaling season is over, presents are exchanged. Tossing each other up in walrus hides, dancing, wrestling matches, and foot races are the games indulged in in the open air, both sexes joining in football and dancing. Girls in summer amuse themselves by tossing rounded sandstones in the air, 2 or 3 being kept in motion at once. In winter a favorite pastime is kicking a ball on the smooth ice, resembling a game of football, while the girls with their feet toss a small, rounded piece of ice, keeping it from falling for hours. Blind man's buff is a favorite game with the young girls; a ring is marked in the snow, and no one is allowed to go outside of the limit, the offender being subjected to being blinded.

The music and dancing of these people are difficult to describe. Their music, with the exception of one air having some slight approach to a variation in the scale, consists of a series of nasal monotones, so that the acquirement of the song is an easy one. The only difference to be remarked is a change in the rhythm of the songs which are sung at the villages along the coast line of Norton sound and the Arctic ocean. Although in many instances to my ear they bear exact similitude, they are distinguishable to a native. Generally the words which accompany the intonation are improvised for the occasion by 1 or 2 of the men, who act as fugleman in turns, the subjects relating to the incidents which have called forth the meeting, such as deeds of hunting prowess, feats of strength, imitations of birds and animals, and should a white man be present, the goodness of the Lolachamiut is narrated, with suggestions that tobacco, sugar, flour, etc., would be useful presents. A number of these songs contain indecent allusions and innuendoes, and with broad grins and great vim men, women, boys, and girls join in the chorus.

Dancing by males consists of a series of angular movements, arms and feet moving in unison, one foot keeping time to the beat of the drums and the chorus of the song. While dancing, the performers give vent to self-congratulatory, guttural ejaculations, and he who keeps up the exercise the longest is regarded as a first-class performer. I have seen them after a prolonged dance so completely exhausted as to be unable to move. The women's

dancing differs from that of the men. Their feet and legs are kept close together, and never moved from the spot until the dance is over. Motion is entirely from the hips, and the arms, with extended hands, move in unison. Men clinch their hands when dancing.

Relative to traditions upon the subject of an open polar sea and land to the far north, the following was narrated to me: A vague tradition is extant among these people of northwestern Alaska regarding the inhabitants on the eastern and Arctic shores. It is, that many years ago men and their families left the shores of Kotzebue sound in pursuit of reindeer and other wild animals, going farther and onward to where the sun rises and never returning. Probably this story coincides with the legend regarding the migration of the musk ox from west to east. The fact that the people have a name for that animal leads to the conclusion that it must have had an existence in Arctic Alaska. Upon being shown a picture of a musk ox the old men immediately said that their fathers had told them about the animal, and called it by the same name it is known by at the present day, ungmingmak, among the Liverpool bay Eskimo. It may not be out of place to relate a theory, or rather a myth, that was told me several times by various individuals when pursuing my inquiries. This myth, or rather tradition, in which they evidently have a firm belief, refers to the Eskimo ideas as to the open polar sea and its inhabitants. Many years ago an old man with his son lived on the banks of the Kangich, or Buckland, river, at a point where it embouches into Kotzebue sound. They were both renowned as being experts in hunting reindeer, which were then numerous in the district; consequently they possessed a large quantity of the skins so highly esteemed by the people of the hyperborean regions. One night during the winter the old man chanced to go out of his hut, having been aroused by the dogs barking and howling. There a strange sight met his gaze. He saw a number of sleds and dogs, the contents of the sleds being unladen in front of his dwelling by what he supposed to be devils. Fear-stricken he returned to the interior of the hut and informed his son of the occurrence. When, however, the son went out he could see neither sleds nor men, but upon the snow lay walrus tusks, bags of seal and whale oil, dried seal hides, and skins of the white bear. In the morning a further examination resulted in father and son finding a small dish of blubber, which they interpreted as meaning that the persons who had deposited the skins, etc., were desirous of trading. The skins, tusks, etc., were valued, and their equivalent in deerskins was placed outside of the hut the following night, and in the morning had disappeared. Curiosity being excited in the son's mind, he watched, and in a few nights saw the party returning with their sleds from the north. Much to his astonishment the upper portion of the body of these people was similar to that of the ordinary man, but the lower part resembled a seal, the men having flippers; they were unable to walk, but waddled along. Again they deposited a load of goods on the snow and retired. Trading went along, and resulted so favorably that in a short time the old man and his son accumulated great wealth, much to the wonderment of the people. Others now began to watch for these strange visitors, but they never returned. A renowned shaman was called upon to elucidate the mystery, which he did by stating that these people lived a long way to the north over the ice, in a place where there is no ice but always open sea; that they could swim and dive like seals and walk on land, too, but could not talk. The same story with but few alterations is told at Point Barrow and other points on the coast. That the Eskimo to this day believe the story is not to be doubted, but this, like most of their tales, is a creation of vivid imagination.

Point Barrow natives have another story: a party of the village people were carried off on the ice and did not return for a year. They told of seeing land and open sea and meeting people with flippers, able to swim and dive. It is said that they brought back some articles of clothing from this distant country, but how the people lived and how the country appeared is not stated. There are many other myths and stories narrated by these people, but as at each successive repetition additions are made according to the credulity of the audience there is but little gained in making them public. Their oral traditions can not be trustworthy as to details and as no method of the art preservative is in vogue among the people, their stories have to be taken with some allowance.

DISEASES AND AILMENTS.

The people inhabiting northwestern Alaska are in a fair way to become exterminated even within the present century. The primary causes that will operate to bring about this end are the increasing prevalence of syphilitic, bronchial, and pulmonary diseases. The whalemen, who in bygone years, during their sperm-whale cruises amid the South Sea islands, did much evil in this direction, are now effecting the spread of the most loathsome type of venereal diseases among these natives. As I have before stated, the women are compelled by their masters to sell themselves and thus contract diseases. The guilt is perhaps equally shared by officers and men. Having no method of maintaining bodily cleanliness or any medicines to allay or retard the ravages of syphilis and its attendant scrofulous taint, it follows that infectious diseases spread rapidly among these natives. A woman of attractive appearance will have admirers by the score on the whale ships, and the consequences, with recklessness and the grossest brutality on the part of the men, many of whom are Portuguese mulattoes from the coast of Africa and South Sea islanders, on one side, and ignorance and total absence of all finer feelings on the other, are

most disastrous. The women are in a measure excusable. They act their part under compulsion from a desire to procure the requirements of life that their husbands or families demand, and being unaffected by any fine feelings or conception of morality, for the satisfaction of their wants they will stop at nothing, utterly regardless of the consequences.

At Point Barrow, in the winter and spring of 1889–1890, my time was taken up in a large measure in treating cases of syphilitic origin, and had it not been for the supply of medicines belonging to a corporation, which effected partial cures in the patients, the number of natives to prosecute the spring whaling catch would have been materially reduced. The keeper of the United States relief station at Point Barrow was unable to contribute the least aid to the unfortunate of both sexes who came to the station to ask for medical assistance.

There is absolutely no reason why the men should not effect their trading without the presence of the women were it not encouraged and sometimes demanded by the whalers. In former times the inland natives were very chary in permitting their women to go off to the vessels, but their cupidity, excited by the quantity of tobacco, cartridges, and other articles they saw in the possession of females of the coast people, has of late years caused the relaxation of the custom in a very marked degree. As a consequence, the spread of disease among the Nunatogmiut and Kuangmiut is increasing. Had they not followed the example of the coast tribes they would have been comparatively free from the disorders. The blight bids fair to depopulate the coast, nearly every infant bearing marked indications of the curse, and unless it be for the presence of some white man in their midst, who will administer to their sufferings as far as he is able, the afflicted wretches drag out a miserable existence until death claims them. This evil can only be stamped out by the erection of hospitals, with competent medical officers.

The only tribe on the entire Alaskan coast where whale ships visit which is not given to permitting promiscuous intercourse with the whites is upon the Diomede islands. 10 years ago the Kaviagmiut tribe around Port Clarence was noted among natives and white men as being very conservative in its associations, but since 1884, the first year the whalemen utilized Port Clarence as a rendezvous, these people have become entirely demoralized, and immorality and abandon reigns among them during the time the ships remain in port.

Pulmonary and bronchial diseases are very prevalent, their inception being easily understood when the conditions attending life are considered. From the seething, heated atmosphere of an underground hut these people emerge in the depth of winter into the open air at a temperature 30° or 40° below zero with a single thin garment on their persons. They will stand gossiping for hours in this condition, utterly oblivious of the conditions that follow the sudden change of temperature. They sleep on damp ground in their wet clothing, and take no precautions against sickness in the least degree, having blind faith in the assertion that diseases are caused by the action of some malevolent spirit they have offended. Under such conditions it is small matter for wonder that lung and throat affections are almost epidemic. Rheumatism, swellings from fractures, and a numerous train of boils, tumors, and suppurating sores that follow an unhealthy condition of the blood, are types of bodily ailments that are common. In the case of boils and tumors the use of a knife is called into requisition; a deep incision is made into the swelling, and in order to let the blood and pus exude freely a goose quill is inserted. Semiblindness and inflammation of the eyes among these people arise from the excessive reflection of the sun's rays on the glaring snow in the spring months. Despite the almost uniform use of either native or white men's goggles, the prevalence of snow blindness is remarkable. I think the most effective native method to prevent the eyes from being affected is to smear a broad band of any black pigment under the eyelid. I have tried the experiment and found it gave great relief from the glare. Eczema and a variety of skin and scalp diseases are common, more especially among the coast tribes. The Kotzebue sound residents and the inland people, who use berries among their diet, are a far healthier race than those who live on the coast. It may be of interest to note that these people in taking our medicines require double and sometimes three times the dose that would affect a white man. I have given doses of morphine, quinine, and cathartic drugs in double the amount prescribed by medical works and found in many cases that no result was visible. Heroic treatment is necessary to effect a cure. Their diet, composed of a very large amount of animal food, has a tendency to thicken the blood and induce it to become alkaline in a great measure. I have noticed, too, that their blood coagulates in a shorter time than that of a white man; it is of a deeper color and incomparably thicker. Of late years I am inclined to think that the rising generation are regarding our methods of curing disease as being superior to the "spirit" cure; but although they will use all the medicine obtainable, and regain health by its means, the services of a shaman are always invoked and the cure is attributed to his work.

The surgeon on the United States revenue steamer Bear, on her cruise in the Arctic during 1890, examined and prescribed for several hundred natives. The result of this examination proved that 85 per cent of those treated by him were afflicted with either secondary or tertiary syphilis. The balance of cases consisted of pulmonary, skin, and eye diseases. Excessive constipation is another form of disease that these people are subject to. They maintain a loaded and congested state of the bowels for many days, and it is only when compelled by excessive pains that they apply for relief to the white person. Then extravagant doses of strong cathartics have to be administered to afford relief. I have given from 6 to 8 pills of blue mass without effect and similar large doses of medicines suitable to the complaint.

DWELLINGS, FOOD SUPPLIES, AND METHODS OF HUNTING.

The coast tribes in the winter live in underground huts. In order to build one of these huts a vast amount of digging with picks made of whale rib or walrus tusk is required, as after the surface of the ground is removed hard frozen earth is encountered within a few inches of the top. A space is excavated of an oblong form, generally to a depth of 3 or 4 feet, while a tunnel for an entrance is dug at one side or at the end of the oblong, according to the locality from which the heaviest snowdrift comes, so as to make the entry on a lee side. Timber is used for framing, and in form these huts resemble an inverted bowl, with a square hole left on top to provide light. Sods and moss are utilized for covering the frames, and any interstices are chinked with moss or brush. To gain admission into the hut a person has to crawl on hands and knees through the tunnel, and then through a hole on a level with the floor the main dwelling is entered. There are small side excavations on either side of the tunnel, used as storerooms or kitchens and sometimes for sleeping apartments. Overhead in the underground passageway icicles hang from the roof, the hot air and moisture that finds its way from the interior freezing in feathery flakes. Generally the floor of the hut is of roughly hewn driftwood planking, and at the end facing the entrance hole a raised platform is built, serving as a lounging place by day and for sleeping on at night. Large, flat, stone lamps, with a shelving rim, are filled with whale or seal oil, and dried moss serves as wicks. Some of these lamps, especially on the northern coast, are of large dimensions, varying from 2 to 4 feet in length and 8 to 10 inches in width. With at least 30 or 40 wicks ignited and 2 or 3 lamps going at one time it can be easily imagined that a vast amount of heat spreads through the almost air-tight hut. In order to permit of some slight ventilation and to allow the escape of the anything but pleasant effluvium a pipe composed of 2 pieces of hard wood lashed together is stuck through the roof of the hut, and in winter a collection of huts covered with snow can be soon distinguished by the column of vapor that may be seen rising from these pipes. In one corner of the hut, suspended by seal-hide rope from wooden pegs, are frames that serve as receptacles for blocks of snow or lumps of ice, and as the heat thaws out the congelations the water drops into a tub below and is used for drinking purposes. Nearly all the calls of nature are attended to within the hut by males and females without the slightest approach to reserve. Cooking in tin pots or cans over the lamps is conducted in the apartments unless a huge bucket of seal or whale meat has to be boiled, then a fire of scraps of blubber is made in one of the off rooms before mentioned, and smoking dishes of the viand are brought in for the meal.

At nighttime each person living in the hut retires to his or her particular spot. All strip off their clothing and huddle together under winter deerskins, using their garments for pillows. Heads are always turned toward the entrance hole, as these people imagine that in this position no ill-disposed spirit can drag them out as easily. Husbands and wives, old men, and young men lie in close proximity, packed together like sardines in a box. When white men seek the hospitality of these people I have always observed that the best part of the hut is given over to them and everything made as comfortable as possible. In the daytime women sew and dress skins, and the men repair their hunting gear and lounge in the hut, varying their occupation by visits to other residences to gossip.

When on hunting or traveling parties these people build snow huts. Blocks of hard, frozen snow are cut out some 3 feet thick with a long 12-inch knife blade and placed on end until the required height is attained. Then sticks of driftwood, if obtainable, are laid across the walls, and blocks of snow are placed on top to serve as a roofing; but should there be no wood obtainable at the locality where the house is built, the blocks are cut so as to form a peaked roof, with keyed pieces to sustain them. The holes and interstices are stuffed with soft snow, and the result is an almost air-tight lodging. When the interior is completed a square hole is cut on one side to form a door, and the process of unloading the sled of its skins for sleeping purposes and every article that the dogs might chew up is gone through with and all passed into the house. After eating, the doorway is secured for the night with a block of snow, and a lamp is lighted for illumination and for melting snow and ice for drinking purposes. All occupants then retire into their deerskin coverings denuded of their clothing.

Tents of drilling are used extensively by the coast and some of the inland tribes. The old style of a high peaked deerskin tent in the form of a cone is now becoming obsolete. As soon as the snow begins to melt and bare spots are visible on the ground the natives abandon their underground huts and pitch their tents. In proximity to each hut are platforms raised upon poles or whale ribs, upon which the canoes or kayaks (small 1 or 2 men canoes) are placed. Fishing nets, hunting spears, and a collection of heterogeneous articles also find storage on these places. Storehouses for dried fish, blubber, and oil are located underground at points throughout the village.

The dance houses at Point Barrow are built of huge slabs of sea ice, owing to the scarcity of wood. While at a gathering of coast and inland tribes near Icy cape in the summer of 1886 I saw a huge structure with a covering of 80 deerskins on a wood frame in which festivities took place.

To a person unaccustomed to sleep in the underground houses the stench is very obnoxious. The smell of reeking oil lamps, the odor of rancid blubber and steaming seal or whale meat, combined with the effluvia arising from human beings and puppies, form a conglomeration of perfumes indescribable and malodorous in the extreme. But custom begets familiarity, and after a long, hard run with the sled and dogs on a cold day the sight of a hut with a shelter for the night is not to be despised.

The only Alaskan people residing in cliff dwellings are to be found on King island (Ukevok), a rocky and almost precipitous mass of granite and slate formation that rises from the sea in close proximity to the southern entrance of Bering straits. Without doubt these dwellings have been enlarged from the cavernous fissures that exist on the island. Every dwelling has a platform of driftwood in front, the uprights placed in holes in the rocks. In these abodes families dwell throughout the year, in the springtime chasing walrus and seal amid the ice fields, and in the summer subsisting on wild sea fowl that make their nests on the craggy portion of the island. There are huge natural caverns, deep and dark, that serve as storehouses, and these people have always a large supply of meat derived from pelagic sources. In the summer their canoes, laden with walrus and seal hides, walrus ivory, seal-hide rope, native boots, and curious nondescript carvings of ivory and bone, visit Port Clarence and the trading post at St. Michael, Norton sound. Those desirous of leaving their homes are lowered into the canoes by ropes. When the hunters go out in search of seal or walrus each individual takes his seat and is firmly tied down in the canoe, which is lifted by a dozen willing hands and pushed from the nearest rocky plateau into the water. King island natives are noted as being the most expert canoeists of the Alaskan tribes. They will turn their canoe over in the water and right it without a drop of water entering the interior of the frail craft.

The food supply of the Arctic Alaska tribes consists of whale meat, black skin or epidermis of the whale, walrus, seal flesh, deer, and every variety of birds. Beaver, land otter, lynx, ground squirrel, muskrat, mink, and marten flesh form portions of the food that the inland and Kotzebue sound natives eke out their fare with. Fox, wolf, and wolverine flesh is disdained, partly from superstitious reasons. In the spring and summer time, during the months of May, June, July, August, and to the middle of September, wild fowl of both land and sea swarm in this region. On Kotzebue sound and the rivers that empty into it, on the Colville, Kulugehvah, and other streams that debouch into the Arctic ocean east of Point Barrow, and amid the vast network of lakes, swamps, and swale lands between the Arctic circle and the sea east of 160° of longitude, the various members of the goose, duck, crane, swan, and curlew families gather in myriads to deposit their eggs, and rear their young, and after molting and regaining their new dress of feathers take flight on the approach of frost to more genial climes. Then, too, along the coast we find representatives of sea fowl of many descriptions. Gulls, from the common "Larus fonorhynchus" to the rare Ross' gull, so highly prized by ornithologists, auks, eiders of every type, crossbills, and other species, all congregate in these hyperborean regions to mate and bring forth their young.

Flour is becoming an important article of subsistence among these people. They use it in the form of flapjacks fried in seal or whale oil, or boiled with molasses to the consistency of paste, and if there be a stove in the village an attempt to make bread is made by progressive housekeepers. Hard bread, sugar, and molasses are eagerly sought for as articles of trade from ships and trading posts, and various kinds of canned goods, especially fruits, if sweet, and canned corned beef, are highly appreciated. Anything sour does not enter into their dietary, although I know of 2 or 3 individuals who have conceived a marked liking for pickles, caused by my explaining the value of such edibles as antiscorbutics. Salt meats, except bacon and ham, are not thought to be fit for food, but when on a sled journey or on an ice floe during the whaling season they will devour large quantities of boiled pork, rejecting it, however, if any article of native food is obtainable. Several of the wealthy natives at the Point Barrow villages have traded for lumber and stoves, and houses of a civilized type have been erected for their dwellings, and the stoves are used to cook some food, such as frying deer meat, ham, and bacon in the same manner as do the cooks they have seen on the vessels. Fish is eaten raw in a frozen state, broiled, or dried in the sun. Deer, seal, whale, and walrus meat is consumed in a similar manner. Berries are either used in a fresh state or are mixed with whale or seal oil, and a highly prized dish is made from the back fat of deer chopped and beaten into a paste resembling ice cream.

The fondness for alcoholic liquor is a curse among these people, a circumstance that has been taken advantage of by the whalemen in obtaining supplies of furs and bone. Within the past 2 years Kotzebue sound and Point Hope natives have instructed the Point Barrow natives how to distill alcohol from molasses, sugar, and flour. A mixture of these articles with water is boiled in an old coal-oil or any other available can, into which is inserted an old gun barrel, fitted with dough or clay to render the joint air-tight. The barrel passes through a block of ice, and as the mixture boils the vapor condenses as it leaves the tube into a crude spirit, and is caught in a receptacle. The utmost care is taken to avoid losing a drop of this precious mixture. Attempts to check the making of this vile liquor prove abortive, as the law does not prohibit the sale of sugar, molasses, or flour to these natives, and until some strict government surveillance is exercised over them during the winter the manufacture will be continued. Under the influence of this alcohol men beat and maim the women unmercifully, accidents occur, and long spells of sickness succeed the drinking bout. A drunken Eskimo acts like a crazy man, and the sober men of the village try to divest the fellow of knives or any weapon that might be used in his drunken paroxysms. The whalemen, too, trade liquor to these people for various articles, but generally most of the drink is given to women in payment for their favors. Efforts to restrain this traffic have been made by revenue marine officers; search is made on board the vessels for the contraband article, and in every instance, if it be found, the contents of the packages are dumped overboard. The trouble lies in the fact that both officers and men manage to obtain drink either from the ships that call at Honolulu, the Caroline islands, or Japanese ports, or secrete it in their effects prior to leaving

San Francisco. It must be stated that the managers of the whaling firms of San Francisco use every endeavor to prevent liquor being taken on board their vessels proceeding to the Arctic. The love of strong drink has a firm hold upon these people, and they will sacrifice their all to obtain it.

Tobacco in its various forms, for chewing, snuffing, or smoking, is largely sought. Both sexes are addicted to the use of the weed, and it is a rarity to find a child over 10 years of age that does not use tobacco in some form. Among the inland and Kotzebue sound tribes tobacco for smoking purposes is mixed with fine grains of shredded willow pith, and for making snuff the fungial excrescences of the spruce tree are charred and powdered and mixed with finely cut black Kentucky leaf tobacco. Of late years the ordinary pipe of civilized communities is eagerly traded for, although the old-fashioned style of native pipe is still used, especially by women, when the highly prized Russian leaf tobacco affords the luxury of a smoke. Chewing tobacco is in great demand at all points, and it may be noted as a strange fact that the consumers never spit out the juice, but invariably swallow the saliva, no evil effects being visible from the habit.

Various methods were in vogue among these tribes to obtain their supplies of food before the advent of whaling and trading vessels that now supply them with rifles of every pattern and the necessary ammunition. The reindeer in the primitive times of hunting were procured with bows and arrows or by rawhide snares secured among the dwarf willows that line the creeks; by great bushwood corrals in the timbered country, where herds were driven to be slaughtered; by chasing them in kayaks and spearing them while crossing lakes or lagoons, and latterly, by chasing herds of deer with dogs into the river and rushing torrents, where the fawns were drowned; but at present these systems have been abandoned, and the deer are shot with repeating rifles of the latest and best patterns. The natives are very ingenious in repairing damaged rifles, can reload spent ammunition, and are thoroughly at home in the use of arms; but withal they are, with few exceptions, poor shots, using an amount of cartridges that would appall a white hunter. Nearly every male Eskimo owns a rifle, and sometimes two, and the arms, through their trading propensities, find their way to the eastern shores as far as British territory. I think 8,000 to be a fair estimate of the number of deer killed annually by the natives north of Bering straits, but the number varies with the rigor or clemency of the season. They are rapidly thinning out.

Naturally of a timid disposition, the deer have learned that the natives with breech-loading arms are far more formidable foes than when bows and arrows and spears were employed in the chase. Again, the Eskimo spare neither young nor old when a herd is found, and little suckling fawns, as well as does carrying young, fall victims to their guns. Formerly, on the Lower Yukon, around St. Michael on Norton sound, and in the country known as the Kotzebue sound district numbers of deer made yearly visits; now it is rare to find that the natives living at these points have seen or tasted deer meat.

The Alaskan deer of the Arctic and sub-Arctic regions have been confounded with the reindeer of other localities, but while certainly belonging to the Rangifer family, they are the true barren-ground cariboo, differing from the upland cariboo and domesticated reindeer of Lapland and Siberia in being smaller in body and horns. From July to September the instincts of the deer induce them to come from the interior to the seacoast to obtain rest and freedom from the tortures inflicted by the hordes of mosquitoes that infest the inland swamps, and also to get saline matter from the herbage and moss growing in proximity to the ocean. In September they commence their inland migration, and from July to the middle of October they are ruthlessly pursued by the natives. Some rest is afforded the animals during the dark days that prevail in the arctic zone from November to January, but as soon in the early part of February as the weather permits the food seekers again take the field. The does have their young during April, and by a provision of nature the horns of the female only attain size during the time she is suckling the fawn and until it reaches the age at which it can feed, about 2 months. When it is considered that a deer weighing 125 pounds is consumed at a single sitting by 5 or 6 natives, it may be readily perceived that the average returns of a successful hunting party must be large to feed a village.

The following varieties of the seal family are killed in the waters and on the ice: hair, leopard, saddle, and the big black seal. The following methods are in vogue to capture these animals: with nets suspended under blowholes in the ice, spearing them when they put their heads into the blowholes, and shooting them with rifles.

To write at this date upon the killing of walrus would be absurd. The huge, obese beast is now almost extinct in Arctic Alaska, and where in former years herds of these animals might be seen covering the floating ice pack to-day it is a rarity to see one. To the whalemen belongs the obloquy of having slaughtered the walrus by thousands for their tusks. Now the natives along the coast from Point Hope to Point Barrow consider it a very lucky catch to shoot 10 walrus during the season, where formerly 500 to 600 were obtained. The King island and Diomede people still secure from 50 to 60 walrus yearly, but the supply becomes smaller every season.

The whale fishery from the ice floe is carried out identically at Point Hope and Point Barrow, and the details of the ice formation and the methods of taking canoes to the leads and their outfits for whaling are also similar. Running along nearly parallel to the shore and about 1,000 yards off is a bar on which the water is not more than 2 or 3 fathoms deep. On this the heavy pack ice, coming in with the autumn gales, usually grounds, piling itself up into a wall of rugged masses of ice, while in shore the sea freezes over smooth and level. Outside of this is the rough pack, broken masses of ice piled up in irregular heaps like the craggy fragments

on a frost-riven mountain top, but interspersed with undulating fields of ice many seasons old, and thick enough to resist the pressure when the ice fields come together before the winds and currents. Occasionally, too, the grounding of heavy masses of ice, for there are no true icebergs in this part of the Arctic ocean, affords sheltered places where fields of "new ice" can form undisturbed by the movements of the pack.

Through January, February, and March these ice fields remain motionless, or are only crushed together and pressed harder upon the land by the prevailing westerly gales; but in April the pack gradually begins to loosen, and when the long-wished-for east wind blows cracks open 6 or 7 miles from the shore, extending often for miles parallel to the land. These cracks, or "leads", as they are called, seldom remain the same for many days, but open and close as the wind changes, now spreading clear of all obstructions for hundreds of yards or even for a mile in width, now filled with loose ice, floating with the current. It is in these leads of open water that the whales work their way to their unknown breeding grounds in the northeast, passing by Point Barrow chiefly during the months of May and June, and it is during this season of migration that they are hunted by the Eskimo.

The chase of the whale is of great importance to these people. The capture of one of these monsters means meat in abundance, blubber for the lamps and for trade with the Eskimos whom they meet in the summer, whalebone to purchase ammunition with, tools, and luxuries from the ships, and the choicest morsel that an Eskimo knows, the black skin or epidermis of the whale. Consequently the successful whaleman is the best man in the village, and soon grows rich and influential.

But to return to the whale hunters and their observations of the ice. From long experience the Eskimos are able to judge pretty accurately where the leads will first open in the spring, and when they have decided where the boats shall be launched they set to work to select the best path for dragging out the boats through the rough ice field. They soon make a regular beaten trail, winding in and out among the hummocks, taking advantage of all the smooth fields of ice that they find, and from time to time, as they pass back and forth from their seal nets, they chip off projecting corners of ice with their ice picks, and with the same implement widen out the narrow defiles in the road and smooth off the rough places. Men sometimes go out on purpose to work for a few hours on the road, using ice picks or "whale spades" (something like a heavy, broad chisel, mounted on a long pole and used for cutting off the blubber of a whale), which they have obtained from the white men. It is a pretty rough path, however, at the best.

By the middle of April all the hunters have returned from the winter deer hunt, and the business of getting ready for whaling is taken seriously in hand. The frames of the great skin boats must be taken down from the scaffolds where they have rested all winter and carefully overhauled and repaired, while every article of wood that will be used in whaling, from the timbers of the boat to the shafts of the spears and harpoons, must be perfectly clean, in honor of the noble quarry. Gear must be looked to and the skin covers for the boats repaired and soaked in the sea, through holes in the ice cut close to the shore, till they are soft enough to stretch over the framework. Meanwhile a careful watch is kept from the village for the dark cloud to seaward which indicates open water; and if the much-talked-of east wind does not speedily begin to blow, the most skillful of the wizards or medicine men get out on the highest eminence of the village, and with magic, songs, and beating of drums, do their best to make it come. Not every man in the village who owns an umiak (angeyok) fits it out for whaling, as it requires a good deal of property to procure the necessary outfit. About 8 or 10 boats from each village make up the usual fleet. The crews, 8 or 10 men to a boat, are selected during the winter.

The owner of the boat, who is always the captain and steersman, sometimes hires his crew outright, paying them with tobacco, cartridges, or other goods, and sometimes he allows them to share in the profits, but always feeds them while the boat is "in commission". When enough men for a full crew can not be secured, women, and even half-grown lads, take their places in the boat. One man is selected for harpooner and posted in the bow, and usually another amidship has charge of a whaleman's bomb gun for firing an explosive lance into the whale, for most of the Eskimo whalemen now own such guns.

Now, as to the instruments used for the capture of the whale. Instead of harpooning the whale or "fastening" to him, as the white whalemen say, and keeping the end of the line fast in the boat, which the whale is made to drag about until the crew can manage to haul up and lance him to death, there is but a short line attached to each harpoon, to the end of which are fastened 2 floats made of whole seal skins, inflated, which are thrown overboard as soon as the harpoon is fixed in the whale. Each boat carries 4 or 5 harpoons, and several boats crowd around and endeavor to attach these floats to the whale every time he comes to the surface, until he can dive no longer and lies upon the water ready for the death stroke. Some of the harpoons are regular whalemen's irons, but they also still use their own ingenious harpoons, in which the head, made of bone or walrus ivory with a point of stone or metal set into it, is alone fastened to the line, like a toggle under the skin. To kill the whale after he is harpooned, they used in olden times long lances with beautifully flaked flint heads as broad as one's hand, but now they all have regular steel whale lances and bomb guns with explosive lances.

Some of the boats are carried out over the ice to the place where they are to be launched before the lead opens, and as soon as open water is reported by the scouts all start. There is a great deal of ceremony and superstition connected with the whale fishery. The captain and harpooner of each boat wear special trappings and streak their faces with black lead, as indeed is often done on festive occasions. Long before the time for

whaling all those who intend to command whaling boats during the coming season assemble with all their gear in the public room and hold a solemn ceremony, with drumming and singing, to insure good luck. Charms and amulets of many kinds are carried in the boats. They believe that the whales are supernaturally sensitive. If the women should sew while the boats are out or the men hammer on wood, the whales, they say, would leave the region in disgust.

Let us see now how the boats are carried out over the path I have described. The boat is firmly lashed on a flat sledge, to which a team of dogs is attached, while the men and women hold to the sides, pushing and guiding. The party I observed consisted of 5 men and 2 women. The captain of the boat and the harpooner wore on their heads fillets of the light-colored skin of the mountain sheep, from which dangled on each side a little image of the whale, rudely flaked from rock crystal or jasper. The captain's headdress was fringed with the incisor teeth of the mountain sheep, and the harpooner had another stone whale on his breast. One of the women was decorated with a stripe of black lead diagonally across her face. In the boat, for charms, were the skulls of 2 wolves, the dried skin of a raven, a seal's vertebra, and several bunches of eagle feathers. They say the skin of the golden eagle ("the great bird") or a bunch of hair from the tip of the tail of a red fox brings great luck. In the boat were also 5 or 6 inflated seal skins, which, when we came up, they were using for seats on the ice. One of the women soon came back with the dogs, the sealskin floats were tossed into the boat, the dogs hitched up, and we started ahead, the women leading the dogs and the men shoving alongside. When we came up with the first sledge the dogs were unhitched from the boat and sent ahead with a load of gear for another stage, and so on. On smooth ice the boat travels easily and rapidly, but where it is broken it is hard shoving and rough scrambling for the men, while occasional stops have to be made to chisel out projecting pieces of ice and widen narrow places in the path. Then the dogs get tangled up from time to time and have to be kicked apart, so that their progress on the whole is slow. When they reach the open water the boat is launched and the gear put aboard and the sledges drawn up out of the way. Everything is put in readiness for catching the whales, and the boats begin to patrol the open water. The harpoon, with the floats attached, rests in a crotch of ivory lashed to the bow of the boat, and everybody is on the alert. Sails and oars are never used when whaling; the boat is propelled by paddles.

Thus they spend the months of May and June, eating and sleeping when they can (for the daylight now lasts through the 24 hours), and occasionally hauling the boat up to the edge of the ice for a rest. Somebody, however, is always on the watch for whales, seals, or ducks, the latter now and then at this season passing by in thousands on their way to the north. When the leads close the boats are hauled up safely on the ice and all hands come home until an east wind and "water sky" warn them of a fresh chance for whaling.

Let us suppose that there is good open water and that a couple of boats are hauled up on the edge of the land floe, their crews resting and gossiping, perhaps waiting for the return of the women, who have been sent home to the villages for food. Suddenly a faint, puffing sigh is heard and a puff of vapor is seen over toward the edge of the ice. It is a whale blowing. The men all spring to their feet and quickly run the boats into the water, and scrambling on board grasp their paddles and are off in the direction of the blow. If they are lucky enough to reach the whale before he escapes, the harpooner, standing up, thrusts the heavy harpoon into him with both hands and quickly recovers the pole to be used again. The nearest boat then rushes in, and other boats, seeing what is going on, come up and join in the attack until the whale is captured. Sometimes, indeed, an opportunity occurs for a successful shot with the bomb gun as soon as the whale is struck, and the contest is ended at once; but the attack is not always so successful. Sometimes the whale escapes into the loose ice before the boats can reach him; sometimes the harpooner is clumsy or the harpoon does not hold; sometimes, too, the whale escapes before enough floats can be attached to him to hamper him, and carries off the harpoons, floats, and all. Even if the whale is killed, he sometimes sinks before he can be towed to the edge of the ice where the cutting is to be done.

When the lead of open water is narrow, the natives who own bomb guns patrol the edge of the ice, watching an opportunity to shoot the whales as they pass.

When the whale is killed it is towed to the edge of the solid floe and the work of cutting him up begins. By long established custom, universal among the Eskimos, the skin, blubber, and flesh of a whale belong to the whole community, no matter who killed it; but at Point Barrow the whalebone must be equally divided among all the boats that were in sight when the whale was killed. They have the appliances used by civilized whalemen for easily and rapidly stripping off the blubber, and hack away at everything in reach, getting all they can before the carcass sinks. The news soon reaches the villages that a whale has been killed, and there are very few households that do not send a representative with sleds and dogs to bring away their share of the spoils. As may be supposed, there is a lively scramble around the carcass. Some on the ice, some crowding the boats, they cluster around the whale like flies around a honey pot. Leaning over the edge of the boats, careless of the water, they hack and cut and slash with whale spades and knives, each trying to get the most he can. This is a perfectly good-natured scramble, and no one ever thinks of stealing from another's pile on the ice. The blubber, meat, black skin, and whalebone are soon carried home to the village. The blubber is not tried out, but is packed away in bags made of whole sealskins, and with the meat is stowed away in little underground chambers, of which there are many in the villages.

The "black skin" is eaten fresh and is seldom, if ever, cooked. This curious dainty is the epidermis or cuticle of the whale. It is about an inch thick and looks like black india rubber. It is not so tough, however. Civilized whalemen are nearly as fond of it as the Eskimo, but are not in the habit of eating it raw. When nicely fried in the fresh, sweet oil of the "try-pots", when they are "boiling out" the blubber of a whale, for instance, it is very palatable, tasting much like fried pig's feet. It is also very good boiled and soused with vinegar and spices. The Eskimo are also fond of the tough white gum around the roots of the whalebone. The jawbones of the whale are cut out and preserved. From these and from the ribs are sawed out strips of bone for shoeing the runners of the sledges. In fact, everything that can be cut off from the whale before the carcass sinks or is carried off by the current serves some useful purpose.

The most favorable time for whaling is when there is a continuous "lead" of open water, not more than a couple of hundred yards wide, with a solid pack of ice beyond it. Then the whales must pass up within sight or hearing of the boats. When the open water is very wide the whales may pass at a distance unnoticed, or so far off that it is impossible for a boat to overtake them. If there is much loose ice the crafty animals take advantage of it and come up to breathe at little holes among the floes where a boat can not reach them. As the season advances the whales grow scarcer and the whalemen relax their vigilance and pay more attention to the capture of seals, which they shoot through the head when they rise near the boat, securing them with light harpoons before they have time to sink. At this season also the whaleboats sometimes capture walrus and white whales.

At length several days pass without a whale being seen, and one by one the crews give up looking for them and bring home their boats, until by the 1st of July the whaling is over for the year, the boats are all in, and everybody is preparing to leave the village for the summer excursions.

The boats used by the Eskimo of Arctic Alaska are "oomiaks" (angeyok), or open canoes, and "kayaks", or decked canoes. The former are built with a framework of spruce, or any kind of sound driftwood, lashed with seal-hide thongs and split whalebone, covered with walrus, seal, or white whale skin, neatly and strongly sewed with deer sinews. The skins of the large seal (oogrook or maklak) are the kind preferred for coverings, but when not obtainable walrus hides are used. Being thin and in a measure porous, the white whale skin is not looked upon with favor among the coast tribes, but the inland natives, unable to procure other skins, use it for their kayaks and canoes. It does not deteriorate as rapidly in fresh water as the walrus and seal hides. These canoes require a hauling out of the water to dry at intervals of from 5 to 6 days, and then receive a rubbing of seal oil to fill up the pores. Canoes used for whaling and traveling along the coast are generally 24 feet long, with 5 feet beam, and are propelled with a single square sail, oars, and paddles. On Kotzebue sound canoes from King island and the Diomede and Cape Prince of Wales are large craft, averaging 35 to 40 feet long, with 6 to 8 feet beam, while the inland natives build their canoes with a beam of but 3 feet 6 inches and 22 feet long. The entire family belongings are carried in these vessels from place to place during the summer, dogs and cooking utensils, trading goods and all supplies being packed into every conceivable place. With the exception of the tribes at Cape Prince of Wales and on Diomede, King, and Sledge islands, the Eskimo are not venturesome in proceeding seaward out of sight of land. The trading parties that cross the sea from the Diomede to the Siberian shores at East cape and to the Alaska coast sew bulwarks of walrus hide around the canoes about a foot high to keep water from dashing inboard.

Kayaks are narrow craft, seating either 1 or 2 men, propulsion being effected by paddles. They vary from 16 to 18 feet long, and amidships have a beam of 15 to 18 inches, tapering to a fine point at either end. The frame is of driftwood, and the covering of skins is sewed completely over the kayak. The occupant sits in a hole or hatch, protected from a wetting by an apron of seal intestines, and in these frail craft, that require considerable skill to manage, the hunters of white whale and seal pursue their quarry. These kayaks are very handy for use in small streams and for making a journey in quick time, where a large canoe would not be available. Food and clothing can be carried without trouble and danger of becoming wet.

Sleds and dogs are the methods of winter travel. One or two patterns of sleds are used, the northern type being a heavy, cumbersome construction, shod with whale rib or jawbone, and the inland sled with broad, curved runners of birch. Within the past 10 years the sleds introduced by white men, built of ash and shod with steel, are becoming favorites with the natives, who strive to copy the patterns and to obtain good wood for building their own sleds.

To describe the trials and tribulations that a traveler has to go through with the dogs that are used for drawing these sleds would fill many pages, but, despite the annoyances one experiences, without the canines travel in the winter season would be impossible. From 500 to 1,000 pounds can be carried on these sleds with a team of 5 to 8 dogs. In the months of March, April, and May, with a good road, it is possible to make runs of 25 to 40 miles in 12 hours with a fairly smart team. Small, low, flat sleds, from 4 to 6 feet long and 4 feet wide, are used for transporting canoes on the ice, for bringing seals, whale blubber, and meat or deer to the village.

The Point Barrow natives cut out strips of clear ice, and by wetting the runners of the sled freeze the strips on firmly, thus enabling the vehicle to travel more smoothly and swiftly.

Hooded, ground, and timber grouse are common in this district, and form quite an addition to the food supplies. These, in common with all birds secured, are simply boiled, the feathers being plucked, and without

drawing the intestines they are consigned to the pot. Shotguns are used to kill birds, unless it happens that upon seeing a flock the hunter has a rifle, then that weapon is used. Grouse are also caught with little nooses set among dwarf willows and with nets staked down to the snow, into which they are driven. Lapland larks are caught with tiny nooses made of whalebone thread. Little auks, puffins, and crowbills are caught with nets suspended over cliffs. Ducks, geese, and brants are brought to the ground by means of ivory or bone balls tied together with sinew thread and thrown into flocks, where they wind around the necks of the birds.

In the latter part of May and early in June myriads of eider ducks come from the south, flying along the leads of open water at Point Barrow. They take flight along the coast to some unknown land to the northeast, and by the end of August commence their return. Natives kill these eider ducks in large numbers, with shot and bullets, with slings and sticks, and their flesh, although slightly rank, by means of parboiling and adding a little saleratus to the water, can be rendered very palatable.

The various fur-bearing animals throughout the entire country are caught either in steel traps, with deadfalls, or by shooting. Foxes, white, red, silver gray, and cross; wolf, wolverine, brown and black bear, marten, mink, lynx, beaver, land otter, muskrat, squirrel, badger, and polar bear are the peltries that the natives secure. White foxes form the major portion of the peltries secured by the natives along the coast. The other varieties of fur-bearing animals frequent the wooded districts of the inland rivers and Kotzebue sound.

When the ice begins to get firm and solid, during the month of November, white bears make their appearance, lying in wait for the unfortunate seal that happens to crawl out upon an ice floe or hummock. Driven by hunger, the bear sometimes visits the caches of food in the villages at Point Barrow and Point Hope. As soon as bruin's tracks are seen natives armed with rifles start in pursuit of the marauder. Bear's flesh is considered to be a delicacy, but my experience is that the meat is tough and rank, no matter how it may be cooked.

A few bears are shot by the Diomede and Cape Prince of Wales natives in Bering straits. Reports from several sources indicate the presence of numerous white bear on St. Matthew island, in Bering sea. It is said that the animals breed on this island in the summer time, but whether they remain there during the winter is unknown.

Natives inform me that the polar bear hibernates during the months of January, February, and March, emerging from his slumbers amid the ice in April. I think that the young are born in March, and speedily assume quite a large size. One she bear shot during the early part of April had her udders full of milk, and was accompanied by a large-sized cub. The skins vary in size from 6 to 12 feet long, the largest one I have seen measuring 16 feet from the tip of the nose to the tip of the tail. On an average 60 to 100 polar bear skins are obtained by the natives every season.

The dress of these people consists mainly of shirts, knee breeches, and pants made of deerskins. Men wear an inner and outer shirt with a hood trimmed with wolverine and wolf skin. In winter 2 shirts are worn, with long pants, the inner shirt with the hair next to the skin, the other with the hair turned out. Deerskin boots, with seal-hide soles, cover stockings of the same material. The spotted deerskins obtained from Siberia are used for shirts and are highly prized. At Point Barrow trimmings of wolverine skins in narrow strips decorate the garments that are very tastefully made by experienced operators. Women's garments differ from those worn by men in having their boots, stockings, and pants all combined in one piece, and their shirts are cut out at the sides, leaving a rounded front like an apron. The hoods of the shirt at the neck are cut full, permitting infants to be carried with ease. In the summer boots and pants of waterproof tanned sealskin are substituted for the deerskin articles. Shirts of squirrel, mink, and badger skins are also worn, and some of the old folks use duck or diver skins for making shirts, claiming that the garment is both warm and durable. All these people have a great desire to obtain civilized clothing for summer and indoor wear. These articles can be washed, and thus permit vermin to be killed. Women are eager to obtain drilling, calicoes, and other textile materials, using them to make up into underwear and shirts to cover their fancy deerskin clothing. While the brown duck, blanket-lined clothing used by white men living in these regions is an excellent and substantial article of apparel, the native style of deerskin clothing is by far the most appropriate to withstand the rigors of the arctic winter. Gloves and mittens of deerskin are also worn in the winter, with the hairy side turned inward.

Deer and other skins are prepared for clothing by the women, many of whom are experts. The pelt is divested of any blood-stained integuments, wetted and rolled into bundles, remaining in that state for one night. It is then hung up in the hut to dry, and afterward scraped with a greenstone instrument until perfectly smooth and even; then chalk or some finely powdered white stone is spread over, and again it is scraped until the skin becomes soft, white, and pliant. Sometimes the deerskins are colored reddish brown with a decoction of alder bark, or by means of a solution of red earth. Sealskins for pants and boots are similarly scraped, but the hides to be used for waterproof boots must be denuded of hair, and great care is taken to keep the skin pores intact and unbroken. Boot soles are chewed into shape by the women, and many take pride in turning out neat and well sewn articles. The boots sold to whalemen are made for that purpose during the winter months, and are sewed "to sell". Those made for the natives by their wives or sisters have care bestowed upon them, for should the boot show a sign of leaking or breaking the makers are speedily convinced of their bad work in a very forcible and expressive manner. The sinews of the deer backs and legs are used for thread, and needles of the pattern known as "glovers' needles" with three-cornered points are used for sewing.

Many of the women are experts in cutting and sewing garments, and their handiwork is distinguished by great care in the make-up of various articles.

The chief employment of the women during the winter months is dressing skins and sewing clothes, but as soon as the snow begins to melt in the spring, or just before the whaling season commences, all sewing is suspended, unless repairs of breakages in a garment or foot gear are absolutely necessary.

CHARACTERISTICS AND NAMES OF THE PEOPLE.

In facial appearance there are but slight differences among the Arctic Eskimo of Alaska. Those residing on Kotzebue sound are tall and somewhat lank, and have a thin, careworn expression. The people of the Nunatak, Kowak, and Kangich tribes are a very fine race with a splendid physique. They are the nomads of the country, wandering from place to place in pursuit of the herds of deer and other game. Full of life and energy, vigorous and courageous, these tribes are splendid specimens of a fast disappearing race. In their pursuits they stop at nothing to gain their end. Inveterate and hardy hunters, they climb hills and mountains, travel over valleys and dales for days, the women exhibiting similar traits of endurance. With their bold yet frank gaze, rosy and healthy looking appearance, and well-knit frames, they are easily distinguished from the coast natives.

The residents of the littoral are short and stumpy compared with these inland tribes. In height they average from 5 feet to 5 feet 6 inches. Their broad, grinning oleaginous features are familiar sights to the frequenters of the Arctic ocean. The natives of Cape Prince of Wales and Diomede islands have a similar cast of features, but somewhat more attractive and brighter than their northern brethren. I have noticed among the inland and Point Barrow natives marked types of the nasal formation seen among our North American Indians, thin, sensitive nostrils, semiaquiline noses, and a semioval form of face. The eyes, too, of both sexes, especially of those living inland, are soft and full of expression, with the iris of a deep brown color and black pupils. The hands and feet are small and of exquisite proportions, large extremities being rare. Generally their physiognomy partakes of the same facial peculiarities that distinguish the Mongolian races. High cheek bones, flat noses with extended nostrils, and large mouths. The color of the skin may be called brownish white, of an extremely light tint; indeed, if ablution was practiced the hue would scarcely be perceptible. Many of the young of both sexes are almost white, especially that portion of the body protected from the sun and wind. Spring, with its attendant glare, the sun striking upon the white mantle of snow, which acts as a reflector for its rays, is the period of the year when the faces and hands are tanned and burnt to such an extent that the complexion resembles that of a mulatto.

The mode of dressing the hair is worthy of notice, assimilating as it does with the style in vogue among the tribes of northeastern Asia. A circular patch on the crown of the head is closely cropped, leaving a fringe of hair hanging over the forehead, clipped in the manner known among ladies of civilized lands as "banged", the remaining portion of the hair hanging down in elf-like locks over the neck. In texture the hair is coarse and thick, black and dull in color, but dense in growth. Straggling and thin are the moustache and beard, that do not appear until the individual attains an adult age. The growth of hair upon the trunk is very small, this scantiness being remarkable when the quantity upon the head is taken into consideration.

One of the peculiar ornamentations of the males is that of slitting the corners of the mouth at the extremity of the lower lip. Transverse cuts are made of about a quarter of an inch in length, and into these incisions are inserted stone or bone labrets. Some of these labrets are of large size, but they vary from 1 to 3 inches as a general rule. This cutting of the face is, however, being gradually discontinued, the young boys having their faces free from mutilation.

Women adorn their faces with thin blue tattooed lines running in diverging or parallel order from the lower lip to the chin. These lines vary in number from the solitary 1 on the chin of a young girl to 20 or 30 on the chin of an old woman. When the female reaches puberty, after marriage on becoming a mother, or whenever directed by a shaman, these lines are increased in number. A thread of deer sinew rubbed with charcoal drawn under the skin serves to render these marks indelible, while the same method is also employed in tattooing rings and animal shapes upon the wrists and back of the hands of both sexes.

Beads are eagerly sought by the women, those prized the most being of a turquoise blue and of the size of a pea. Originally these beads were brought from the Asiatic coast by the Chukche for trading, but the Russians (who supplied the Chukche) upon entering the country entered into competition in the article, introducing it directly. Several of the beads I examined at various times are undoubtedly of Chinese origin, being manufactured of a species of vitrified ware common in the Kwangtung province. Beads obtained in early days, as well as those manufactured by the natives themselves from a stone of light blue color, are handed down for many generations, being regarded as heirlooms. Strings of these large beads intermingled with the smaller ones around the neck, from ear to ear under the chin, are the style in which these ornaments are used. Some of the younger girls have holes through the cartilage of the nose through which a single bead on a small wire is strung, but the custom is gradually dying out.

Bangles of iron and copper wire and narrow bands of mink skin are worn around the arms. The wire left by the Western Union telegraph expedition at Port Clarence in 1867 was utilized for making these wristlets. Quarter

dollars are filed and hammered into rings and worn by both sexes. The possessor of a well-made parka of choice deerskin is esteemed as a fortunate individual. Small dentalium shells are worn as earrings, but their use is dying out. Some girls wear earrings of ivory inlaid with the turquoise beads before mentioned. The labrets used by men are made from cannel coal, ivory, glass stoppers, and the most highly prized are those consisting of a flat oval piece of ivory having a large blue bead held in position by means of pitch or spruce gum. In shape these labrets resemble an inverted hat, the rim sticking into the orifice cut in the lip.

Those having good records as whalemen have lines tattooed from the corners of the mouth to the chin, varying from 5 to 6 lines on either side, according to the number of whales they have killed.

Women when young have rosy cheeks, with bright, sparkling eyes, and would certainly be comely if attention to cleanly habits became a practice. Twisted in 2 long plaits, bound at the end with a strip of fur, and hanging down to the neck, the long hair of the women in nowise differs in texture or color from the men's hirsute appendages.

While young and unmarried their figures are well rounded and inclined to embonpoint, but as soon as they assume the dignity of maternity haggard, sallow, and attenuated forms and faces become the rule.

Mackenzie river and Herschel island women wear their hair in 2 large rolls forward of the ears bound with strings of red, white, and blue beads.

Proceeding to the systems adopted in the Mahlemiut nomenclature I here give a few of the names. It will be observed that in every instance these names denote animate or inanimate objects or peculiarities of individuals. There is no such custom as that of a family name descending to heirs, each individual, he or she, having separate cognomens. But one peculiarity is to be noted. Should a person be deaf or dumb or deformed the word denoting such peculiarity serves to indicate the individual. As an instance, I may state that a deaf and dumb man who resided at the village where I visited in 1880 was known by every man, woman, and child living within a radius of 1,000 miles. This knowledge may be accounted for by the fact that the affliction is rare among these people. I saw a blind individual who by reason of his infirmity is equally celebrated. Strange to say, both of these men are gifted with skill above the ordinary attainments of their fellows. The blind man weaves the finest straw bags and mats and twists sealgut into fish lines which are eagerly sought for by the villagers, while my deaf and dumb friend was looked upon as being an extremely expert hunter, maker of snowshoes, spears, traps, and kayaks, and generally a good worker.

The following are a few of the names of Indians, with the meaning in English:

MALES.

Tach-ah-rak	A knot in wood.
Nap-i-ying-ach	Straight.
Metig-i-lach	To spring back when bent.
Kigich-tow-rook	An island.
Kin-u-ran	To want or covet.
Kagoo-rach	A hammer.
Ach-a-pack	To be agile, or agile.
Kah-le-ak	A protector or chief.
Tipoo-chak	White fish.
Ah-kum-chran	To lift the lower part of the fur shirt.
Kal-oo-chrak	A hand net.

FEMALES.

May-yook	To ascend.
See-woo-ak	Mountain with trees.
Kig-wha-look	Muskrat.
Marchan	An edible root.
Kyoothlik	Black fish.
Now-nak	The northern thistle.

All these people are intelligent, the women particularly so, readily grasping ideas and having good natural abilities. Their temperament is a mixture of stolidity and stubbornness. Affection for their offspring and clinging to individuals that they conceive a liking for are prominent traits of their character. They are, however, devoid of gratitude, knowing no other motive than selfishness. As a general rule they do not part with anything unless with the expectation of a double remuneration in the future. But to this statement exceptions must be made in particular cases, especially among some of the Point Barrow people. Any man can have their friendship by giving them what they ask for. They are, as a rule, honest and truthful in their dealings. On board of vessels they will steal articles, but I have never known them to commit thefts at the trading stations, unless it be some small trinket or article of small value. The sailors on the whaling ships steal furs, boots, and any article they can from the natives, and it is small wonder that they retaliate. Anything stolen in the settlements can easily be traced, as it is not in their nature to keep the slightest occurrence secret. Up to the present time there is no white man that can equal their capacity for hunting, fishing, sealing, or shore whaling, and upon this standard they judge those with whom they have come in contact. Generally I find that those natives who have been brought in contact with whaling ships and the class of uneducated white residents at the stations are the worst to have dealings with. On the whole, the people are hospitable and goodhearted, and are, in the situation that nature has placed them, on a par with any uncivilized race.

CHAPTER X.

THE INDIANS OF ALASKA.

Though there is room for doubt as to whether the natives of Alaska may properly be designated as Indians, they have been classed as such for the purpose of enumeration. Congress has not as yet given to the natives of Alaska a definite political status. In government reports and documents they have been variously described, either by the collective term of Indian or by their tribal names. But a small proportion of the aboriginal people of Alaska belong to the family known as North American Indians. If we distinguish the natives of Alaska by linguistic stocks, we find 5 existing in the territory, which may be arranged in accordance with their numerical strength as follows:

The linguistic stock best represented in Alaska is the so-called Eskimauan, comprising all of the Eskimo tribes which inhabit the coast of Alaska in an almost uninterrupted line of settlements from the mouth of the Copper river to Bering strait, and thence eastward to the British boundary, including also the tribe known as the Aleutians, whose language, through some as yet unexplained intermixture or combination, has become totally differentiated from all other Eskimauan languages.

Next in numerical strength and probably of equal social and political importance are the tribes belonging to the Koluschan stock, including all the various subdivisions of the Thlingit (Thlinket) family.

The Thlingit tribes are to-day probably the best known among Alaskan natives through constant and intimate contact with our people, who invest or labor in the mines and fisheries of the Southeastern district, or reap a surer harvest by supplying others with the necessaries and luxuries of life. As the Thlingit appear to have no objection to labor for their own support, and as they easily adopt our customs and mode of life, they will probably be the first among Alaska natives to become absorbed in our political system without the probationary interval of reservation life as the nation's wards, through which our plains and western Indians are now passing.

The third linguistic stock found in Alaska is the Athapascan, comprising tribes very near of kin to many of the well known North American Indians in the United States and the Dominion of Canada. The Athapascan tribes of Alaska are numerically weak and widely scattered, and it is doubtful whether they will be absorbed in our political family before contact with whites and change of surroundings reduce their number sufficiently to relegate them to utter insignificance as a factor of our population. This would be a pity, as they are not only willing but anxious to adopt the white man's ways and lead industrious lives according to their light.

The fourth linguistic stock existing in our northern territory is of foreign importation. It is classed by the bureau of ethnology as the Chimmesyan, and is confined to a single tribe, the Tsimpsean, who abandoned their home in British Columbia for a settlement in Alaska a few years ago.

The fifth linguistic stock, the Skittagetan, is represented by less than 400 people, known as Haidas, who inhabit Prince of Wales island.

The various tribes which make up these linguistic families have been treated in detail in the monographs describing the 7 districts of Alaska, but a few remarks explanatory of the tables contained in this chapter may not be considered superfluous. As stated above, the Eskimo family is numerically strongest in Alaska. A single tribe, the Kuskwogmiut, numbers but a few less than the whole Athapascan family, and including the Aleutians, who formerly were enumerated separately, we find a total of 14,012 Eskimo in Alaska, more than three times the number of the Thlingits, the next largest tribe. On the strength of numbers alone the Eskimo should be the predominant native element in the Alaska of the future if they can survive the contact with civilization which has so generally proved fatal to savage tribes.

According to numerical strength the Eskimo tribes may be arranged as follows:

Kuskwogmiut	3,287	Chugachigmiut	433	Nushagagmiut	170
Magmiut	2,147	Kaviagmiut	427	Nuwukmiut	143
Kaniagmiut	1,154	Tikera	295	Unaligmiut	110
Aleut (Unangan)	968	Umudjek	267	Kuangmiut	81
Aglemiut	767	Kiatagmiut	214	Kukpaurungmiut	52
Nunivagmiut	702	Ukivokmiut	200	Utuka	48
Kinegan	652	Utkeagvik	193	Sidarú	47
Mahlemiut	630	Togiagmiut	190	Nunatogmiut	42
Chnagmiut	621	Kwikhpagmiut	172		

In regard to the habitat or location of the tribes of the Eskimo family in Alaska our information begins at present with the neighborhood of Point Barrow. We know that a few scattered bands of Eskimo have been found encamped on the Arctic shore between the British boundary and our northernmost cape, but such knowledge as we possess concerning them is altogether insufficient for classification. From Dease inlet westward between longitude 156° and 157° we find the tribe of Nuwukmiut with its principal settlement in the vicinity of the cape. Mr. William H. Dall, in his "Contributions to North American Ethnology", gives to all the tribes from the boundary westward of Cape Krusenstern the name of Kangmaligmiut, but more recent explorations enable us to distinguish as many as 8 tribes within these limits. Adjoining the Nuwukmiut on the west we find the Utkeagvik occupying the coast to longitude 158°. Next, between longitude 158° and 160°, comes the Sidarú tribe, also known as Sezarok. From this point westward to longitude 164° the coast is occupied by the Utuka and the Kukpaurungmiut. The large territory between longitude 164° and 167°, including the peninsula formed by Cape Lisburne and Point Hope, is inhabited by the Tikera tribe or Tigeramiut. Mr. John W. Kelly, who had charge of the enumeration of the Arctic tribes, and Mr. Henry D. Woolfe, the author of the monograph on the Arctic district included in this report, speak of a tribe inhabiting the country south and east of the Tikera, the Kevalingamiut, who are described as leading a nomadic life and mingling with other tribes. It was probably owing to the latter peculiarity that these people were not distinguished in our enumeration.

On the shores of Kotzebue sound and on the rivers emptying into this large estuary we find the Nunatogmiut, formerly designated as the Noatuk, and the Kuangmiut (identical with the former Kowak and Koovuk). All of these tribes were included in Mr. Dall's division of Kopagmiut, a term applicable to any people inhabiting the river valleys, meaning big river people.

On various points of Kotzebue sound the Mahlemiut have established themselves in temporary and permanent settlements, and during the summer season this region is visited by various other tribes from Norton sound, Cape Prince of Wales, the Diomede islands, and even from the coast of Siberia, who come for the purpose of barter and social enjoyment. These assemblages cause an intermingling of races and families, the effects of which are puzzling to students of ethnology.

The most numerous among the Arctic Eskimo tribes and best known to our whalemen and traders is the Kinegan, also known as Kingigumiut of Dall and others. Their principal settlement is at Cape Prince of Wales, but representatives of the tribe can be found scattered throughout the Arctic seacoast, Bering strait, and on the Siberian coast during the whaling and trading season.

The large peninsula formed by the waters of Kotzebue and Norton sounds, exclusive of the settlement of our westernmost cape just mentioned, is inhabited by the Kaviagmiut (known also as Kaveagmiut and Kaviarongmiut). A small branch of this tribe inhabiting Sledge island, on the coast immediately opposite, distinguishes itself by the name of Aziagmiut.

The inhabitants of Ignaluk, on the American Diomede island, belong to the Kinegan tribe.

St. Lawrence island is inhabited by the Umudjek tribe, whose language and customs have been somewhat affected by intercourse with the coast and interior people of northeastern Siberia.

The residents of the small island of Ukivok (King island) consider themselves a separate tribe under the name of Ukivokmiut, though their language is almost identical with that of the Kaviagmiut. The word Kaviak, in one form or another, signifies "red fox" in all the Eskimo dialects; it is also used quite generally to designate the red-fox skins used as a circulating medium, the equivalent of one American dollar.

The shores of Norton sound and the northern portion of the Yukon delta are inhabited by 4 tribes—the Kaviagmiut in the north, adjoining the Unaligmiut, holding the eastern shore of the sound, and the Chnagmiut, occupying villages on the delta. Scattered among these we find the once powerful tribe of Mahlemiut.

The villages of the southern part of the Yukon delta and of both banks of the Yukon river as far as Rasboinik village on the south and Andreafsky on the north are inhabited by the Chnagmiut tribe. Adjoining these in the east we find the Kwikhpagmiut, also known as the Ikogmiut (from the village and Russian mission of that name). The Kwikhpagmiut occupy both banks of the river to its junction with the Chageluk, the site of the Roman Catholic mission of the Holy Cross and the eastern limit of Eskimo population on the Yukon.

The great delta land of alluvial soil formed by the rivers Yukon and Kuskokwim, with its vast extent of tundra, hundreds of lakes and sluggish tidal channels, is thickly peopled by the Magmiut tribe (mink people). The inhabitants of the villages in the neighborhood of Cape Vancouver were formerly known under the local name of Kaialigumiut.

The northern and southern limits of the Magmiut on the coast of the delta are the capes Rumiantzof and Avinof.

The Nunivagmiut, numbering a little over 700, inhabit the large island of Nunivak, and a small offshoot of this tribe has been reported as existing on the Kashunuk branch of the Yukon river.

Both the Magmiut and Nunivagmiut are closely allied in linguistic and ethnologic features to their eastern neighbor the Kuskwogmiut, the largest tribe of the Eskimo family.

The western limit of the Kuskwogmiut tribe may be described by a line drawn from Cape Avinof northward along the 165th meridian to its point of intersection with the Kvichavak river. The northern boundary of the tribe runs eastward along the course of the river just named and on the north bank of the Kuskokwim from Kaltkagamiut to Ulokagmiut. To the eastward the Kuskwogmiut tribe is bounded by a line running in a southwesterly direction from the last named point to Cape Pierce, on Bering sea.

The Togiagmiut occupy the basin and lake system of the Togiak river, being separated in the east by a low watershed and a chain of lakes from the adjoining tribe, which the Russians named Nushagagmiut, though their own designation is Tahlekukmiut (Tahlekuk-Nushagak river).

The interior region, including the upper course of the Nushagak river, the Mulchutna river, the western half of Lake Iliamna, and its outlet, the Kvichak river, is occupied by the Kiatagmiut tribe, named Kiatentz by the Russians.

From the head of Bristol bay southward and westward the northern slope of the Alaskan peninsula is dotted with scattered settlements of the Aglemiut tribe, the southernmost of which is Unangashik, situated on the north shore of Port Hayden.

The Aleut tribe, of somewhat doubtful origin and differing entirely in language from its immediate neighbors, has been classed by our most competent authorities on ethnology as belonging to the Eskimo family. The territory occupied by the Aleuts extends westward from the 159th meridian for a distance of more than 1,000 miles to the island of Attu, including also the Shumagin and Pribilof groups of islands. Their own tribal designation is Unangan (Unungan of Dall). The only historical traditions collected concerning these people by the Russians speak of hostility and warfare existing between them and their eastern and northern Eskimo neighbors.

The Kaniagmiut tribe, once powerful and warlike, the first to offer effective resistance to the advance of the Russian fur hunters, still occupies the territory invaded by Glottof and Shelikhof during the last half of the eighteenth century. Their settlements extend from Mitrofania in the south to Seldovia on the Kenai peninsula in the north, their principal villages being located on the Kadiak group of islands. The Kaniagmiut, to whom the Russians applied the name of Aleut, were of great service to the conquerors in extending their territory eastward into the Thlingit regions of the Alexander archipelago.

The easternmost tribe of the Eskimo family is known as the Chugachigmiut, occupying the shores and islands of Prince William sound.

A small tribe of natives settled on the Copper river delta has undergone a process of gradual transformation ever since the Russians began to occupy that portion of the coast with their hunting and trading stations. Previous to the arrival of the Russians the Thlingit and Eskimo did not intermingle peaceably, though some Eskimo women were obtained by the Thlingit during hostile raids and plundering expeditions; but when these were repressed through Russian influence a system of intermarriage was inaugurated, which has been maintained to the present day. During the process of transformation this small tribe was classed with the Eskimo and named by the Russians Ugalentz. In the course of my investigations connected with the Tenth Census it became evident to me that the Thlingit element was rapidly gaining the upper hand, and that a change of classification would become necessary in the near future. The time for this change has now arrived and the Ugalentz tribe has been incorporated with the Thlingit family.

In reference to the use of the term Eskimo in preference to others, it is necessary to state that the tribal name of Innuit frequently applied to these people has been abandoned in the interest of uniformity and in deference to the action of both the American and British Associations for the Advancement of Science. These scientific bodies have decided that priority must prevail, and that the name first given to a race or tribe in scientific classification must be retained. The meaning of the word Eskimo is obscure and altogether unsatisfactory, while on the other hand we know that the term Innuit was derived from a root signifying man in nearly all Eskimo dialects. We find it in the form of Innūk, Niūk, Yūk, Yūt, Yuït, Liūt, and Liūk, the plural being generally formed in ing or yüin, with a collective form ending in t, standing for people. In the Chugachigmiut dialect a sibilant or rather the sound of sh has been added to this root. With them the word for people is shuït or shvit (from shiūk, man). During my journeys throughout Alaska I found the word yuït most generally understood for the word people, and the word nunet for a collection of dwellings or a village. The words owk (blood) and kayak (skin canoe) are used by every Eskimo tribe from Greenland to Prince William sound, and several of their

numerals are also universally used. The name for their open skin boat varies from oomiak of the eastern Eskimo to angeyok of the Nunivagmiut. The term of nulegha (wife) is also found in nearly every dialect.

The Athapascan tribes of Alaska, encompassed on all sides but the east by a girdle of Eskimo, claim our attention next. These tribes, formerly classified as Tinneh, occupy the entire interior of the territory north of the 60th degree of latitude. They are the westernmost representatives of the people known to us as the North American Indians, who seem to have advanced along the course of the Yukon river and settled upon its tributaries until stopped by the dense Eskimo population of the coast regions. From the Yukon valley they branch off to the southward, occupying the upper Kuskokwim valley, the rivers emptying into Cook inlet and the Copper river to within a few miles of its mouth.

For the purpose of enumeration I have consolidated a number of small roving tribes under the general term of Kutchin, embracing all those formerly distinguished as Natsit-Kutchin, Han-Kutchin, Nehaunees, Yukonikhotana, and Yunnakakhotana. The Kutchin tribes as we group them now occupy the territory drained by the Upper Yukon and Porcupine rivers within our boundaries and their tributaries east of the ramparts of the Yukon river. West of this point we find the Tena-Kutchin inhabiting the villages on the Tanana river in the south, and in the north the Koyukukhotana settled upon the banks of the Koyukuk river and also occupying a few villages on the Yukon.

The banks of the Yukon between Nulato and Kozerevsky are settled on both sides by the Athapascan tribes, known to us under the general designation of Ingalik (a word of Eskimo origin). The Ingalik differ from their kinsmen of the interior in depending almost wholly upon fish for their subsistence and in being addicted to the use of oil as an article of food. They have always mixed to a certain extent with their Eskimo neighbors and adopted many of their habits, though until within recent times they were habitually at war with each other.

Adjoining the Ingalik in the east we find the Kuilchana tribe (Koltshane of the Russians) leading a somewhat nomadic life in the central region drained by the Innoko, Tlegon, and Chageluk rivers in the north and the headwaters of the Kuskokwim river in the south. They form a small remnant of about 300 individuals, who have but little intercourse with neighboring tribes.

As far as known at this day the eastern neighbors of the Kuilchana are the Tnaina or Knaiokhotana, known to the Russians as the Kenaitz. The Tnaina inhabit the shores of Cook inlet down to Lake Clark and Iliamna in the west and Anchor point in the east. Their inland settlements are located at Lake Clark and Iliamna, on Skillakh lake, and on the banks of the Kinik and Sushitna rivers. Between these people and the Kuilchanas on the Upper Kuskokwim there still exists a quite extensive region of unexplored country, which may be inhabited by roving bands of natives.

The Copper river basin is inhabited by the Athapascan tribe of Atna or Atnatena, known to the Russians as Mednovtze or Copper river Indians. The Atna people are numerically insignificant, but their geographical position within reach of the principal southern tributary of the Yukon, as well as of the waters flowing into Cook inlet and Prince William sound, invested them with considerable importance in the times prior to the appearance of the white man upon the scene. They still keep up a desultory intercourse with the Tena-Kutchin and the Tnaina.

This ends our list of Athapascan tribes in Alaska. The former designation of this family, the Tinneh, was based upon a linguistic root common to all the tribes. The words khotana, kokhtana, tena, and kutchin may all be traced to the same origin of ten, tan, or tin, signifying man, in all the Athapascan dialects of Alaska.

The Thlingit tribes belonging to the Koluschan linguistic stock have been discussed at length in another chapter of this report. They occupy the coast and most of the islands from the mouth of the Copper river to the southern boundary of the territory.

The Ugalentz, previously referred to in this chapter, form the westernmost subdivision of this important family, extending eastward to Controller bay. Adjoining them we find the Yaktag tribe inhabiting the coast between Cape Suckling and Cape Yaktag. The once powerful Yakutat tribe, which at the beginning of this century battled successfully with the Russians, still occupies the shores of the bay named after them and the coast eastward to Lituya bay.

The recent explorations of Mr. E. J. Glave have informed us of the existence of several roving bands of Indians in the interior beyond the high coast range of mountains. Mr. Glave calls them the Gunena, but as their habitat is not definitely known and may be within British possessions no attempt was made to enumerate them.

The Chilkat tribe, formerly warlike and much feared by the Russians, inhabits the upper portion of Lynn canal and the valleys of the Chilkat and Taya rivers. Until recently they occupied the profitable position of middlemen between the white traders and the interior Athapascan or Stick Indians. Much of their ancient glory has now departed, but they may still be considered a numerous and wealthy tribe, showing much independence in their attitude toward the whites.

The settlements of the Huna tribe are now confined to the north side of Chichagof island and a few points on the coast of Cross sound.

The north end of Admiralty island, Douglas island, and the vicinity of the town of Juneau are the original homes of the Auk tribe, which contact with civilization has reduced to less than 300. Their neighbors in the south are the Takus, now reduced to a few hundred, but once a powerful tribe whose hunting and trading grounds extended

far into the British Possessions. Their territory extends along the coast of the main land to Holkham bay and the Sumdum villages.

West of the Taku tribe we find the Hutznahu tribe settled on Admiralty island. But a few years ago this tribe defied the military power of the United States, but being somewhat roughly handled then they have given no further trouble. The Hutznahu tribe still numbers nearly 500.

The most important and most numerous tribe of the Thlingit family is that known as the Sitka-Kwan, inhabiting the immediate vicinity of Sitka and points on Baranof island. Individuals of this tribe are also found in nearly every portion of the Southeastern district, engaged in trade or labor.

The settlements of the once much dreaded Kake tribe of the Thlingit family are confined to Kupreanoff island and the group known as the Kake archipelago, of which Kuiu is the largest. Of this tribe but 234 were enumerated in 1890.

The Stakin tribe, now living on Wrangell and Etolin islands, once occupied the adjoining coast of the main land and the mouth of the Stikine river. In times past they were among the most formidable rivals of the Sitkans, and later they knew how to derive the greatest advantage between the competing Russian American and Hudson Bay companies. They still earn considerable money by packing and freighting for the Stikine miners.

The southernmost branch of the Thlingit family is the Tongass tribe, inhabiting Cape Fox, Fort Tongass, and adjoining country.

Of Prince of Wales island the Thlingit occupy only the northern section, the Hanega tribe having its villages there. Numbering less than 300, they are chiefly found around the sawmill of Chican and the fishing and trading station of Klawak.

This concludes the list of tribes of the Thlingit family, which as a whole number not quite 4,800 individuals.

The southern half of Prince of Wales island is peopled by the Haida, a tribe belonging to the Skittagetan linguistic stock, and closely related to the natives of Queen Charlotte islands of British Columbia. They were formerly a numerous and powerful tribe, the members of which could be found throughout the Alexander archipelago. A branch of this tribe settled among the Thlingit at Sitka, living there under a chief of their own, and the last representative of this ruling family, a woman, died but a few years ago.

The last and latest of the Alaskan tribes, the Tsimpseans, living on Annette island, are fully described in another chapter. They belong to the Chimmesyan linguistic stock. They have but recently migrated from British Columbia to Alaska.

Table 8, accompanying this chapter, exhibits the distribution of the Indian population in the census districts as we find it, divided into 5 great families or linguistic stocks. 2 of these, the Tsimpsean and Haida tribes, in the extreme southeast of the territory, are only detached colonies of larger tribes whose original habitat is within the lines of British Columbia. Of the other 3 the Eskimo are almost double in numbers the 2 remaining families, the Thlingit and Athapascans. In the total of 23,531 Indians the males exceed the females by less than 1,000.

In the Southeastern district 3 linguistic stocks are represented (Table 1), the Koluschan stock, composed of 11 tribes or local subdivisions, is here in a large majority, outnumbering the other 2 combined by three-fourths. All 3 families show a slight excess of males over females, but the ratio varies much in various tribes and localities.

In the second or Kadiak district (Table 2), 3 linguistic stocks are represented, the Eskimo leading the Athapascans by one-half and the Thlingits by seven-eighths. In both of the former families the males outnumber the females, as is generally the case in native tribes which have had much intercourse with Caucasians. Also the Atna or Copper river Indians may be cited, where the males number one-third more than the females, though but few of them, and those only men, emerge from their mountain fastnesses for purpose of trade.

The third or Unalaska district (Table 3) contains but 1 tribe of the Eskimo family, the Aleutians, who have been in intimate contact with Caucasians for over a century. The slight excess of females in this tribe is probably caused by frequent loss of life by drowning among the bold sea-otter hunters in the stormy waters of the district.

In the fourth or Nushagak district (Table 4), the Athapascan native element is quite insignificant in numbers, being represented by a small branch of the Knaiokhotana or Tnaina tribes, which has separated from their kinsmen on the shores of Cook inlet and founded new homes in the recently discovered mountain region about Lake Clark and the Noghelin river. Among the Eskimo tribes of the district the Kuskwogmiut and Aglemiut predominate in numbers. Living as they are, for the most part, still very nearly in their aboriginal condition, the sexes are evenly divided among them, the most primitive tribe, the Togiagmiut, counting 95 males and 95 females.

The fifth or Kuskokwim district (Table 5) is occupied almost wholly by Eskimo tribes, less than 400 out of a total of 5,640 natives belonging to the Ingalik and Kuilchana tribes of Athapascan stock. Nearly all the Eskimo live undisturbed by white men. They maintain their primitive customs and the sexes are evenly divided.

In the sixth or Yukon district (Table 6) Athapascan tribes exceed those of the Eskimo family in numerical strength. In 2 of the former, the Ingalik and the Koyukukhotana, a slight excess of females over males was discovered. In the whole district, containing 3,583 natives, the males outnumber the females by a little more than 100.

In the seventh or Arctic district (Table 7) the 14 scattered tribes are of one stock, the Eskimauan. The excess of males over females is but 103, and as a rule the sexes are very evenly divided.

TABLE 1.—INDIANS OF SOUTHEASTERN DISTRICT.

TRIBES.	Linguistic stock.	Total.	Male.	Female.
Aggregate		5,834	3,054	2,780
Thlingit	Koluschan	4,491	2,331	2,160
Auk		279	145	134
Chilkat		812	420	392
Hanega		262	152	110
Huna		592	283	309
Hutznahu		420	235	185
Kake		234	114	120
Sitka		814	427	387
Taku		223	114	109
Stakin		255	135	120
Tongass		255	137	118
Yakutat		345	169	176
Tsimpsean	Chimmesyan	952	510	442
Haida	Skittagetan	391	213	178

TABLE 2.—INDIANS OF KADIAK DISTRICT.

Aggregate		2,782	1,494	1,288
Athapascan	Athapascan	866	487	379
Atna		142	89	53
Knaiokhotana (Tnaina)		724	398	326
Eskimo	Eskimauan	1,670	881	789
Aglemiut		83	46	37
Chugachigmiut		433	217	216
Kaniagmiut		1,154	618	536
Thlingit	Koluschan	246	126	120
Sitka		1	1	.....
Ugalentz		154	78	76
Yaktag		82	44	38
Yakutat		9	3	6

TABLE 3.—INDIANS OF UNALASKA DISTRICT.

Aleut (Unangan)	Eskimauan	967	456	511

TABLE 4.—INDIANS OF NUSHAGAK DISTRICT.

Aggregate		1,996	1,008	988
Athapascan	Athapascan	43	24	19
Ingalik		1	.....	1
Knaiokhotana (Tnaina)		42	24	18
Eskimo	Eskimauan	1,953	984	969
Aleut		1	.....	1
Aglemiut		651	322	329
Kiatagmiut		214	116	98
Kuskwogmiut		727	370	357
Nushagagmiut		170	81	89
Togiagmiut		190	95	95

TABLE 5.—INDIANS OF KUSKOKWIM DISTRICT.

TRIBES.	Linguistic stock.	Total.	Male.	Female.
Aggregate		5,640	2,830	2,810
Eskimo	Eskimauan	5,254	2,617	2,637
Aglemiut		1	1	.....
Kuskwogmiut		2,546	1,238	1,308
Magmiut		1,990	1,017	973
Mahlemiut		15	11	4
Nunivagmiut		702	350	352
Athapascan	Athapascan	386	213	173
Ingalik		210	122	88
Kuilchana		176	91	85

TABLE 6.—INDIANS OF YUKON DISTRICT.

Aggregate		3,583	1,847	1,736
Athapascan	Athapascan	2,144	1,098	1,046
Ingalik		635	312	323
Kuilchana		118	65	53
Koyukukhotana		502	242	260
Kutchin		580	308	272
Tena-Kutchin		309	171	138
Eskimo	Eskimauan	1,439	749	690
Aglemiut		32	15	17
Chnagmiut		621	329	292
Kaviagmiut		34	19	15
Kuskwogmiut		14	6	8
Kwikhpagmiut		172	95	77
Magmiut		157	77	80
Mahlemiut		325	160	165
Unaligmiut		84	48	36

TABLE 7.—INDIANS OF ARCTIC DISTRICT.

Aggregate		2,729	1,416	1,313
Eskimo	Eskimauan	2,729	1,416	1,313
Kaviagmiut		393	207	186
Kinegan		652	347	305
Kuangmiut		81	43	38
Kukpaurungmiut		52	32	20
Mahlemiut		290	140	150
Nunatogmiut		42	22	20
Nuwukmiut		143	82	61
Sidarú		47	23	24
Tikera		295	150	145
Ukivokmiut		200	100	100
Umudjek		267	136	131
Unaligmiut		26	13	13
Utkeagvik		193	94	99
Utuka		48	27	21

TABLE 8.—INDIAN POPULATION, BY LINGUISTIC STOCKS AND DISTRICTS.

DISTRICTS.	POPULATION.			ESKIMAUAN (ESKIMO).			ATHAPASCAN.			KOLUSCHAN (THLINGIT).			CHIMMESYAN (TSIMPSEAN).			SKITTAGETAN (HAIDA).		
	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.
The Territory	23,531	12,105	11,426	14,012	7,103	6,909	3,439	1,822	1,617	4,737	2,457	2,280	952	510	442	391	213	178
1. Southeastern	5,834	3,054	2,780	.....	.....	.....	.....	.....	.....	4,491	2,331	2,160	952	510	442	391	213	178
2. Kadiak	2,782	1,494	1,288	1,670	881	789	866	487	379	246	126	120	.....	.....	.....	.....	.....	.....
3. Unalaska	967	456	511	967	456	511	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
4. Nushagak	1,996	1,008	988	1,953	984	969	43	24	19	.....	.....	.....	.....	.....	.....	.....	.....	.....
5. Kuskokwim	5,640	2,830	2,810	5,254	2,617	2,637	386	213	173	.....	.....	.....	.....	.....	.....	.....	.....	.....
6. Yukon	3,583	1,847	1,736	1,439	749	690	2,144	1,098	1,046	.....	.....	.....	.....	.....	.....	.....	.....	.....
7. Arctic	2,729	1,416	1,313	2,729	1,416	1,313	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

CHAPTER XI.

VILLAGES, HOMES, FAMILIES, AND CONJUGAL CONDITION.

The villages, settlements, stations, vessels, etc., enumerated in Alaska for the census of 1890, number 511, but in order to simplify tabulation and to avoid as much as possible too small units of enumeration, adjoining small settlements and camps, vessels in harbors, etc., have been grouped, and the number of distinct localities reduced to 309. A list of all such groupings and combinations, by districts, is appended for reference.

FIRST DISTRICT.

AUK SETTLEMENTS represent schedules from the native villages on Douglas island and in the vicinity of Juneau.
BERNERS BAY includes Seward city.
BURROUGHS BAY embraces Burroughs bay cannery, Cape Lee Packing Company, native settlement, and summer village.
DOUGLAS CITY includes also the Treadwell mine.
FISH BAY includes Silver bay station.
FORT TONGASS includes summer settlement, fishing station, Turks saltery, and Smeaton bay.
HUNA includes Hot Springs settlement.
JUNEAU includes Silver creek, Sheep creek, Silver Bow basin, and United States steamer Patterson.
KASSAN includes Carter bay saltery.
KLAWAK includes native Haida village adjoining.
KLINQUAN includes Hunters bay village.
LORING includes several fishing camps of natives.
POINT BARRIE includes Wrangell narrows saltery.
SUMDUM includes Port Houghton camps.
WRANGELL includes Chantay farming settlement and Labouchere cannery.
YAKUTAT includes native villages at Dry bay and Lituya.

SECOND DISTRICT.

AFOGNAK represents also schedules from Little Afognak, Cattance, and 2 canneries.
ALAGANAK includes the native camp of Lookta-ek.
ALITAK includes the village of Akhiok and cannery on Olga bay.
CAPE DOUGLAS includes Kukak village.
ISHA includes Ishani station.
LAKE VILLAGE includes 2 other Copper river settlements.
NINILCHIK includes native village of Laida, Anchor point mining camp, and Treadwell coal mine.
SUSHITNA includes 2 other villages on the Sushitna river.
TATITLAK includes Creole settlement on Cordova bay.
UZINKEE includes Yelovoi village.
WINGHAM ISLAND includes Cape Martin station and Chilkaht settlement on Controller bay.

THIRD DISTRICT

BELKOVSKY represents schedules also from East bay.
COAL HARBOR includes Logan station.
KOROVINSKY includes Henderson island.
MORZHOVOI includes native village and schooners Olga, Lewis, and Emma.
OZERNOI STATION includes Herendeen bay coal mine.
POPOF ISLAND includes Pirate cove codfishing station, with schooners Trapper and Unga; Sand point station, with schooners Alexandria, C. H. White, San Diego, C. N. Smart, Kate and Annie, James Hamilton, City of San Diego, and Red Cove fishing station.
SANNAK includes Old Settlement, Pavlof harbor, Golden Gate Packing Company, Leonard's harbor, McLaughlin's island, Schell's island, and schooners Helen Blum, F. F. Feeney, Nor'west, Hera, and Spencer F. Baird.
SEMENOVSKY includes Chernobura island.
THIN POINT includes 2 canneries and Cold bay salting station.
UNALASKA includes Dutch harbor, steamers Arago and Dora, and schooners Nellie Martin, Pearl, and Matthew Turner.
UNGA includes Oakland fishing station, Apollo mine, and Squaw Harbor mine.

FOURTH DISTRICT.

CARMEL includes Carmel mission and native settlement, Togiak settlement, and Arctic Packing Company's cannery.
KINUYAK includes native village on Lake Walker (Naknek lake).
NOGHELINGAMIUT includes village of Noghelin Painga.
NUSHAGAK includes station, Nushagak cannery, and Hunters camp.
UGASHIK includes 2 native settlements and Bering Sea Packing Company.

FIFTH DISTRICT.

BETHEL includes the Moravian mission and a native settlement.
KIKIKHTAGAMIUT includes the small villages of Angachogamiut, Woskowolagmiut, and Chochanak-chogwik.
KLUTAGMIUT includes the small village of Talkichagagamiut.

SIXTH DISTRICT.

ANVIK represents schedules from Anvik mission and station and the native villages of Anvik and Kaltag.
DAVIDS CAMP includes the native village of Klot-ol-tin.
IKOGMIUT includes native village and Russian mission of Pokrovskaia.
MITCHELL POST OFFICE includes McQuestons station and miners' camps on Forty Mile creek.
NOTALOTEN includes native village of Notalitak.
NOWIKAKET includes village of Mekitme-kozen.
NULATO includes Nulato mission of St. Claver and native villages of Kl-to-nitzi, Ert-lit-tak, and Hotokotin.
ST. MICHAEL includes a camp of miners and the native village of Tachik.
SAKATALODEN includes two Indian fishing camps and the village of Kovavatu.
SUMMER CAMP includes one Indian camp at Fort Yukon and one a few miles below.
YUKOKAKAT includes the small villages of Melozikakat and Menelrahtzato.

SEVENTH DISTRICT.

CAPE KRUSENSTERN represents schedules from native settlements of Ulezaramiut, Kevalinge, and Tikerana.
CAPE NOME includes native villages of Kogluk and Ahyoksekawik.
CAPE SMYTHE includes refuge and whaling stations at the cape, the villages of Utkeavie, Pengnok, and on Kugaru river, 3 camps southeast of Cape Smythe, and 1 on lake south of Utkeavie, and the whaling steamer Balaena.
GOLOFNIN BAY includes native villages of Siningmon, Netsekawik, Ukodlint, and Chillimiut.
ICY CAPE includes native villages of Kelamanturuk, Utuka, and Kaiaksekawik.
NORTON SOUND SETTLEMENTS comprise a large number of small settlements, as follows: Orowinarak, Quikak, Aniluk, Angaktolet, Quiuk, Newothliket, Konerkat, Impuit, Origneak, Keek, Upiktalik, Ongatuk, Unumahok, Ikekik, Arinik, Natoket, Kuyuktolik, and Tap-hok.
POINT BARROW includes the refuge and whaling station, and the native settlements of Nuwuk, Ongovehenok, and a winter village on Kugaru river.
PORT CLARENCE includes the small native settlements of Chainruk, Nuk, Kovogzruk, Toakzruk, Anelo, Shinnapago, Kalulegeet, Metukatoak, Kaveazruk, Kachegaret, and Perebluk; also, the whaling steamers J. H. Freeman and Grampus, the barks Reindeer and Bounding Billow, and the brigs F. A. Barstow and W. H. Meyer.
SEA HORSE ISLAND includes the native settlements of Attenokamiut, Charnrokruit, Pingishugamiut, and Perignak.
SLEDGE ISLAND includes the village of Ahyak and 3 small settlements on the main land opposite: Senikave, Sunvalluk, and Okinoyoktokawik.
WAINWRIGHT INLET includes the native settlements of Kugmiut, camps on Kug river, Setorokamiut, Nuklwok, Nutnago, and Shinnowok.

POPULATION, DWELLINGS, AND FAMILIES, BY DISTRICTS.

TABLE 1.—(SUMMARY).

DISTRICTS.	Population.	Houses.	Families.
Total	32,052	4,744	6,943
First	8,038	1,538	2,217
Second	6,112	832	983
Third	2,361	476	544
Fourth	2,726	218	479
Fifth	5,681	434	1,148
Sixth	3,912	752	894
Seventh	3,222	494	678

POPULATION, DWELLINGS, AND FAMILIES, BY DISTRICTS—Continued.

TABLE 2.—FIRST OR SOUTHEASTERN DISTRICT.

No.	VILLAGES, ETC.	Population.	Houses.	Families.	No.	VILLAGES, ETC.	Population.	Houses.	Families.
	Total	8,038	1,538	2,217	22	Killisnoo	79	18	29
1	Auk settlements	324	69	99	23	Klakwan	326	30	83
2	Bartlett bay	40	2	2	24	Klawak	287	50	77
3	Berners bay	6	5	5	25	Klinquan	27	7	8
4	Burroughs bay	134	32	32	26	Klukukhu	15	2	4
5	Chican	38	14	14	27	Lake bay	31	12	12
6	Chilkat	153	14	14	28	Loring	200	38	38
7	Chilkoot mission	106	21	27	29	Metlakahtla	823	142	177
8	Douglas city	402	122	126	30	Point Barrie	92	21	29
9	Fish bay	4	2	2	31	Point Ellis	170	32	41
10	Fort Tongass	50	10	10	32	Pybus bay	26	2	6
11	Funter bay	25	8	11	33	Pyramid harbor	77	4	4
12	Gambier bay	8	2	2	34	Sakar	21	8	8
13	Hindasetukee	143	16	37	35	Salmon bay	42	16	16
14	Hoochinoo	381	22	113	36	Seymour channel	9	3	5
15	Howkan	105	18	28	37	Sitka	1,190	182	309
16	Huna	438	24	114	38	Sumdum	42	5	12
17	Juneau	1,253	378	440	39	Tolstoi bay	17	6	6
18	Kakawaterka	70	7	19	40	Windham bay	11	2	2
19	Kakwaltu	77	10	19	41	Wrangell	316	123	123
20	Kassan	47	15	15	42	Yakutat	308	20	75
21	Kichikan	40	10	10	43	Yess bay	85	14	14

TABLE 3.—SECOND OR KADIAK DISTRICT.

	Total	6,112	832	983	20	Katmai	132	17	37
					21	Kenai	264	30	39
1	Afognak	409	81	81	22	Killuda	22	5	6
2	Alaganak	48	12	12	23	Kinik	160	31	36
3	Alitak	420	33	39	24	Kustatan	45	6	10
4	Ayaktalik	106	20	29	25	Lake village (Copper river)	136	22	26
5	Cape Douglas	85	15	24	26	Lowell	12	1	1
6	Chignik bay	193	5	6	27	Mitrofania	49	10	10
7	Chilkat lake	34	4	9	28	Ninilchik	81	18	19
8	Eagle harbor	77	13	21	29	Nuchek	145	34	34
9	English bay	107	27	27	30	Odiak	273	10	10
10	Ighiak	94	27	28	31	Old harbor	86	16	26
11	Iliamna	76	20	20	32	Seldovia	99	17	19
12	Ingamatsha	73	17	17	33	Sushitna	142	27	35
13	Isha	30	5	5	34	Tatitlak	90	19	21
14	Kadiak	495	112	113	35	Toyonok	115	21	33
15	Kaguyak	112	22	37	36	Uganak	31	7	7
16	Kanatak	26	2	7	37	Uyak	246	5	6
17	Kanikhluk	73	15	16	38	Uzinkee	74	21	21
18	Karluk	1,123	55	56	39	Wingham island	150	15	15
19	Kassilof	117	7	9	40	Wrangell bay	62	8	16

TABLE 4.—THIRD OR UNALASKA DISTRICT.

	Total	2,361	476	544	11	Morzhovoi	68	22	23
					12	Ozernoi	45	3	3
1	Akutan	80	20	20	13	Popof island	146	15	15
2	Atka	132	25	36	14	St. George	93	20	23
3	Attu	101	22	24	15	St. Paul	244	61	67
4	Belkovsky	185	48	56	16	Sannak	132	29	30
5	Borka	57	9	15	17	Semenovsky	3	3	3
6	Chernovsky	78	20	20	18	Thin point	231	5	5
7	Coal harbor	15	5	5	19	Umnak	94	30	31
8	Kashigin	46	13	13	20	Unalaska	317	65	79
9	Korovinsky	41	4	10	21	Unga	159	35	40
10	Makushin	51	11	14	22	Voznesensky	43	11	12

POPULATION, DWELLINGS, AND FAMILIES, BY DISTRICTS—Continued.

TABLE 5.—FOURTH OR NUSHAGAK DISTRICT.

No.	VILLAGES, ETC.	Population.	Houses.	Families.	No.	VILLAGES, ETC.	Population.	Houses.	Families.
	Total	2,726	218	479	21	Kassiachamiut	50	3	8
					22	Kavalonah	13	2	2
1	Agivavik	30	2	6	23	Kinuyak	51	6	14
2	Agulukpukmiut	22	3	4	24	Kivichakh	37	5	9
3	Akakhpuk	9	1	2	25	Koggiung	133	17	23
4	Akgulurigiglak	61	5	16	26	Meshik	74	6	15
5	Angnovchamiut	16	2	4	27	Millerton	165	3	4
6	Aziavigamiut	90	7	18	28	Napaimiut	11	1	3
7	Bradford	166	4	4	29	Nikhkak	42	1	11
8	Carmel	189	6	7	30	Noghelingamiut	16	2	4
9	Christangamiut	83	7	17	31	Nulochtagamiut	31	2	6
10	Gologamiut	29	3	8	32	Nushagak	268	25	34
11	Hucklung	32	3	7	33	Pakwik	93	8	26
12	Igagik	60	5	12	34	Sahruyuk	32	5	7
13	Igivachochamiut	31	3	7	35	Stugarok	7	1	2
14	Ikalinkamiut	60	4	15	36	Togiagamiut	94	8	25
15	Insiachamiut	42	4	13	37	Togiak	14	2	5
16	Kakhonak	28	2	5	38	Trinachamiut	20	2	4
17	Kakwok	45	3	9	39	Ugashik	154	20	28
18	Kanakanak	53	5	13	40	Unangashik	190	10	38
19	Kanulik	54	7	14	41	Yekuk	65	6	16
20	Kaskanak	66	7	14					

TABLE 6.—FIFTH OR KUSKOKWIM DISTRICT.

	Total	5,681	434	1,148	40	Kinegnagamiut	92	7	19
					41	Kjnegnagmiut	76	6	17
1	Aguliagamiut	94	7	15	42	Kl-changamiut	49	3	9
2	Agumak	41	6	8	43	Klutagmiut	21	2	6
3	Ahgomekhelanaghamiut	15	1	3	44	Kochlogtogpagamiut	20	2	3
4	Ahgulakhpaghamiut	19	2	4	45	Kolmakovsky	26	4	6
5	Ahguliagamiut	106	6	22	46	Koot	117	8	22
6	Ahpokagamiut	210	11	44	47	Koot river settlements	74	6	16
7	Ahquenach-Khlugamiut	6	1	1	48	Kuskohkagamiut	115	7	23
8	Akiagamiut	97	7	20	49	Kwichampingagamiut	25	6	6
9	Akiakchagmiut	43	5	8	50	Kwigamiut	43	6	9
10	Annovokhamiut	15	1	2	51	Lagoon, No. 1	30	3	7
11	Apahiachamiut	91	7	18	52	Lagoon, No. 2	36	4	8
12	Askinaghamiut	138	14	33	53	Lomavigamiut	53	5	13
13	Atchalugumiut	39	6	9	54	Mumtrahamiut	162	11	33
14	Bethel	20	4	6	55	Mumtrekhlagamiut	33	4	6
15	Chalitmiut	358	17	58	56	Napaimiut	23	2	6
16	Chechinamiut	84	7	16	57	Napaskeagamiut	97	5	12
17	Chimingyangamiut	40	2	7	58	Noh-chamiut	28	6	6
18	Chokfoktoleghagamiut	18	2	4	59	Novokhtolahamiut	55	3	11
19	Chuligmiut	32	3	7	60	Nunachanaghamiut	135	9	30
20	Chuligmiut, Upper	30	2	7	61	Nunavoknak-chlugamiut	107	5	21
21	Dununuk	48	5	15	62	Oh-hagamiut	36	4	9
22	East Point, No. 1	36	3	9	63	Queakhpaghamiut	75	4	12
23	East Point, No. 2	41	3	8	64	Quelelochamiut	112	6	20
24	Ekaluktalugumiut	24	2	7	65	Quiechloh-chamiut	83	7	16
25	Etohlugamiut	25	5	6	66	Quiechochlogamiut	65	6	17
26	Gilakhamiut	22	1	3	67	Quilochugamiut	12	2	2
27	Ighiakchaghamiut	81	4	15	68	Quinhaghamiut	109	6	20
28	Ingeramiut	35	3	9	69	Shinyagamiut	7	1	2
29	Kahlukhtughamiut	29	2	5	70	Shovenagamiut	62	4	14
30	Kahmiut	40	3	8	71	Tefaknaghamiut	195	10	33
31	Kailwigamiut	157	7	30	72	Tiengaghamiut	60	4	13
32	Kaltkagamiut	29	3	8	73	Tulukagnagamiut	17	2	6
33	Kanagamiut	35	3	8	74	Tuluksagmiut	62	4	14
34	Kanagmiut	41	3	7	75	Tunaghamiut	71	5	14
35	Kashunahmiut	232	20	49	76	Ugavigamiut	57	7	16
36	Kaviaghamiut	59	4	11	77	Ugokhamiut	68	6	14
37	Kenaghamiut	257	10	54	78	Ulokagmiut	27	7	7
38	Kennachananaghamiut	181	8	29	79	Vinisahle	140	23	28
39	Kikikhtagamiut	119	11	25	80	Woklehogamiut	19	1	4

POPULATION, DWELLINGS, AND FAMILIES, BY DISTRICTS—Continued.

TABLE 7.—SIXTH OR YUKON DISTRICT.

No.	VILLAGES, ETC.	Population.	Houses.	Families.	No.	VILLAGES, ETC.	Population.	Houses.	Families.
	Total	3,912	752	894	29	Makeymiut	50	12	12
					30	Mitchell post office	238	34	34
1	Agowik	51	7	12	31	Newturit	9	2	2
2	Akeklehahamiut	79	19	19	32	Notaloten	15	3	5
3	Alagnagmiut	68	17	17	33	Nowikaket	77	15	20
4	Andreafsky	10	2	2	34	Ntealeyta	7	2	2
5	Ankahchagmiut	103	12	20	35	Nuklukayet	120	36	38
6	Anvik	191	44	45	36	Nulato	118	24	31
7	Avnuligmiut	30	7	7	37	Paimiut	65	16	16
8	Black river settlements	125	24	24	38	Pastolik	113	15	26
9	Boundary camp	18	2	2	39	Porcupine river settlements	150	28	28
10	Davids camp	66	14	14	40	St. Michael	101	14	18
11	Flagatlokai	16	6	6	41	Sakataloden	39	9	11
12	Golsova	44	5	11	42	Senati	40	5	8
13	Holikitsak	114	28	28	43	Shaktolit	38	5	6
14	Ikaleaveagmiut	38	8	8	44	Steamer Arctic	27	1	1
15	Iko-agmiut	65	9	14	45	Summer camp	44	8	10
16	Ikogmiut	140	18	39	46	Swetlaya Retchka	44	11	11
17	Ingahamiut	50	6	11	47	Takashki	80	12	16
18	Kalhonchagmiut	45	9	9	48	Tanana (Upper) river settlements	203	40	41
19	Kanegmiut	53	6	14	49	Tanyut	37	8	9
20	Keavyamiut	97	21	21	50	Teeketnagmiut	27	8	8
21	Kengugmiut	54	10	10	51	Teenahotozna	8	1	1
22	Kikiktowrik	23	3	6	52	Tlegochitnagmiut	60	20	20
23	Kohtokaket	24	4	7	53	Topolnik	42	7	9
24	Kotlik	31	7	7	54	Tvastonagamiut	33	10	10
25	Koyukuk river settlements	174	32	32	55	Tzeeto-at	22	4	6
26	Kozerevsky	131	43	48	56	Ulukuk	25	3	6
27	Kyktoltowtin	23	3	7	57	Unalaklik	175	23	43
28	Lake village (Chageluk river)	3	1	1	58	Yukokakat	39	9	10

TABLE 8.—SEVENTH OR ARCTIC DISTRICT.

	Total	3,222	494	678	13	Norton sound settlements	283	45	65
1	Atnik	34	3	9	14	Point Barrow	152	32	36
2	Cape Krusenstern	45	9	10	15	Point Belcher	114	12	12
3	Cape Nome	41	9	9	16	Point Hope	301	67	67
4	Cape Smythe	246	35	45	17	Point Lay	77	12	12
5	Erkleetpaga	20	3	4	18	Port Clarence	485	39	40
6	Golofnin bay	25	6	9	19	St. Lawrence island	267	21	64
7	Icy Cape	57	8	9	20	Sea Horse island	15	4	5
8	Ignaluk	85	17	20	21	Singick	12	4	4
9	Ignigtok	64	8	14	22	Sledge island	67	12	13
10	Itkarapaga	8	1	1	23	Tapkak	51	14	14
11	Kingaghee	488	76	138	24	Ukivok	200	38	56
12	Norkluk	13	2	3	25	Wainwright inlet	72	17	19

The villages and settlements of Alaska may be divided into 4 classes, viz: (1) native settlements, (2) fishing and trading stations, (3) mining camps, (4) a few central shipping and distributing points.

Of the last class we find in the Southeastern district Wrangell and Sitka. Neither of these places owes its existence to natural resources of their own. Sitka has preserved its prestige as administrative center, for which it was selected by the Russian-American Company, while Wrangell sprang into being through the exigencies of a transit trade with the British Columbian mines on the headwaters of the Stikine river. The specimens of clumsy but durable Russian architecture in these towns are rapidly disappearing, and modern frame buildings, erected chiefly with imported lumber, are taking their place.

Among the mining camps of this district, Juneau and Douglas, separated only by Gastineaux channel, stand foremost, furnishing the only examples of genuine American towns in all Alaska.

The scattered smaller mining camps differ but little in outward appearance from similar places throughout our western mining regions, but in nearly every instance the necessary buildings for working the mines have been constructed with imported lumber in preference to the slower and more laborious process of felling, hauling, and hewing logs from the surrounding forests. The miners' cabins, however, erected by themselves, are generally log structures.

Fishing stations can now be found in the Southeastern district nearly at every point that affords a supply of fish sufficient to warrant the investment of capital. The buildings are generally but flimsily constructed, being occupied only during 2 or 3 months and left to the care of watchmen for the remainder of the year.

The sites of these stations, at the head of deep fiords or at the mouth of rivers and creeks, are generally very picturesque, and at a few points, where trade is combined with fishing, substantial permanent improvements have been made, especially at Klawak, on Prince of Wales island; Loring, on Revilla Gigedo island; Chilkat, and Killisnoo.

Outside of the larger settlements the fur trade has become merged with the fishing interest, and but few of the old lonely trading stations remain in this district.

The villages occupied by the native inhabitants of the Alexander archipelago and of the coast region to Mount St. Elias are still found upon the sites described by the discoverers and earliest visitors. Even those Indians who have flocked around the mining and fishing camps and built up temporary villages there always return for a part of each year to their old homes, the massive old log structures of which are slow to decay.

It has always been the custom of the Thlingits, as well as of their southern neighbors, the Haidas, to locate their villages upon some smooth, sheltered beach, the houses, in a single row, facing the water. Originally these people selected their village sites as near as possible to their chief food supply, and also with a view to advantages of defense against hostile neighbors, and where the two objects could not be combined the latter consideration always prevailed. Consequently, we find some settlements of these natives in locations apparently but ill-adapted to their present mode of life; but old associations cause them to cling to the place and to put up with many inconveniences.

Such villages and houses as we still find among the Thlingit and Haida tribes could be erected only by a people with a strong tribal organization and powerful chieftains. Both dimensions and materials of the dwellings are such that no individual or single family could undertake to erect one of these structures. The veriest giants of the forest were selected for walls, beams, and rafters, without much regard for distance from the building spot. To move and handle these huge logs combined effort was required under the direction of one intelligent head, and therefore we find that the erection of a new house in any of the Thlingit or Haida villages was looked upon as a formidable undertaking, in which not only the prospective inmates but the whole clan took part. The material was prepared for years ahead and dragged, hauled, or towed to the spot as opportunity served. When all was ready and sufficient wealth had been collected to defray contingent expenses of feasting and entertaining all participants, the head of the clan assumed command, and, after much conjuring by the shaman or medicine man, the structure began to rise. In times not so very remote, when slavery still flourished among these tribes, the slaves, though taxed to the utmost in the preliminary and rougher part of the labor, were not permitted to assist at certain phases of the work, but from their midst a certain number of victims were selected to be sacrificed and buried under the corner posts of the new house in order to propitiate hostile spirits.

Among the Haida tribes the wood carver's skill was much used in ornamenting their buildings, not only on the huge totem poles which still tower over their low-roofed houses, but in many parts of the main structure. One of their fancies was to cut the entrance through the totem post, representing the mouth of some monstrous creature of their imagination. For purposes of defense this aperture was placed some distance above the ground and of small dimensions, either round or square, not more than 3 feet in diameter. The sides and top of the house were closed in with huge planks and slabs laboriously hewed from logs, and the roof was covered with spruce bark, all but a central square over the fireplace. Around 3 sides of the interior there runs a platform of planks, about 3 feet in height, and the space below it is divided into as many cubbyholes or sleeping places as there are couples or families in the dwelling. The possessions and implements of the inmates are piled on the platform, stowed away beneath, or heaped up against the front wall of the structure.

This is the type of the original Haida and Thlingit family home, subject to unimportant local variations. As will be ascertained by reference to the tables accompanying this chapter, the dwellings erected with so much labor and at comparatively very great expense were intended to accommodate a number of families each. This explains the apparent discrepancy between the number of houses and families in the older settlements of this district. Thus we find at Yakutat and Dry bay 75 families living in 20 houses; at Klakwan, 83 families in 30 houses; at Hoochinoo, 113 families in 22 houses, and at Huna, 114 families in 24 dwellings. In all villages adjoining the fishing stations and mining camps the single family house is taking the place of the old communal structures.

In the second or Kadiak district we find but 2 or 3 small surface mining camps, the owners of which live on their claims in log cabins, and engage in hunting and trapping during the winter; but the fisheries and trading stations are numerous, with substantial and permanent improvements and plant. The only settlement deserving the name of a town is Kadiak, the site of a customhouse and the supply station and shipping and distributing point for all outlying fishing and trading establishments. Under the Russian regime very substantial buildings were erected at this point with a view to transferring the administrative offices from Sitka to Kadiak. Several of these old structures, erected with huge logs brought from distant forests, are still in existence, but they are hidden under weatherboarding and paint. The dwellings of this town were formerly all log houses built after the Russian pattern, but they are being rapidly replaced with modern frame cottages, and white paint and shingled

and painted roofs are now prominent features of Kadiak, a view of which is given in this report. The poorer families of half-castes and natives of this town and of its outlying suburb of Lesnoi occupy log cabins, one for each family, and at the latter place a few barabaras or semisubterranean sod huts with log frame can still be found.

Among the fishing stations of Kadiak district Karluk stands foremost, with substantial frame buildings nearly covering the gravel spit between the river and sea. The improvements at this point cost several hundred thousand dollars, and the 5 salmon canneries housed here are large and well equipped. On the opposite bank of the river the native settlement consists chiefly of "barabaras". First, a pit is excavated in the shape of the house, from 3 to 4 feet deep. Into this a stout frame of logs 7 or 8 feet high is set, with low pitched rafters of the same materials; the sides and tops are then roughly closed in with pieces of board or planks hewn from drift logs, and the whole is covered with sods. In former times the light of day could enter the barabara only through the smoke hole in the roof, which could be closed with a transparent frame of seal-gut, but now nearly all these structures have glass windows, cook stoves, and stovepipes led out through the roofs or sides. A majority of these dwellings in the Kadiak district have plank flooring and many are divided into several compartments. For people who apparently thrive without ventilation no more comfortable abiding place could be devised. This style of house is in use among all the Eskimo tribes of the Kadiak district, but in the smaller and more isolated settlements the windows are often of seal gut, and in a few of the poorest houses the stove is wanting.

During the flush times of sea-otter hunting some of the most successful native hunters purchased of the trading companies the frames of log cabins, which were carried on schooners to their villages and there set up. These imposing structures, from 10 to 12 feet square, containing a single room, often cost several hundred dollars to the hunters, who took great pride in their possession; but the pleasure was indulged in at a sacrifice of comfort, and in the winter or in bad weather during the summer the family can generally be found in the barabara as of old.

All villages of this district eastward of Afognak and Kadiak are beyond the timber line, and consequently driftwood enters much into their construction. This kind of timber is, however, quite abundant, as friendly ocean currents constantly replenish the supply, varying in its nature from sodden wreckage to huge trunks from the redwood and pine forests of the coasts of California, Oregon, and Washington.

The trading stations throughout the district are provided with comfortable log or frame dwellings and substantial storehouses, and but few of the old Russian buildings now remain in use.

On the shores of Cook inlet, among the Athapascan tribes, a log dwelling entirely above ground takes the place of the barabara. These houses are generally divided into 2 compartments, an outer one, in which the cooking and rougher labor is performed, and an inner sleeping room, floored and ceiled, but very low, not more than 4 or 5 feet in height, and generally provided with a small pane of glass or seal gut. This inner room can be almost hermetically closed and affords a warm sleeping place in the coldest weather. In some of the Tnaina villages this bedroom is also utilized for bathing purposes, being then heated with red-hot stones; but the general custom is to have 1 or 2 separate bath huts for each settlement.

In the more primitive villages on the Sushitna and Kinik rivers we still find the old communal log house occupied by several families, each of which has its own sleeping room connected with the main structure by small openings in the wall. The elevated storehouse (similar to the kuggat of the western and northern Eskimo), a small, square, log structure, set on posts, in which provisions and all kinds of property are kept out of reach of dogs, is found in the Cook inlet settlements. All buildings of the Tnaina tribe are roofed with spruce bark.

The original inhabitants of the regions comprised in our second district selected their village sites wholly with a view to the proximity of food supply. Being more scattered and of a less warlike disposition than their eastern neighbors, the Thlingit, these people were not forced to consider defensive qualities in their choice of location. The Eskimo tribes of the coast regions selected places of refuge at some distance from their villages, hidden from view and difficult of access, to which, in cases of hostile invasion, they carried their women, children, and most valued belongings, or retreated in a body to await the foe in an advantageous position. Hundreds of such places of refuge can still be found on that coast, consisting generally of detached rocks or precipitous islets near the shore, the upper surface bearing evidence of having been leveled by the hand of man, and showing a number of small excavations, the traces of temporary huts. The steep sides can be scaled but slowly by a single trail, and with an ample supply of fragments of the weather worn rock to hurl upon the invaders, such positions were considered entirely safe from enemies armed with spears and bows and arrows. On several of these places visited by me I found artificial basins or tanks for catching rain water, no other water supply being available.

The custom of retreating to places of refuge existed also among the natives of the Bering sea coast of Kamchatka. Their name for these natural detached rock forts was "kekūr", a term which the Russians brought with them in their eastward migration, applying it to all isolated bodies of rock adapted for defensive purposes. Even the rock upon which the so-called castle of Sitka now stands was formerly spoken of as the "kekūr".

In Prince William sound the Chugachigmiut tribe, having the warlike and aggressive Thlingit as their nearest neighbors, constructed many retreats ingeniously concealed within the recesses of the dense forest that fringes the shore, or on the precipitous cliffs overhanging the innermost channels of their many winding fiords.

In the western part of the district, on the treeless shores of Kadiak and adjoining islands and the bare coast of the Alaska peninsula, two chief considerations entered into the selection of a village site: first, the vicinity

of an accumulation of driftwood, their only fuel and building material; and, second, a safe landing place for kayaks or bidarkas. The most favored situation with these maritime tribes, depending upon the sea for their subsistence, was a point of land or gravel spit extending into the sea in such a direction as to afford shelter on either side from the various winds. On this coast islands are frequently found consisting apparently of detached groups of hills connected with each other by low, narrow isthmuses or gravel spits, and forming sheltered bays on either side. At such points, if there be no settlement now, one may count with absolute certainty upon finding the grass-grown mounds representing former barabaras. The gravel spits separating salt-water lagoons from the sea were also favored village sites. In addition to the permanent villages of the Kaniagmiut, a number of fishing camps are always found in their neighborhood to which the people resort for several months of the year, taking their households with them. The number of dwelling sites, occupied or abandoned, throughout this region, has been the cause of many erroneous estimates of population in the past and present.

The third or Unalaska district contains a number of shipping and distributing points and harbors with settlements differing but little in outward appearance or style of dwellings from the smaller fishing villages of northern Europe or our eastern coast. Pirate cove, Sand point, Unga, Belkovsky, and Unalaska are inhabited wholly or in part by white men, and have no distinctive features, with the exception of the Russian churches in the older places. At the fishing stations the buildings, wharves, and other improvements are of a substantial and permanent character, and the same may be said of the gold mines at Unga and the coal mine at Herendeen bay. 3 salmon canneries were enumerated in this district in 1890, of which but 1, at Thin point, is still in operation.

At Unalaska, the most important seaport of the district, the permanent improvement and wharfage facilities are in the hands of 2 private firms, the Alaska Commercial Company, located at the main village, and the North American Commercial Company, whose establishment is situated half a mile to the northward, at the Dutch harbor, on Amaknak island. A number of frame cottages at Unalaska, inhabited by government officials and native sea-otter hunters, are also owned by the first-named firm.

On the Pribilof islands the buildings (storehouses, dwellings, schools, and churches) are all neat and substantial frame structures, erected by the lessees of the islands.

The Unalaska district contains in its eastern section a class of settlements peculiar to itself. The white sea-otter hunters who cruise in their small schooners over these waters have built for themselves hunting stations on many of the solitary rocks and reefs frequented by the sea otter. Quite a number of these houses are large enough to accommodate several hunters and their families for the winter season. They vary much in character, some being built of logs brought from Kadiak or Afognak, some framed with lumber from California, while others are built of drift logs covered with sod and fortified against the raging storms with sea-lion hides, lashed and staked down. Many of these stations have the outward appearance of being the most wretched of human abodes, but the interior of each is quite comfortable; and, as hunting has become less remunerative, a number of the hunters have engaged in fishing also, and have erected more substantial improvements.

The native inhabitants of the island region embraced by the Unalaska district are all of one tribe, the Aleut or Unangan, of the Eskimo family, and their villages and dwellings do not differ much in character in the various localities, except where close intercourse with the white man has caused the adoption of a more civilized mode of living.

The aboriginal dwellings in which these people were found by the Russians consisted of large pits roofed over with drift logs and sod, and each inhabited by a number of families. This communal house has entirely disappeared, but its improved successor, the "barabara", which is essentially a one-family dwelling, can still be found even at Unalaska, Belkovsky, and Unga, in the midst of modern frame cottages.

The Aleut barabara differs from that of the Kaniagmiut by being mostly underground, owing to the great scarcity of building material; its interior arrangements are very much the same as in the other, but the rooms are lower, and the ventilation, if possible, is worse. Another feature of the earlier Aleut settlement, the kashima or kashga (common workshop or council house), has also disappeared. The last one observed by me I found at Attu village, on the westernmost island of the Aleutian chain, in 1878. The modernized barabara is generally provided with glass windows, often with a cook stove, and rarely with plank flooring. In the ancient dwellings the ribs and other bones of whales were used as rafters, uprights, and in various other ways.

In selecting their village sites the Aleutians seem to have given heed principally to the proximity of their food supply, which in ancient times involved the close vicinity of large beds of clams and sea urchin or echinus, as well as good cod-fishing ground. Being very expert and bold in handling their canoes, they paid less attention to sheltered landing places, and it seems that they never depended upon driftwood for such fuel as they needed. The earliest Russian visitors described them as gathering the vine of the "shiksha" berry for that purpose, as the women and girls are doing to-day in the more remote villages. Veniaminof, who studied their habits during the first quarter of the present century, writes that he saw men and women warming themselves by igniting a handful of dry grass, standing over the flame while the hot air ascended inside of their single long, skirt-like garment.

Neither the more modern nor the ancient village sites of the Aleutians furnish evidence that any consideration was bestowed upon facilities for defense, with the exception of the easternmost section of the archipelago. On the Shumagin group of islands the sites of many places of refuge or kekūrs can still be found, generally at a considerable distance from the village site, but this feature is easily explained by the vicinity of the coast and

islands inhabited by the Kaniagmiut tribe, described by their first Russian visitors as very fierce, warlike, and enterprising. According to tradition the Kaniagmiut made frequent raids upon their western inoffensive neighbors, plundering settlements and carrying away women and children into captivity. The western islands were exempt from these raids, and hence defensive qualities did not enter into the selection of their sites, which are found in the most exposed positions.

The fourth or Nushagak district contains but one distributing and shipping point (the mouth of the Nushagak river), and here are found grouped in close vicinity to each other the few settlements established by civilized man. 4 large salmon canneries occupy with their substantial frame buildings the opposite banks of the wide mouth of the river, and on the eastern shore there are also the trading station and the old Russian mission, housed in log buildings, and the modern frame buildings of Carmel, a school and missionary station of the Moravian society. The great rise and fall of the tides, the ice of river and bay, and the shifting channels of the vast mud flats make the construction of wharves at this point impracticable. Fishing stations have also been erected at Pakwik, on the mouth of the Naknek river, and at Ugashik. Of outlying trading stations there is but one in the district, at Togiak, consisting of a few small log buildings. The native villages and dwellings of this region vary much in character among the different tribes, according to local conditions.

In the extreme northeast of the district, on the shores of Lake Clark, a small branch of the Tnaina or Knaiokhotana tribe lives very much like their kinsmen on Cook inlet, in log houses above ground, with small air-tight sleeping apartments. The Eskimo tribes of the coast and the western interior occupy barabaras, and, being a dog-driving people, they keep their household stores and family belongings in "kuggats", small log frames set upon posts, and accessible only by means of notched planks which can be removed.

The Aglemiut, living on the low, treeless coast of the Alaska peninsula, construct their dwellings chiefly underground, with a roof of driftwood and sods, the latter often reinforced with walrus hide. Whale ribs are often found in these structures, serving as rafters or posts. Their villages are all situated on the banks of salmon streams or tidal channels, and seem to have been located with but very little regard for a fresh water supply, being set on low ground in order to facilitate the "seasoning" of salmon heads in holes in the earth, half filled with stagnant water, forming quite a cordon of hidden pitfalls around each settlement. Where driftwood or other timber is too scarce to permit of the construction of kuggats the blubber and meat of seal and walrus are buried in pits in the ground for safe keeping, covered with a thin disk of soft clay.

The only inland settlement of the Aglemiut is the village of Ighiak, on Lake Walker or Naknek, and here, within reach of the spruce timber which partially covers the northern slopes of the Alaska range of mountains, we find them in dwellings much more comfortable and rising higher from the ground, with wooden floor and platforms for sleeping. In this village a dwelling is rarely occupied by more than one family.

The tables appended to this chapter indicate that among the Aglemiut inhabiting the few scattered villages on the sandy north shore of the peninsula each dwelling is occupied by several families. Thus, at Pakwik we find 26 families living in 8 houses, at Unangashik 38 families in 10 houses, and at Meshik 15 families in 6 dwellings, while among the same tribe, in the timbered country about Bristol bay, more than 2 families are rarely found under the same roof. It seems evident, therefore, that only the scarcity of building material causes them to herd together.

The villages of the Kiatagmiut, on the south shore of Lake Iliamna and its outlet, the Kvichak river, are all located in the immediate vicinity of the principal fishing grounds of the tribe. They are occupied throughout the year, as considerable fishing is done in the winter through the ice of the lake and in the shallow tidal channels at the mouth of the Kvichak, but every family possesses one or more temporary abiding places in the hills or in the timber to shelter them when engaged in hunting reindeer or trapping ground squirrels. Their permanent dwellings are of the usual type, low underground structures, consisting of one general living and sleeping apartment, with a raised platform along the walls, a central fireplace, and a smokehole in the roof. The tunnel-like passage affording ingress and egress is from 10 to 12 feet long and not more than 3 feet high, declining from the outer entrance and then rising again and entering the room through the floor. A few small cavities in the sides of the tunnel afford places of deposit for offal and lairs for the numerous dogs. All provisions and utensils, or gear made wholly or partially of skin or hide or smeared with grease or oil, must be kept out of reach of the hungry dogs, and consequently much care is bestowed upon the erection of safe storehouses. The kuggats of the Kiatagmiut are tightly built of hewn logs and set upon strong posts. The roof is of bark, or of seal, beluga, or walrus hide, and were it not for the low ceiling (rarely more than 3 feet from the floor) these box-like contrivances would make better sleeping places than most of the dwellings found in this section of the district. I have made use of them as such in the summer in preference to sharing the filthy, vermin-infested platform within the barabara with my host, or to having my tent surrounded and invaded by sniffing and snarling hungry curs.

The kashima or kashga (the gathering place and common workshop of the men, the stranger's shelter, and the scene of masked dances and of the sweat bath) is a regular institution among the Kiatagmiut. Its architecture resembles that of the dwelling upon a much larger scale. It is erected and kept in repair by the joint efforts of the villagers, and is generally provided with a plank flooring which covers a central pit utilized as fireplace and as a dressing room for the maskers. Some of these structures are of large dimensions. Once during a gale, against which my tent would not stand more than a few minutes at a time, I was invited to move into the kashga, where I could pitch it comfortably upon one of the lateral platforms.

Among the most wretched habitations to be found in Alaska are the few dwellings of natives situated on the banks of the Nushagak or Tahlekuk river. They are occupied only during the winter, and though timber abounds in the immediate neighborhood, they are so carelessly constructed that the roofs fall in each year with the rains and melting snow of spring. When their homes are thus made uncomfortable the inmates move to temporary abodes on the tundras, where they hunt reindeer and later gather berries. In the meantime the elements have free access to the winter quarters, the rain enters and stands in the living room in pools, covered with green scum, and vegetation springs up amid the filth and offal. When the family returns in August to lay in their supply of red salmon they camp in the shelter of the kuggat, on pieces of bark and skins, until the increasing night frosts remind them that winter must be faced somehow. Then a little dirt is thrown into the corners of the floor space to afford dry footing, a few sticks of wood are laid on the roof, or a missing rafter is replaced, and loose dirt thrown over it carelessly, and the family moves in regardless of scum-covered pools and rotting herbage, and trust to the first heavy snowfall to make their roof tight. If, as sometime happens, there is an early snowfall followed by thaw, the condition of these people becomes wretched in the extreme. Their storehouses, however, are carefully looked after and kept in repair, and as long as their food is safe and they are secure from hunger the people bear all other hardships with equanimity.

The Nushagagmiut living on the wooded shores of the lakes in the interior are much better housed, and, having their food supply close at hand, they are less given to roaming. Their dwellings are of the same type as those of their southern neighbors, but they are kept dry, and are generally floored with sticks or planks. From 2 to 3 families occupy each house, and the kashga is invariably found in the larger villages.

The Togiagmiut, occupying the valley of the Togiak river, were among the most primitive inhabitants of Alaska, until, within the last few years, the trader at Nushagak induced a number of the best hunters to undertake an annual migration with their families to the shores of Cook inlet in search of sea otters, and with the proceeds of this lucrative pursuit, improvement and even luxuries have found their way into these remote regions. There is, however, but little change noticeable in their villages and dwellings. The latter consist of square chambers, entirely underground, and connected with the open air by a low, narrow tunnel, and the usual smoke hole in the roof. The tops of the barabaras rise but little above the ground, and a populous village could easily escape the notice of a passing traveler were it not for upright kuggats indicating the presence of men in the bowels of the earth. The kashga, in the large villages, also looms up above the surrounding humble homes.

The Togiagmiut are much given to roaming about in the summer time in search of ground-squirrel skins (the principal material for their garments), fish, and berries, but they do not take the trouble to erect temporary dwellings on these excursions. A kayak turned upon its side, with a kashbruk (seal-gut shirt) spread over the paddles set to windward, is considered sufficient to shelter a family. The babies are stowed inside the canoe, but the parents and larger children sleep soundly in pelting rain with only their heads protected from the downpour. Tents are now being introduced by the opulent sea-otter hunters.

On consulting the tables it will be found that each dwelling of the Togiagmiut contains from 3 to 4 families.

In the Kuskokwim district the settlements consist almost wholly of native villages, with the exception of 3 or 4 small trading stations and the missionary establishments of the Moravian society at Bethel, and of the Roman church at Dununuk. The buildings at these stations are substantial log structures, roofed with shingles.

The best native dwellings in this district are found among the Athapascan tribe of Kuilchanas, inhabiting the upper waters and tributaries of the Kuskokwim river. Here they live in well-built log houses, which would compare favorably with many of the habitations of our backwoods settlers. They have floors in their living rooms and cook stoves, and even rough chairs and tables can be found in their possession.

The Kuilchana do not live in large villages, but build their homes upon their favorite hunting ground. Rarely will 2 families be found living together. The sites selected by them are nearly always picturesque and convenient to wood, water, and game.

The settlements of the Kuskwogmiut tribe on the Kuskokwim river and of their western neighbors, the Magmiut, are nearly identical in their types of dwelling, with only such variations as are caused by abundance of building material in the timbered region, or scarcity of the same in the tundra and lake country. The villages are comparatively populous, each house containing not less than 3 families, and the kashga is never absent, some of the larger settlements possessing 2 each of these public buildings. On either bank of the wide mouth of the Kuskokwim the village sites have been chosen chiefly for the convenience of the hunters of the maklak seal and the beluga or white grampus, and the huts have been planted in the narrow ridge but a few feet above ordinary high water which separates the level tundra from the inrolling tides. They are strongly built, but spring tides or any extraordinary rise of the waters flood them and drive the inmates to the roof or cause them to retreat to the distant hills in their canoes. The earth floor of these barabaras is always damp, and often a deep mud; all household articles, bedding, and implements are mildewed, and as all the waste and offal of daily life is deposited upon the narrow rim of dry soil that holds the dwellings, the surroundings are exceedingly foul and offensive. But few of these sea-shore settlements have a supply of water even approximately pure. If water is needed or wanted it is generally dipped from the bog holes in the rear of the huts into which all drainage flows. The necessary material for the upright kuggat being scarce here, pits in the saturated soil are resorted to for storing blubber

and oil, which, though covered only with a thin layer of clay, are not disturbed by the dogs. Scarcity of fuel drives these people to herd together in their unwholesome caverns, and we find 4 or 5 families in each dwelling; the single men, however, all sleep in the kashga at night.

Many of the settlements on the west shore of the Kuskokwim tundra are large and populous, but the barabaras are of the very poorest construction, and seldom beyond the reach of occasional overflow from the sea. At times the inhabitants are forced to flee before an invasion of ice carried far inland by the tide, reinforced by the furious southwest gales, and when on their return they find their homes demolished they dig and build again in the same exposed localities.

The barabaras of the western Kuskokwim tundra are often so wretchedly constructed that after the winter's frost has permeated the loose crust of the earth that covers them the inmates can not keep their larger oil lamps lighted inside for any length of time without causing the water to drip and run from roof and walls. Cooking must be done out of doors or under a separate shelter above the ground, no matter how intense the cold, while the family, huddled together, crouch within by the feeble rays of a small moss-wick lamp set far into the entrance tunnel, and in one corner a lump of frozen snow is suspended in a rough framework of sticks, from which the water drips into a receptacle beneath as the animal heat emanating from the inmates gradually exerts its thawing power without affecting the frozen moisture latent in walls and roof. The question as to whether such a life be worth living must force itself upon the casual observer, but upon closer examination he would find that even under apparently most depressing circumstances these people exhibit a wonderful degree of cheerfulness. In the hours of waking there is a constant flow of pleasant conversation, banter, and joking going on, with more or less grotesque stories and tales of actual or imaginary adventures.

The sites of these tundra villages near the seaboard are always convenient for hunting seals or belugas; the settlements in the lake region of the interior seem to have been planted at the few points where the peaty soil rises sufficiently above the level swamp to permit of digging into it and constructing a shelter for human beings. On the island of Nunivak the permanent villages are located upon low, rocky headlands separating its many shallow bays, while for the purposes of fishing and gathering of berries scattered groups of temporary dwellings have been erected along the small streams and at the head of lagoons and bays. In the permanent settlements a system of underground dwellings in groups of 4 or more, with but a single entrance and connecting tunnels, exists, peculiar to this island. These habitations are described in full in another chapter.

The native dwellings on the tundra as well as on Nunivak are always made to accommodate as many families as can be crowded into them, as building material is scarce. If from any cause one of these structures is abandoned it becomes a total wreck within a very brief time.

The Eskimo tribes which inhabit the coast of Bering sea to the south and east of the Yukon mouths do not possess the art of constructing the hemispherical "igloo" of frozen snow so commonly found in winter among the denizens of the arctic zone, but in cases of emergency, when overtaken on their long journeys by the dreaded "pūrga" (snowstorm or blizzard), they do not hesitate to dig into a snow bank and make themselves quite comfortable while thus detained.

Of the 1,564 married and widowed Indian women of the district, 411, or more than one-fourth, reported themselves as having borne 2 children; 335, or a few more than one-fifth, had 3 children, and 195, or one-eighth, had 4. The number of these women reported as having given birth to more than 4 children is 179, much larger than we would expect of a savage people. Of 4,009 children to which these women had given birth, 2,848 were reported as living in 1890.

The subjoined tabular statement illustrates this phase of the social structure of a primitive people:

STATISTICS OF CHILD BEARING AMONG THE INDIAN WOMEN OF THE KUSKOKWIM DISTRICT.

MARRIED AND WIDOWED WOMEN HAVING HAD—	Number of women.	Total number of children born.
Total	1,564	4,009
No children	172	.....
1 child	272	272
2 children	411	822
3 children	335	1,005
4 children	195	780
5 children	74	370
6 children	39	234
7 children	24	168
8 children	26	208
9 children	11	99
10 children	4	40
11 children	1	11

Total number of children living, 2,848.

In the sixth or Yukon district the native villages and dwellings give evidence of the abundance of building material that grows along the upper course of the great Yukon river and is carried down by flood and ice, being distributed not only along its lower banks, but on the coast for 100 miles to the northward and southward from its entrance into Bering sea.

The Mahlemiut, Unaligmiut, and Chnagmiut inhabiting the seacoast and the low islands of the Yukon delta construct their dwellings chiefly underground, choosing headlands or sand dunes of sufficient elevation to permit of making the necessary excavations, but as we ascend the river the habitations display more and more of their structure above the ground, until at Ikogmiut mission and adjoining villages the principal part of each house is set on the surface, with walls of upright logs and roofs of bark. In the room thus inclosed, often 15 or 20 feet square, all household labor, cooking and curing fish, scraping and dressing skins, etc., is performed, and during the summer it also serves as general sleeping apartment, a platform being erected for that purpose along the inner wall. On examining the sooty and oily interior more closely, however, the observer will find a tunnel-like passage leading from the floor to an inner, underground sleeping room, which is used during the season of extremely low temperature. To favor this double construction these people frequently select for their houses a site immediately in front of a bluff or terrace, and, where this is not practicable, separate winter quarters are constructed at some more convenient point.

All the Eskimo dwellings on the Lower Yukon accommodate a number of families during the winter, but with the advent of summer they emerge from their filthy caves, and while some of the inmates remain in the outer log structure, the others disperse to the various fishing places, living in tents as long as the season may permit.

Since increased facilities for trade and better prices of furs have enabled these tribes to acquire drilling and other tent material, the tent has been adopted as the favorite summer shelter, because it not only affords a pleasant relief to lungs and eyes from the smoky and stuffy winter huts, but also enables the inmates to exclude the tormenting mosquitoes from the scene of their slumbers.

Throughout the Yukon region the dog is an indispensable adjunct of man, whose only means of transportation he supplies for three-fourths of the year. Consequently the storehouse on stilts figures prominently in each settlement and all skin canoes and bidars are laid upon frames out of reach of the always hungry beasts. Even the large wickerwork fish traps and all gear belonging to them must be hoisted into tree tops or laid on high stagings for fear that the remnants of "gurry" or even the mere odor of fish might tempt the inappeasable appetite of dog or fox to injure the implements by gnawing.

The kashga is a prominent feature of all the larger Eskimo settlements on the Lower Yukon. Many kashgas are of great dimensions and serve as rendezvous for the people from a circuit of hundreds of miles during the season of winter festivities.

Passing, in the vicinity of Kozerevsky, from Eskimo territory into the country inhabited by Athapascan tribes, the change from the double structure described above to the simple log house is very gradual. Many of the larger Ingalik villages from Anvik to the mouth of the Koyukuk have numbers of combined winter and summer dwellings, and the people have also adopted the custom of the kashga, but at Nuklukayet, and thence eastward, these signs of Eskimo influence disappear entirely, and the habitations consist chiefly of ill-constructed log huts, which are abandoned and left to decay as the necessities of the chase draw the inmates away to other fields.

The trading stations throughout this region are well built and comfortably furnished. The former necessity for high stockades around them has passed away and the ruins of blockhouses at Nulato, Andreafsky, and St. Michael are picturesque but useless appendages to the modern buildings. The most pretentious edifices, inclosed by smooth weatherboarding and painted, are at St. Michael, but the mission of the Holy Cross, at Kozerevsky, can boast of the only two-story houses north of Bristol bay and the Pribilof islands. They are extremely well built of hewn logs, lined, and ceiled.

In the vicinity of trading posts and mission stations on the upper river the natives are rapidly adopting the white man's mode of building, and in the mining district of Forty Mile creek and the Upper Yukon the cabins of the Indians laboring for the miners are fully equal in appearance and construction to those of their employers.

In the far interior, on the Tanana river and on the upper Koyukuk, the habitations of the natives are described as extremely wretched. In their constant struggle for existence the people of those remote regions are forced to adopt a nomadic life, moving frequently from place to place, and consequently they look upon their houses as only a temporary shelter, not a permanent place of abode. How they manage to keep alive during the period of extremely low temperature (often reaching -60°) in log huts with wide cracks, through which the wind and drifting snow play at will, it is difficult to understand, but they exhibit no greater mortality than is found among their comparatively better housed Ingalik and Eskimo neighbors.

Our tables relating to this section of the country show plainly that among the scattered Athapascans of the interior the custom of a dwelling for each family prevails. It is only among the Ingaliks and a few of the Koyukukhotana who have settled on the main river that we find several families in a single structure.

The seventh or Arctic district contains a single mining camp, on Fish river, at the head of Golofnin bay, with substantial dwellings, stables for draft animals, a few miles of road, and a mining plant, but thus far the camp has been occupied and worked only spasmodically, at irregular intervals. Of trading stations there are perhaps half a

dozen, with small buildings, capable of affording full protection against polar winters. In addition the United States government and the whaling companies have erected refuge stations at Point Barrow and Cape Smythe, and recently schoolhouses have been built at Cape Prince of Wales, Point Hope, and Point Barrow.

The native inhabitants of our Arctic coast and islands belong to the Eskimo family, and are gregarious in their habits, living in permanent villages. Their winter dwellings are underground huts, so poorly constructed that the summer's thawing of the ground makes them uninhabitable and forces the inmates to resort to tents or other temporary shelter. While traveling in the winter our Arctic Eskimo construct huts of frozen snow like their kinsmen on the Atlantic seaboard, but these structures are generally square in shape and not intended for prolonged occupancy. Where timber of any kind is accessible elevated storehouses are built to protect their stores of food from the dogs, but when such material is scarce caches are constructed at considerable distances from the settlements in which the supplies are deposited for safety and drawn away as needed with hand sleds, without calling upon the dogs for aid.

The winter houses in the Arctic district accommodate several families each, but during the summer they live separately in tents or other temporary shelter.

The inhabitants of King island or Ukivok have made use of natural cavities in the rock, which forms the body of the island, in constructing their dwellings. A staging of driftwood in front of these caverns supports their summer houses, covered with seal and walrus hides. Many of these cavities have been artificially enlarged and walled in front, and altogether the settlement, which occupies the face of a steep bluff in several terraces, presents a very striking appearance, which has caused the bestowal upon it of the name of "the Arctic Gibraltar".

On St. Lawrence island the ordinary underground winter dwelling prevails, each containing several families. Both driftwood and whale ribs enter into the construction of these habitations.

SIZE OF FAMILIES.

The tables appended to this chapter lead to the conclusion that though large families are of rare occurrence among the natives of Alaska, the average number of members of families is not much below that observed in civilized countries. In several of the districts this average is affected more or less by the temporary presence of large numbers of single men, grouped in boarding houses, as in fishing stations and large mining camps, or living by themselves in the region of surface mining, but wherever the original inhabitants prevail, engaged in their customary pursuits, the number of persons to the family varies but little.

In the Southeastern district the number of families, outside of the boarding houses of mines and fisheries and the educational and penal institutions, is 2,165, embracing a little over 7,000 individuals, and this would give us an average of 3.25 persons to the family. But here it becomes necessary to glance at our statistics of the conjugal condition of these people, and we find that we have in the district between 200 and 300 single individuals, living by themselves and enumerated as families of one. This would raise the average number of persons to the family to nearly 4.

Our table shows 276 white married men to but 167 married women, a discrepancy owing to the large number of temporary residents who left their wives and families behind them.

Among the descendants of the mixed Russian and Indian race we find 28 married women to 7 married men and among the Indians 1,398 married women to 1,329 married men. The difference in these numbers indicates the number of females of mixed or Indian birth married to white men or living with them as their wives and acknowledged as such.

The total number of single white males in the district out of a total of 1,389 is 1,033, of which 165 are under 21 years of age. This leaves 868 adult single white males, or 62.49 per cent. If to this figure is added the number of widowed and married white men without families we find about 200 more, giving to the family element among the white population of this district a representation of less than 25 per cent.

The white individuals reported as "widowed" in this district number 88 (5.06 per cent of the whole white population), three-fourths of whom are males.

Among the whites of this district only is found any appreciable proportion of divorced people, amounting to a little less than 1 per cent.

Among the widowed of Indian birth the females greatly outnumber the males, 245 widows to 96 widowers. This somewhat startling discrepancy has, however, no bearing upon the greater or less vitality of the respective sexes; it simply indicates that opportunity and inclination to take new helpmates are as 3 to 1 in favor of the widowers among the Indian tribes.

For the second or Kadiak district our table shows a total population of 6,112, divided into 983 families. Under ordinary circumstances this would indicate the abnormally high average of over 6 persons to the family, but the proportion of temporary residents in this district, without families and congregating in boarding houses, is very large. The Chinese laborers in canneries alone number 1,433, and the white fishermen, laborers, and sailors at least 1,000 more; and consequently the individuals to which the family division properly applies do not exceed 3,666, giving an average of 3.7 persons to the family.

In this district, also, the excess in numbers of married females of mixed and Indian birth over the males indicates the ratio of intermarriages between the different classes. In this instance the excess of married females of mixed birth is only 3, while it is 26 among those of Indian birth. These figures do not, however, prove a preference on the part of the white residents for Indian wives. The whole excess of the latter class is accounted for by intermarriage of males of mixed birth with Indian females, while the women of the former class have married white men.

The excess of widowed females over males in the same condition among the mixed class and the Indians is somewhat less noticeable here than in the first district.

The third or Unalaska district affords another instance of the relative proportion of individuals and families leading to deduction of an erroneous average size of family. The population of 2,361 divided into 544 families would give us an average of 4.34 persons to the family, but when we deduct 340 single white males and 100 married men of the same class without their families, together with 137 Chinese (all temporary residents) from the total population, the average size of family is reduced to 3.28. A slight excess of married females of mixed birth over males indicates a corresponding ratio of intermarriage with white men. Both the native and mixed class in this district furnish us with the only instances in Alaska of an excess of females over males.

In the fourth or Nushagak district the apparent average size of families of nearly 6 persons must be reduced by deducting over 300 temporary white residents living in boarding houses and 384 Chinese laborers; this would give a real average of a little over 4 persons to the family. The slight excess of married Indian females over males in this district is due wholly to a few isolated instances of a second wife being taken by some exceptionally prosperous and enterprising individual.

The fifth or Kuskokwim district, being inhabited almost entirely by natives, most of whom are still living in their primitive condition, furnishes the most interesting material for statistics of sizes of families, the number of families to the house, and the average number of inmates to the dwelling. Though living in the most wretched habitations, in total disregard of all laws of sanitation, these people maintain a higher rate (4.95) of persons to the family than we find in any other section of Alaska. Their gregarious nature is evidenced by an average of 2.65 families to each dwelling throughout the district, and the average number of individuals in each habitation is 13.09.

The sexes are evenly divided among these tribes, and the slight excess of married females over males is owing to plurality of wives in exceptional cases. The widows outnumber the widowers 2 to 1.

As this is the only section of Alaska and also of the United States where the natives are still almost entirely removed from intercourse with whites and the changes in the social structure always resulting therefrom, it has seemed desirable to discuss the social statistics of this district more at length, and to compile a special table illustrative of the composition of human society in a savage or primitive state. The fact that these tribes are not habitually polygamous makes these statistics all the more valuable for the purposes of comparison. The Eleventh Census affords probably the last opportunity of this kind, as another decade must necessarily witness some ingress of civilized elements into the population and some changes in their habits and social structure.

From the accompanying table it appears that of these 5,640 natives living without any restraint, and enabled by their small wants to follow their natural inclinations and impulses, 2,833, or a little more than one-half, maintained or had previously maintained marital relations, nearly 25 per cent of them being widowed, females predominating among the latter at the ratio of over 2 to 1. Of the 2,807 individuals reported as single, 2,504 were under 20 years of age, leaving but 303 single persons of 20 years and over, divided as follows by age periods:

AGE PERIODS.	Total.	Male.	Female.
Total	303	236	67
20-24	228	176	52
25-29	60	47	13
30-34	12	11	1
35-39	.....	.....	.....
40-44	1	.....	1
45-49	2	2	.....

An examination of the columns of married males and females in the table below will discover that the number of married males of one age period corresponds very closely with that of females in the preceding age period, leading to the conclusion that among these children of nature the difference in age between couples assuming marital relations is in the neighborhood of 5 years in favor of the males.

The youngest wives and widows were found in the age period from the tenth to the fourteenth year, and that the females mate young as a rule is evidenced by the fact that in the following age period, from 15 to 19 years, we find 212 married women and 12 widows against only 5 youthful husbands. The number of married women is greatest between the ages of 20 and 24 (254), corresponding with the maximum of married males (253) between the ages of 25 and 29 years.

ANALYSIS OF CONJUGAL CONDITION OF INDIANS OF THE KUSKOKWIM DISTRICT BY SEX AND AGE PERIODS.

AGE PERIODS.	POPULATION.			SINGLE.			MARRIED.			WIDOWED.		
	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.
Total	5,640	2,830	2,810	2,807	1,561	1,246	2,160	1,067	1,093	673	202	471
Under 1	84	48	36	84	48	36	.....	.....	.....	.....	.....	.....
1- 4	739	380	359	739	380	359	.....	.....	.....	.....	.....	.....
5- 9	651	323	328	651	323	328	.....	.....	.....	.....	.....	.....
10- 14	535	278	257	532	278	254	2	.....	2	1	.....	1
15- 19	727	301	426	498	296	202	217	5	212	12	.....	12
20- 24	703	358	345	228	176	52	429	175	254	46	7	39
25- 29	564	322	242	60	47	13	424	253	171	80	22	58
30- 34	404	207	197	12	11	1	319	177	142	73	19	54
35- 39	316	160	156	.....	.....	.....	223	134	89	93	26	67
40- 44	246	103	143	1	.....	1	171	78	93	74	25	49
45- 49	246	131	115	2	2	.....	151	94	57	93	35	58
50- 54	163	81	82	.....	.....	.....	88	55	33	75	26	49
55- 59	107	56	51	.....	.....	.....	59	37	22	48	19	29
60- 64	105	57	48	.....	.....	.....	53	42	11	52	15	37
65- 69	20	10	10	.....	.....	.....	12	8	4	8	2	6
70- 74	7	3	4	.....	.....	.....	3	2	1	4	1	3
75- 79	10	6	4	.....	.....	.....	6	4	2	4	2	2
80- 84	8	4	4	.....	.....	.....	3	3	.....	5	1	4
85- 89	4	2	2	.....	.....	.....	.....	.....	.....	4	2	2
90- 94	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
95- 99	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
100-104	1	.....	1	.....	.....	.....	.....	.....	.....	1	.....	1

Considering this table from another standpoint, we find that the Indian females of this primitive district begin to decline rapidly in numbers after the twentieth year, while with the males the decline does not become noticeable until after the twenty-fifth year. The small number of infants under 1 year reported seems out of proportion, but we must consider that these stolid little mites were often overlooked by the enumerator, and more frequently concealed by the superstitious mothers, who feared that evil might result from recording the baby's name or age. Children of 1 year and over put themselves in evidence creeping or walking. The figures given for the succeeding early-age periods would indicate that mortality among children is not great in spite of constant exposure and frequent want. This is partially explained by the fact that mothers nurse their offspring until they are 5 or 6 years old and almost able to provide for themselves by catching fish or killing birds.

FRUITFULNESS OF INDIAN WOMEN IN THE KUSKOKWIM DISTRICT BY AGE PERIODS.

AGE PERIODS.	MARRIED.			WIDOWED.		
	Total.	No children.	Children.	Total.	No children.	Children.
	1,093	145	948	471	27	444
10- 14	2	2	.....	1	1	.....
15- 19	212	88	124	12	4	8
20- 24	254	25	229	39	6	33
25- 29	171	8	163	58	2	56
30- 34	142	5	137	54	3	51
35- 39	89	5	84	67	4	63
40- 44	93	5	88	49	2	47
45- 49	57	5	52	58	1	57
50- 54	33	.....	33	49	1	48
55- 59	22	1	21	29	1	28
60- 64	11	1	10	37	2	35
65- 69	4	.....	4	6	.....	6
70- 74	1	.....	1	3	.....	3
75- 79	2	.....	2	2	.....	2
80- 84	.....	.....	.....	4	.....	4
85- 89	.....	.....	.....	2	.....	2
100-104	.....	.....	.....	1	.....	1

In the sixth or Yukon district our table shows a population of 3,912, of whom 3,583 are Indians, 127 of mixed births, and 202 whites, divided into 894 families. The 174 single white males were living in a few mining camps, in cabins, singly or in couples; consequently we need not take them into consideration in regard to the average size of families, which here approaches 4.18 persons.

The Indians of this district are divided as to conjugal condition very nearly in the same proportion as those of the fifth. Nearly one-half, 1,743, were reported as single and 1,840 as married and widowed, the males exceeding the females in numbers by over 100. Of the unmarried a large majority is under 20 years of age.

In the seventh or Arctic district the 391 whites, of whom 365 are single, are almost to a man temporary residents, employed on whaling ships and stations. The proportion between the native population of 2,729 and the 678 families given in the table would indicate a ratio of about 4 persons to the family. The slight excess of married Indian females over males is partially accounted for by occasional plurality of wives and partially by intermarriage with whites who have left the whaling ships and eke out a precarious existence on the arctic shore.

In conclusion, a full tabular statement of conjugal statistics is given for each district and a summary of the same for all Alaska.

The last named statement shows in the aggregate a considerable excess of single and married males over females in the same conditions, but this is owing altogether to the large temporary element in Alaska's population, which consists almost wholly of males. As to the Indians, the relative numbers of single, married, and widowed in the aggregate correspond closely with the proportion pointed out in the various districts. Of a total Indian population of 23,531, 11,661, or nearly one-half, were reported as single, and of these about 10,000 are under 20 years of age. The Indian males and females in Alaska maintaining marital relations number 9,820, and those who have lost their mates, 2,030.

CONJUGAL CONDITION

SUMMARY.

CONJUGAL CONDITION.	AGGREGATE.			WHITE.			MIXED.			INDIAN.			MONGOLIAN.			ALL OTHERS.		
	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.
Total	32,052	19,248	12,804	4,298	3,853	445	1,823	891	932	23,531	12,105	11,426	2,288	2,288	.....	112	111	1
Single	17,548	11,845	5,703	3,234	3,007	227	1,037	557	480	11,661	6,665	4,996	1,513	1,513	.....	103	103	.....
Married	12,129	6,579	5,550	879	686	193	652	299	353	9,820	4,816	5,004	772	772	.....	6	6	.....
Widowed	2,325	788	1,537	159	136	23	130	35	95	2,030	612	1,418	3	3	.....	3	2	1
Divorced	45	31	14	21	19	2	4	.....	4	20	12	8	.....	.....	.....	.....	.....	.....
Unknown	5	5	.....	5	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

FIRST DISTRICT.

Total	8,038	4,842	3,196	1,738	1,389	349	133	67	66	5,834	3,054	2,780	329	329	.....	4	3	1
Single	4,238	2,912	1,326	1,191	1,033	158	93	58	35	2,752	1,619	1,133	200	200	.....	2	2	.....
Married	3,333	1,740	1,593	443	276	167	35	7	28	2,727	1,329	1,398	128	128	.....	.....	.....	.....
Widowed	436	166	270	88	66	22	4	2	2	341	96	245	1	1	.....	2	1	1
Divorced	31	24	7	16	14	2	1	.....	1	14	10	4	.....	.....	.....	.....	.....	.....
Unknown	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

SECOND DISTRICT.

Total	6,112	4,398	1,714	1,105	1,056	49	784	407	377	2,782	1,494	1,288	1,433	1,433	.....	8	8	.....
Single	3,736	2,900	836	848	809	39	421	243	178	1,502	883	619	958	958	.....	7	7	.....
Married	2,060	1,350	710	212	203	9	305	151	154	1,068	521	547	474	474	.....	1	1	.....
Widowed	306	142	164	39	38	1	55	13	42	211	90	121	1	1	.....	.....	.....	.....
Divorced	5	1	4	1	1	.....	3	.....	3	1	.....	1	.....	.....	.....	.....	.....	.....
Unknown	5	5	.....	5	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

THIRD DISTRICT.

Total	2,361	1,434	927	520	495	25	734	343	391	967	456	511	137	137	.....	3	3	.....
Single	1,404	929	475	382	366	16	419	207	212	507	260	247	95	95	.....	1	1	.....
Married	749	439	310	121	112	9	251	117	134	334	167	167	41	41	.....	2	2	.....
Widowed	205	63	142	14	14	.....	64	19	45	126	29	97	1	1	.....	.....	.....	.....
Divorced	3	3	.....	3	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Unknown	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

FOURTH DISTRICT.

Total	2,726	1,712	1,014	318	310	8	28	10	18	1,996	1,008	988	384	384	.....	.....	.....	.....
Single	1,573	1,087	486	251	247	4	14	6	8	1,053	579	474	255	255	.....	.....	.....	.....
Married	979	573	406	57	53	4	13	4	9	780	387	393	129	129	.....	.....	.....	.....
Widowed	174	52	122	10	10	.....	1	.....	1	163	42	121	.....	.....	.....	.....	.....	.....
Divorced	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Unknown	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

FIFTH DISTRICT.

Total	5,681	2,854	2,827	24	19	5	17	5	12	5,640	2,830	2,810	.....	.....	.....	.....	.....	.....
Single	2,837	1,578	1,259	16	13	3	14	4	10	2,807	1,561	1,246	.....	.....	.....	.....	.....	.....
Married	2,170	1,073	1,097	7	5	2	3	1	2	2,160	1,067	1,093	.....	.....	.....	.....	.....	.....
Widowed	674	203	471	1	1	.....	.....	.....	.....	673	202	471	.....	.....	.....	.....	.....	.....
Divorced	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Unknown	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

CONJUGAL CONDITION—Continued.

SIXTH DISTRICT.

CONJUGAL CONDITION.	AGGREGATE.			WHITE.			MIXED.			INDIAN.			MONGOLIAN.			ALL OTHERS.		
	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.
Total	3,912	2,099	1,813	202	193	9	127	59	68	3,583	1,847	1,736	.....	.....	.....	.....	.....	.....
Single	2,000	1,211	789	181	174	7	76	39	37	1,743	998	745	.....	.....	.....	.....	.....	.....
Married	1,582	789	793	17	15	2	45	19	26	1,520	755	765	.....	.....	.....	.....	.....	.....
Widowed	329	98	231	3	3	.....	6	1	5	320	94	226	.....	.....	.....	.....	.....	.....
Divorced	1	1	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Unknown	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

SEVENTH DISTRICT.

Total	3,222	1,909	1,313	391	391	.....	.....	.....	.....	2,729	1,416	1,313	5	5	.....	97	97	.....
Single	1,760	1,228	532	365	365	.....	.....	.....	.....	1,297	765	532	5	5	.....	93	93	.....
Married	1,256	615	641	22	22	.....	.....	.....	.....	1,231	590	641	.....	.....	.....	3	3	.....
Widowed	201	64	137	4	4	.....	.....	.....	.....	196	59	137	.....	.....	.....	1	1	.....
Divorced	5	2	3	.....	.....	.....	.....	.....	.....	5	2	3	.....	.....	.....	.....	.....	.....
Unknown	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

POPULATION DISTRIBUTED BY AGE PERIODS, AND SHOWING SEX AND RACE.

AGE PERIODS.	AGGREGATE.			WHITE.			MIXED.			INDIAN.			MONGOLIAN.	ALL OTHERS.		
	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Male.	Total.	Male.	Female.
All ages	32,052	19,248	12,804	4,298	3,853	445	1,823	891	932	23,531	12,105	11,426	2,288	112	111	1
Under 1	526	264	262	33	18	15	64	28	36	429	218	211	.....	.....	.....	.....
1- 4	2,912	1,517	1,395	105	53	52	232	104	128	2,575	1,360	1,215	.....	.....	.....	.....
5- 9	3,125	1,648	1,477	115	64	51	240	128	112	2,769	1,455	1,314	1	.....	.....	.....
10- 14	2,784	1,505	1,279	87	41	46	174	82	92	2,521	1,380	1,141	2	.....	.....	.....
15- 19	3,160	1,538	1,622	143	102	41	247	105	142	2,684	1,245	1,439	83	3	3	.....
20- 24	3,347	2,039	1,308	476	432	44	186	92	94	2,429	1,259	1,170	230	26	26	.....
25- 29	3,719	2,509	1,210	837	785	52	200	97	103	2,158	1,104	1,054	475	49	48	1
30- 34	3,306	2,306	1,000	825	780	45	114	58	56	1,787	888	899	566	14	14	.....
35- 39	2,866	1,943	923	550	522	28	104	55	49	1,756	910	846	446	10	10	.....
40- 44	2,194	1,446	748	426	406	20	87	48	39	1,354	665	689	321	6	6	.....
45- 49	1,499	971	528	292	275	17	53	32	21	1,064	574	490	89	1	1	.....
50- 54	1,053	662	391	205	187	18	29	13	16	769	412	357	50	.....	.....	.....
55- 59	676	405	271	104	99	5	43	23	20	508	262	246	19	2	2	.....
60- 64	492	286	206	71	63	8	22	10	12	393	207	186	5	1	1	.....
65- 69	199	102	97	18	16	2	16	11	5	164	74	90	1	.....	.....	.....
70- 74	104	59	45	7	6	1	5	1	4	92	52	40	.....	.....	.....	.....
75- 79	50	30	20	3	3	.....	6	3	3	41	24	17	.....	.....	.....	.....
80- 84	21	11	10	.....	.....	.....	.....	.....	.....	21	11	10	.....	.....	.....	.....
85- 89	10	3	7	1	1	.....	.....	.....	.....	9	2	7	.....	.....	.....	.....
90- 94	3	2	1	.....	.....	.....	.....	.....	.....	3	2	1	.....	.....	.....	.....
95- 99	3	.....	3	.....	.....	.....	.....	.....	.....	3	.....	3	.....	.....	.....	.....
100-104	2	1	1	.....	.....	.....	.....	.....	.....	2	1	1	.....	.....	.....	.....
105-109	1	1	.....	.....	.....	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....

POLITICAL ANALYSIS OF THE WHITE POPULATION IN THE SUMMER OF 1890.

SUMMARY.

DISTRICTS.	TOTAL WHITE.			WHITE MALES.						
				Under 21 years.			Citizens.			Aliens.
	Total.	Male.	Female.	Total.	Native.	Foreign.	Total.	Native.	Foreign.	
Total white inhabitants	4,298	3,853	445	320	254	66	2,531	1,192	1,339	1,002
Temporary white inhabitants	2,277	2,251	26	94	53	41	1,456	565	891	701
Permanent white inhabitants	2,021	1,602	419	226	201	25	1,075	627	448	301
Total	4,298	3,853	445	320	254	66	2,531	1,192	1,339	1,002
First, or Southeastern	1,738	1,389	349	165	142	23	1,065	552	513	159
Second, or Kadiak	1,105	1,056	49	76	59	17	607	178	429	373
Third, or Unalaska	520	495	25	26	18	8	310	160	150	159
Fourth, or Nushagak	318	310	8	11	4	7	174	38	136	125
Fifth, or Kuskokwim	24	19	5	10	10	.....	6	2	4	3
Sixth, or Yukon	202	193	9	10	10	.....	140	70	70	43
Seventh, or Arctic	391	391	.....	22	11	11	229	192	37	140

ANALYSIS OF THE WHITE POPULATION ENUMERATED IN 1890 TEMPORARILY EMPLOYED IN SUMMER ONLY.

DISTRICTS.	TOTAL WHITE.			WHITE MALES.						
				Under 21 years.			Citizens.			Aliens.
	Total.	Male.	Female.	Total.	Native.	Foreign.	Total.	Native.	Foreign.	
Total	2,277	2,251	26	94	53	41	1,456	565	891	701
First district:										
Cannery employés	216	207	9	11	6	5	160	67	93	36
Crew of United States steamer Patterson.	47	47	.....	.....	.....	.....	35	16	19	12
Second district:										
Cannery employés	928	926	2	34	19	15	604	149	455	288
Third district:										
Crews of American sealers	126	124	2	13	8	5	77	44	33	34
Crews of trading and fishing vessels	117	112	5	3	1	2	81	33	48	28
Cannery employés	134	134	.....	4	4	.....	83	24	59	47
Fourth district:										
Cannery employés	310	302	8	11	4	7	169	38	131	122
Sixth district:										
United States surveying party	18	18	.....	.....	.....	.....	18	5	13	.....
Seventh district:										
Crews of whale ships	381	381	.....	18	11	7	229	189	40	134

CHAPTER XII.

CHURCHES, SCHOOLS, ILLITERACY, AND LANGUAGE.

CHURCHES.

Previous to the purchase of Alaska by the United States the Russian Orthodox church was the only christian organization engaged in missionary work among the natives of the territory. At Sitka, only, there was a small flock of Lutheran officials, sailors, and laborers, for whose benefit the fur company employed a pastor and erected a small church.

The pioneers of the Russian church on the coast of North America were the chaplains accompanying the few naval exploring vessels which visited the new Russian discoveries during the last quarter of the eighteenth century. The first regular mission, consisting of a bishop and a number of subordinate clergy, 11 in all, arrived in the territory in 1793. At that time the central depot of the company was on Kadiak island, and thence the new apostles scattered in various directions. The monk Mokar met with the earliest success among the docile natives of the Aleutian islands. Father Herman and 2 assistants built a chapel and established a school on Spruce island; Father Juvenal visited Cook inlet, and thence wandered westward to Lake Iliamna, where, after a few years, he met his death at the hands of natives who resented his interference with polygamy, the only martyr of the faith known to the history of early propagation of the gospel in Alaska. Within a few years of the transfer of the company's headquarters to Sitka, a chapel was erected, and from that time on a regular incumbent was always stationed there, Alexander Sokolof being the first. Among other priests sent out from Russia at the beginning of the present century were Netzvetof and Veniaminof, the latter becoming widely known, not only through his successful missionary labors but also through his literary and linguistic work.

Veniaminof was subsequently made a bishop, when, in accordance with a custom of his church, he adopted the name of Innokenty. He died not many years ago, ripe in years and loaded with honors, having reached the highest office within his line of preferment as metropolite of Moscow. Three times only during its century of existence has Sitka been the residence of a bishop. Veniaminof was the first, but upon his advice the diocese was enlarged to embrace Kamchatka and eastern Siberia, with the town of Yakutat as the see.

Nearly 40 years later Bishop Peter was in residence at Sitka, and after another interval came the last incumbent, Bishop Pavel, who transferred the headquarters of the diocese, then reduced to Alaska and California, to San Francisco.

The Russian parishes, supplied with "white" or secular clergy, were Sitka, Kadiak, Unalaska, and Atka. Missionary stations in charge of "black" clergy, or monks, were located on Spruce island, at Kenai, at Nushagak, and on the Yukon, but occasionally the missions were served by secular clergy and parishes by monks for short periods at a time. The communities on the Seal islands, and at Belkovsky, have employed ordained priests at their own expense since they became prosperous under American rule. The Atka church has been without regular incumbent much of the time.

Numerically, the Russian Orthodox church is now as strong in Alaska as when 700 Russians swelled its ranks. Recent additions have all been obtained from Thlingits, in the vicinity of Sitka, and from the Eskimo and Ingalik of Lower Yukon river. The accompanying table represents the present status of this church, with its membership of but little over 10,000, 1 cathedral, 7 parish churches, and 34 subordinate churches and chapels.

The most pretentious building of the Russian church in Alaska, though by no means the most handsome, externally, is the cathedral of St. Michael, in Sitka. Its interior is richly decorated with oil paintings, gold and silver, carved screens, and silken hangings. The altar service, chandeliers, lamps, jewels, and vestments are very costly, and the elaborate ceremonies always attract the attention of all tourists who visit the capital upon one of the numerous Russian holidays. A large two-story parsonage, a modern schoolhouse, and several dwellings of the subordinate members of the clergy are included in the church property.

The Russian chapel at Killisnoo, situated upon a bluff behind the settlement, is a neat little edifice kept in good repair, but the place has been supplied with a priest only intermittently.

At Nuchek, in Prince William sound, there is a much dilapidated little chapel, to which nearly 500 people come at various times to worship. This scattered community has never had a regular incumbent and has been visited only at intervals of many years by the Kadiak priest, under whose care they are nominally placed. The chief inconvenience of this state of affairs lies in the impossibility of having marriages performed at the proper time, and at each successive long-looked-for visit of the priest a number of informal unions have to be legalized, affording the startling spectacle of a row of bridal couples standing up together, attended by a row of little toddlers and babies in arms. There have been intervals of 6 and 8 years between priestly visits to Nuchek. The ordinary simple services are conducted by a "reader" (prechetniks) who can administer no rites but baptism of infants.

At Kenai, on Cook inlet, there are an old chapel, a new priest's residence, and a new church in course of construction. Though the resident community is small, several hundreds of Indians come to the mission from the nearer villages at various times and the priest makes annual journeys to the more distant ones to administer the rites of marriage and baptism.

The settlements of Seldovia and Alexandrovsk (English bay) have small chapels built of logs, one of the residents in each serving as reader, and once or twice during the year the priest from Kenai visits these localities. The present church building at Kadiak is the third erected since 1797. It is built of hewn logs, and has but recently been weatherboarded and painted. An interior view of the edifice is shown in the accompanying plate. There is also a two-story frame parsonage, erected 10 years ago. The priest of the Kadiak parish, assisted by two "diakons", attends to the spiritual wants of a vast territory, and the greater part of the summer season is devoted to travel by steamer, sailing boat, or canoe. A subordinate chapel at Lesnoi village, on Wood island, within a mile of Kadiak, is served by the priest on the more important occasions, while a reader attends to the ordinary services.

The Creole settlement of Afognak, upon the island of the same name, supports a small chapel picturesquely situated upon a projecting point of land, and served intermittently by one of the Kadiak diakons. The more important ceremonies are performed by the parish priest, who also visits the settlement during the annual season of confession and penance.

Nearly all the settlements within the limits of Kadiak parish are provided with small chapels, served by readers. These structures are generally built with logs cut in the forests of Afognak and carried to the villages by the accommodating traders. In outward appearance these chapels are not attractive, but many of them are quite tastefully decorated in the interior, and in all of them the greatest neatness is preserved. The following settlements have chapels served by readers only: Akhiok, Ayaktalik, Cape Douglas, Kaguyak, Killuda, Katmai, Old Harbor, Orlova, Uzinkee, Karluk, Lesnoi, and Nuchek.

Unalaska parish, attached to the Church of the Ascension, comprises the large territory extending from the Shumagin islands in the east to Attu, the westernmost island of the Aleutian chain, including the south coast of the Alaska peninsula from Portage bay to Morzhovoi.

The easternmost church in this parish is at Unga, on Delarof bay, Unga island. It is a neat frame structure, erected at the cost of $2,500, and is served ordinarily by a reader; for the more important services the church is visited by the priest of Belkovsky. A small chapel has been erected by the Creole inhabitants of Korovin island.

On Voznesensky island, a few miles to the westward of Unga, the native sea-otter hunters erected during more prosperous times a small, handsome chapel costing $1,500, and dedicated it to the Ascension.

Another neat chapel costing nearly $1,000 was erected by the sea-otter hunters of Morzhovoi or Protassof settlement.

In the village of Belkovsky, which for long years was the center of the wealth producing sea-otter industry, there is a very handsome frame church, erected at a cost of over $13,000 and expensively fitted within. This church is served by a resident priest who is, however, subordinate to the parish priest at Unalaska, whom he relieves of all parochial visits to the eastward of Belkovsky. During the former flush times of sea-otter hunting large donations were showered upon the Belkovsky church not only by residents but by hunters from remote settlements who came to profit by the prolific hunting grounds of Sannak and Chernobura. The result was that these subordinate edifices outshine in splendor of appointments as well as in outward appearance the parent church at Unalaska.

The residence of the priest in charge of this parish is in the village of Unalaska or Iliuliuk, and consists of a two-story frame building of modern architecture. The church is large and commodious, but somewhat dingy in outward appearance and funds have been collected to erect a new edifice in its place. A handsome frame school building forms part of the church property, and a neat cottage adjoining the church has been erected by the natives from the Seal islands for the widow of the former incumbent of Unalaska parish. The priest stationed here visits the outlying villages of his parish by means of trading schooners and canoes, performing tedious and often dangerous journeys from island to island along the Aleutian chain.

Small chapels served by readers only are located at Sannak, Borka, Chernovsky, Makushin, Umnak, and Attu.

On the island of Atka, in the village of Nazan, there is a more pretentious church edifice in charge of a subordinate priest. Under the Russian régime Atka formed a separate parish, including the Commander or Russian Seal islands and several of the Kurile chain.

The native sealers on the island of St. Paul rejoice in the possession of the handsomest church edifice in Alaska, costing $20,000. It was erected chiefly with gifts of the sealers, increased by donations by members of the Alaska Commercial Company. The church on St. George island is smaller, but neat and tastefully ornamented within. Both churches are served by ordained priests, subordinate to the church at Unalaska, but supported entirely by the members of their respective flocks.

At Nushagak a mission of the Russian Orthodox church has been in existence since 1837, embracing the territory on the north side of the Alaska peninsula, and to the northward and westward of Bristol bay as far as the Togiak basin and the headwaters of Nushagak or Tahlekuk river. The church building at Nushagak is small but neatly fitted out, and its value is estimated at $5,000. The resident priest and 2 diakons perform long journeys with canoes in summer and dog sleds in winter to visit their scattered parishoners.

Small outlying chapels have been erected at the villages of Yekuk, Pakwik, Ighiak, and Ugashik.

The northernmost parish of the Russian Orthodox church in Alaska, officially known as the Pokrovskaia mission, embraces the vast region drained by the Yukon and Kuskokwim rivers. The central establishment, which was founded in the third decade of the present century by Father Netzvetof, is located at the village of Ikogmiut on the north bank of the Yukon about 300 miles from its mouth. The present incumbent, a native of the country, claims over 5,000 communicants, of which the census schedules realized only 3,173, scattered over territory as large as the state of Pennsylvania. The church at Ikogmiut is an old log structure valued at $1,609, which will be replaced at an early day by a new building. It is picturesquely situated on an eminence overlooking the river. A substantial subordinate chapel has been erected at Kolmakovsky on Kuskokwim river, at an expense of $1,500, and another modern frame structure, neatly painted, attracts the eye of the visitor at St. Michael, the central trade mart of this region.

A table containing such statistics as could be obtained of the church membership, location of churches and chapels, and value of church property belonging to the Russian Orthodox church is hereafter inserted.

The first Protestant church organized in Russian America was a Lutheran chapel at Sitka, which was established about the year 1842 by Chief Manager Etholin, for the benefit of the Finlanders and Germans among the officers and employés of the Russian-American Company. The last incumbent of the church left Sitka after the purchase of Alaska, but a number of Protestant churches have been organized in Alaska since the purchase of the country by the United States. Among the first denominations to establish themselves in the newly acquired territory were the Presbyterians, who now possess 5 distinct church organizations in the southeastern district. The southernmost of these is the prosperous Presbyterian mission at Howkan (or Jackson), numbering 110 native and 8 white communicants. The value of the church edifice at Howkan was not reported.

The Presbyterian church at Wrangell was the first organization in the country, having been established in 1876 by Rev. S. Hall Young. The community possesses a neat frame church valued at $2,000, and reports 46 native and 7 white communicants.

The Thlingit Presbyterian mission is located at Juneau, with a membership of 39 natives and 5 whites, and worships in a frame building valued at $1,350.

At Sitka the Presbyterians have 2 church organizations: the First Presbyterian of 12 white communicants, possessing a neat little church erected at a cost of $1,000, and the First Presbyterian Thlingit, embracing 254 communicants (14 white and 240 natives), nearly all of them connected with the Indian industrial training school. The church building belonging to this organization is valued at $4,000.

A small church has been organized at Juneau in connection with the Presbyterian Mission Home for native children, but the number of communicants is small, and they do not possess a house of worship.

At the village of Huna, on Chichagof island, a Presbyterian mission has been in existence since 1885, but no report has been received as to the value of the buildings or number of communicants.

The government school at Point Barrow, on the Arctic coast, has been placed in the hands of a Presbyterian missionary, who reported in 1890 as follows: "The hindrances to church work are many. Association with white men has had a demoralizing influence. Another hindrance is the lack of a livelihood. The natives are under the necessity of hunting and whaling, and these two occupations keep them busy and away from home nearly the entire year."

The Society of Friends has a mission home in Douglas city at which meetings are held, but no statistics as to membership or improvements have been received.

The Baptist Missionary Society proposes to establish an orphanage at Wood island, Kadiak.

The government school at Cape Prince of Wales has been placed in the hands of the Congregational missions.

One of the most prosperous and substantial church organizations in southeastern Alaska is the community of New Metlakahtla, located at Port Chester, Annette island. These people, belonging to the Tsimpsean tribe of British Columbia, are followers of Mr. William Duncan, who reports the church as undenominational and its membership 763 natives and 3 whites. No report was made of the value of the substantial building serving the purpose of both church and school at Metlakahtla.

The Swedish Free Mission society, through its American branch with headquarters at Chicago, Illinois, has established 2 stations in Alaska; 1 at Yakutat and the other at Unalaklik, on Norton sound. The former

establishment was reported with a church building valued at $1,200, and 17 native and 3 white communicants; the latter with a building valued at $1,400, and 12 native and 2 white communicants. Both of these missions have since been much enlarged in scope.

The Moravian Society for the Propagation of the Gospel entered upon the field of missionary labors in Alaska some 10 years ago. They now possess 2 prosperous stations, the Carmel mission at Nushagak, which in 1890 reported but 18 members, 11 of them native, and the Bethel mission on Kuskokwim river, with 29 members, 21 of them natives, in 1890. The edifices at these 2 stations are valued at $4,000. The missionaries at Carmel and Bethel perform much of their labors while traveling through the interior wilds on foot or with dog teams. Each establishment consists of 1 missionary and several assistants, both male and female, and a branch station has since been established at Lomavigamute, on the Lower Kuskokwim.

The Protestant Episcopal church now has 2 missionary stations on Yukon river; 1 at Anvik, which in the year 1890 reported a membership of 4 natives and 2 whites, with mission buildings valued at $1,200. The second station at Nuklukayet was formerly occupied by a clergyman of the Church of England who was relieved by an American missionary in 1891.

The Methodist church has gained a foothold in Alaska by establishing a home for girls in the village of Unalaska with the assistance of the United States government. Up to the year 1890 no buildings had been erected for this establishment, but the society proposes to build in the near future.

The Roman Catholic church was also early represented in our northern possessions. The first reconnoissance was made by Bishop Charles Seghers, and resulted in the erection of the church at Wrangell, not far from the Presbyterian mission. This field was subsequently abandoned for Juneau, where the Church of the Nativity was erected at a cost of over $3,000. In 1890 this church reported 325 white communicants. The explorations of Bishop Seghers on Yukon river resulted in the permanent establishment of missions at Nulato, Kozerevsky, and Tununuk. The St. Peter Claver mission at Nulato reported in 1890 a building worth $1,200 and a membership of 80. The Holy Cross mission at Kozerevsky reported buildings valued at $3,000 and a membership of 59. The Immaculate Conception mission at Tununuk reported a building valued at $1,000 and a membership of 34. The educational work performed by these Roman Catholic missions is referred to in another place.

The accompanying tables represent the rather meager statistics thus far obtained concerning the work of church organizations in Alaska.

SUMMARY.

DENOMINATIONS.	COMMUNICANTS.				Value of church property.
	Total.	White.	Creole.	Native.	
Total	12,167	438	1,924	9,805	$328,219
Russian Orthodox	10,335	30	1,891	8,414	303,644
Protestant	1,334	71	3	1,260	16,150
Roman Catholic	498	337	30	131	8,425

RUSSIAN ORTHODOX CHURCH.

NAMES OF CHURCHES.	Location.	COMMUNICANTS. (a)				Value of church property.	By whom supported.
		Total.	White.	Creole.	Native.		
Total		10,335	30	1,891	8,414	$284,444	
Estimated value of 27 chapels						19,200	
Total value of church property						303,644	
I. St. Michael's cathedral (parish)	Sitka	1,226	10	213	1,003	200,000	Russian government.
Subordinates:							
Chapel	Killisnoo					2,000	Partly by Russian government.
II. St. Nicholas mission (parish)	Kenai	1,115		147	968	5,000	Russian government.
Subordinates:							
Alexandrovsky	English bay						By members.
Chapel	Seldovia						Do.
III. Church of the Resurrection (parish)	Kadiak	2,390	9	637	1,744	12,000	Russian government.
Subordinates:							
Chapel	Afognak						By members.
Do	Akhiok						Do.
Do	Ayaktalik						Do.
Do	Cape Douglas						Do.
Do	Kaguyak						Do.
Do	Killuda						Do.
Do	Katmai						Do.
Do	Old harbor						Do.
Do	Orlova						Do.
Do	Uzinkee						Do.
Do	Karluk						Do.
Do	Lesnoi						Do.
Konstantinovsky	Nuchek						Do.
IV. Church of the Ascension (parish)	Unalaska	1,419		608	811	10,000	Russian government.
Subordinates:							
Resurrection	Belkovsky					14,325	By members.
Bosbematic	Unga					2,500	Do.
Ascension	Voznesensky					1,500	Do.
Kazansky	Korovinsky					700	Do.
Protassof	Morzhovoi					800	Do.
Chapel	Atka						Do.
Do	Attu						Do.
Do	Borka						Do.
Do	Chernovsky						Do.
Do	Makushin						Do.
Do	Sannak						Do.
Do	Umnak						Do.
V. St. Peter and St. Paul (parish)	St. Paul island	219		111	108	20,000	Do.
VI. St. George (parish)	St. George island	85		36	49	5,000	Do.
VII. Nushagak mission (parish)	Nushagak	708		28	680	5,000	Russian government.
Subordinates:							
Chapel	Yekuk						By members.
Do	Pakwik						Do.
Do	Ighiak						Do.
Do	Ugashik						Do.
VIII. Pokrovskaia mission (parish)	Ikogmiut	3,173	11	111	3,051	1,619	Russian government.
Subordinates:							
Chapel	Kolmakovsky					1,500	Private subscription.
Do	St. Michael					2,500	Do.

a Communicants of parish churches include all subordinates.

Over five-sixths of the annual salaries of the clergy is paid by the Russian government, and the remainder is paid by members.

PROTESTANT CHURCHES.

NAMES OF CHURCHES.	Location.	COMMUNICANTS.				Value of church property.	By whom supported.
		Total.	White.	Creole.	Native.		
Total		1,334	71	3	1,260	$16,150	
Presbyterian		481	46		435	8,350	
I. First Presbyterian	Sitka	12	12			1,000	Presbyterian Board, home missions.
II. First Presbyterian Thlingit	Sitka	254	14		240	4,000	Do.
III. Presbyterian church	Wrangell	53	7		46	2,000	Do.
IV. Haida Presbyterian mission	Howkan	118	8		110		Do.
V. Thlingit Presbyterian mission	Juneau	44	5		39	1,350	Do.
Protestant Episcopal.							
I. Christ church	Anvik	6	2		4	1,200	Board of missions of Protestant Episcopal church in United States of America.
II.	Nuklukayet						No report.
Swedish Free Mission		34	5		29	2,600	
I. Mission church	Yakutat	20	3		17	1,200	Swedish Free Mission society, American branch.
II. Mission church	Unalaklik	14	2		12	1,400	Do.
Moravian		47	15	3	29	4,000	
I. Moravian mission	Carmel	18	7	3	8	2,500	Moravian Society for Propagating the Gospel among the heathen.
II. Moravian mission	Bethel	29	8		21	1,500	Do.
Undenominational.							
I. Christian church	Metlakahtla	766	3		763		By members.

ROMAN CATHOLIC CHURCH.

Total		498	337	30	131	8,425	
I. St. Peter Claver mission	Nulato	80		20	60	1,200	Church funds and subscriptions.
II. Holy Cross mission	Kozerevsky	59	9	10	40	3,000	Do.
III. Immaculate Conception	Tununuk	34	3		31	1,000	Do.
IV. Nativity of Blessed Virgin	Juneau	325	325			3,225	Do.

SCHOOLS.

The last decade has witnessed a wonderful development of educational facilities in Alaska. Schools and teachers are provided for the children of all residents of the district, without distinction of color or race, by an annual appropriation from the United States treasury, and it is left to the direction of the United States Commissioner of Education to erect schoolhouses and employ teachers wherever, in his opinion, they may be needed. In this respect at least Alaska has been favored above any other section of the United States.

At the time of the enactment of the law by which the district of Alaska was organized, in 1884, the section conferring the power to establish schools upon the Commissioner of Education caused much discussion in the Senate, in the course of which the late Senator Plumb, of Kansas, made the following remark: "If this section is literally carried out there will be a great many schools in a great many places in Alaska in situations where they would not be considered necessary in any other part of the habitable globe." Though the number of schools is not yet very large, the prediction of the famous Kansas senator has already been fulfilled in a few instances by the location of schools at points where the attendance of children is made impossible by the lack of any settled occupation for the parents, who in hunting and fishing must move about, all members of the family joining in the constant struggle for existence with niggard nature in the polar regions.

The Russian Fur Company, who had control of what is now Alaska until the country was ceded to the United States, was compelled under the terms of its charter to maintain schools at its own expense. The onus of this obligation was much relieved, however, by another clause of the charter imposing upon all those natives of Russian America who acquired an education in this manner a compulsory service with the company for 15 years after they left school. By some strange process of reasoning the compulsory service was lessened to 10 years for such youths as were educated in Russia at the company's expense. (*a*)

a Report of Committee on Organization of Russian-American Colonies, Part II, pages 34, 35, St. Petersburg, 1864. Regulations concerning educational facilities afforded to the people of the Russian colonies in America by the Russian-American Company:

(1) Any youth having been educated at the company's expense in Russia in the higher schools is obliged, on completion of his course, to serve the company for a period of 10 years, for such pay and allowances as the company may allow him.

(2) Any youth having acquired a trade in Russia, at the company's expense, is obliged to serve the company for a period of 10 years.

(3) Any youth educated or trained to a trade in the colonies, at the company's expense, is obliged to serve the company for a period of not less than 15 years.

Under such circumstances the Russian schools were managed with the sole object of training servants and employés for the company, and of educating the children of the Russians and creoles already in the service.

At one time 3 institutions with high sounding names were maintained at Sitka: a "colonial seminary" for the training of recruits for the lower ranks of the clergy, such as "readers" and "psalmists"; a "girls' school" for keeping up the supply of house servants; and the "general colonial school" for the children of the highest officials. The general population, the natives of the country, were not admitted to these schools, and among them these early educational establishments have left no trace.

The male children of the creoles (*a*) residing at the principal stations, such as Sitka, Kadiak, and Unalaska, were taught to read and write Russian, and a few Aleut boys, adopted by Russians, enjoyed the same advantage. At present such tuition is extended to them in a desultory manner by the Russian parish priests and missionaries, of whom there are 8 in the district. The attendance at Russian schools outside of Sitka is insignificant.

For the cause of English education the outlook is much more hopeful. Under the system adopted by the Commissioner of Education of subsidizing mission schools from the funds appropriated by Congress many educational institutions have been established in connection with missions much earlier than would have been possible without such assistance. The requirement that the teachers of schools thus subsidized by the government abstain from sectarian teaching must of course, under such circumstances, be only a dead letter, and may remain such in nine-tenths of the territory brought within reach of educational facilities without causing harm or offense to anybody. At a few points, however, the system interferes seriously with the progress of the public schools. I refer to places where Russian parish churches have been in existence for nearly a century, of which every native inhabitant is a member. In these places the fact that the teacher is also a missionary of some other denomination interferes very much with his usefulness, though he be instructed not to teach religion during school hours. The people in these communities, who have been christians so long, resent the presence of a missionary of another sect among them by not sending their children to his school.

In the cause of education it is very much to be desired that the system of parceling out the government schools among the various sects be confined to the vast field beyond the few old Russian communities. During a prolonged residence and much travel in Alaska my opportunities for observing this phase of the educational problem in that country were exceptional, and the results of my observations may be briefly stated for those who have the spread of education in Alaska at heart.

The number of settlements in the district where public day schools are practicable is limited, and outside of the southeastern section the only places where a day school could be operated with any hope of attendance are the villages inhabited by Russian creoles and natives of the Eskimo and Aleutian tribes who are members of the Russian church, as their ancestors have been for the last century. These people are not sufficiently advanced to understand the importance of education in itself, and they have but few opportunities to observe the advantages to be derived from learning; consequently the attendance of their children at school depends nearly altogether upon the teacher's popularity. The teacher who comes as the avowed representative of some Protestant or Roman Catholic mission to one of these communities, every individual of which is a member of the Russian church, can scarcely expect to be popular, even if there was no Russian clergy to watch his doings with suspicion. His quasi official position as a government employé does not help him with the people who resent what they look upon as an assault of the government upon their established church.

Nor is this religious difference the only cause which affects school attendance; if the teacher becomes unpopular from any other cause it has the same effect. As an instance of this I will cite the case of a certain United States school, which was opened some years ago by an excellent teacher, full of ambition to succeed. He was known to be an ordained minister of a Protestant church, but, obeying to the letter the order to abstain from sectarian teaching, he threw himself into his educational work with such earnestness that both he and his wife became popular and the school flourished both in attendance and scholarship attained. After several years of success the teacher accepted a somewhat irregular appointment as justice of the peace. This brought him into unpleasant relations with some of the parents of his pupils, and the school at once began to deteriorate.

On an adjoining island a government school was established about the same time, also by a minister. Here the missionary element predominated from the first, and the attendance was always unsatisfactory, and when the

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a Report of Committee on Organization of Russian-American Colonies, 1864, Part II, pages 292, 293 (Golovin).

The creoles are mostly the offspring and descendants of Russian men and Aleut (Eskimo) women, occasionally of Russian men and Kolosh (Thlingit) women; and very rarely of native men and Russian women. The children of creoles remain creoles though no further mixture of blood takes place. The general law in Russia is that the children belong to the class or race of the father, but in the colonies this principle has been subverted. So many creoles have been born there that they form a distinct, altogether independent class of people, subject to no duties or taxes and free to live and act according to will. We must suppose that making a special class of the creoles it was intended to encourage the settlement of the country. It is true that had these creoles been allowed to remain in the classes to which their fathers belonged, they would have been assigned to various communities in Russia and Siberia, and would probably have been summoned by such communities to fulfill their share of duties, military service, taxes, etc., but forming a distinct class of people, entirely free, they naturally preferred to remain in the colonies, and even their fathers very rarely returned to Russia. As far as numerical increase is concerned, this measure has been wholly successful, since the creoles are increasing from year to year and now number one-half as many as the Aleuts and one-sixth of the total civilized population of the colonies. It can safely be asserted that within a few decades the creoles will be the ruling element in the colonial population and overwhelm the Aleuts who are decreasing from year to year. But in order to successfully settle a country it is necessary that the people should be industrious and thrifty and co-operate actively in the development of its wealth and resources. In this direction the creoles have not thus far been effective.

school was lately given to a layman he found himself confronted by a wall of prejudice which it will take years of patient labor to batter down.

A third school might be named which was established at about the same time and which has failed of success from similar causes. At another point a missionary teaches a government school, the only pupils of which are the inmates of a home for girls connected with the establishment, who are confined to the house. The mere fact that the teacher is a missionary prevents the children of this old Russian parish from benefiting by the government's liberality in their behalf.

The southernmost schools in Alaska are located on Prince of Wales island and near the village of Howkan, connected with the post office of Jackson. One of these institutions, supported by the United States government, was reported in 1890 as having 1 female teacher, 49 male and 38 female pupils, with an average attendance of 28 of both sexes. School was taught here 191 days during the census year. The other school is connected with the Haida mission, supported by the Presbyterian Board of Home Missions, and reported 2 female teachers, 6 male and 25 female pupils, with an average attendance of 20. A sawmill connected with the mission affords an opportunity to some of the boys to receive practical training in that direction, but the mill is only worked intermittently to supply local demand for lumber among the natives. The public school at Klawak, also on Prince of Wales island, was not taught during the census year, but has since been supplied with a teacher.

At New Metlakahtla, or Port Chester, on Annette island, we find the most promising day school in the whole district. Its teachers number 5, 2 men and 3 women, and the number of pupils enrolled was 178, 97 boys and 81 girls, with an average attendance of 67. This gratifying result is due to the fact that the Tsimpsean Indians, who established themselves here, are guided in every relation of life wholly by their teacher and leader, Mr. William Duncan. School was taught here during 168 days of the year.

The Indian industrial home, at the same place, was only in the initiatory phase of existence in 1890, reporting 1 male teacher and 6 boys, who received instruction during 130 days of the census year. This institution is also liberally subsidized by the United States government.

All the youths at Metlakahtla have had the best opportunities for industrial training in British Columbia, as well as in their new home, and mechanics and skilled laborers from Metlakahtla can be found at work in many of the settlements of southeastern Alaska. At Port Chester they labor in a large sawmill and a salmon cannery, and maintain an excellent brass band.

A school was established at the principal Kake village in 1891, but unfortunately the teacher, Mr. Edwards, of the Friends' Society, was killed by a whisky smuggler while endeavoring to prevent the man from selling his poison among the Kakes, who have always borne the reputation of being very dangerous when intoxicated. No report had been received of Mr. Edwards' success as a teacher.

At Wrangell, on the island of the same name, the public school supported by the government reported, in 1890, 1 female teacher and 84 pupils enrolled, 45 boys and 39 girls, with an average attendance of 40. School was taught here 200 days of the census year. Missions have been maintained here for many years by the Roman Catholics and Presbyterians. The former abandoned the field for Juneau, but the school attendance bears witness that the efforts of either have not been without results in the direction of education.

At Juneau there are 2 public schools, supported wholly by the United States government. School No. 1 reported, in 1890, 1 female teacher and 33 pupils enrolled, of whom 19 were male and 14 female children, with a daily average of 22 for the 184 days during which school was taught during the census year. School No. 2, with 1 female teacher, had 51 pupils enrolled, 35 boys and 16 girls, with an average daily attendance of 23 for 190 days of the year.

The Juneau Thlingit Presbyterian Mission Home is a boarding school for native children. The instruction is much the same as that in other mission schools. It is supported by the Presbyterian Board of Home Missions, $100 per annum being allowed by the board for the maintenance of each pupil. This institution reported, for 1890, 2 female teachers and 21 pupils, 11 boys and 10 girls. Being a boarding school the average daily attendance was kept at 20.

A day and boarding school for white and native children is maintained by the Sisters of St. Ann, in Juneau, in connection with the hospital. The average daily attendance is 20, with an enrollment of 40, 25 boys and 15 girls. Orphans and the children of poor people are maintained and instructed without charge.

In the mining town of Douglas, divided from Juneau only by the waters of Gastineaux channel, we find also 2 public schools, located in neat frame structures, erected and maintained by the United States government. Number 1 reported, in 1890, 1 female teacher and 27 white pupils enrolled, 14 boys and 13 girls, with an average daily attendance of 20 for 105 days of tuition. School No. 2, intended for natives only, had in the same year 1 male teacher and 72 pupils, 38 males and 34 females, with an average daily attendance of only 20 for 195 days.

A mission home is maintained in Douglas city by the Kansas yearly meeting of Friends, in which a dozen or more native and half-breed children are inmates at present.

At Huna, on Admiralty island, a school was established by the Presbyterian Board of Home Missions in 1881. The building was a small one-and-a-half story frame structure, the lower part of which was occupied by the missionary and his family, and the small upper room used as a church and schoolroom. A new and larger mission

building was constructed in 1891. School is taught about 3 months during the winter, with an average daily attendance of 44. The total enrollment of pupils was 126, 66 males and 60 females, and there were 1 male and 1 female teacher.

At Killisnoo, on Kenasnow island, the site of a prosperous herring fishery, manufacturing both oil and fertilizer, there is a public school maintained by the government which in 1890 reported 1 female teacher and 35 pupils, 15 boys and 20 girls, with an average daily attendance of 15 for 180 days of the year. A very small school connected with the Russian church at this place furnished no report.

Sitka, the capital of Alaska, is well provided with schools. One government day school for white and creole children, Number 1, reported in 1890 1 female teacher and 68 pupils, 30 boys and 38 girls, with an average daily attendance of 45 during 190 days of tuition. Number 2, the government school for Indian children, with 1 female teacher, reported only 44 pupils in 1890, 20 boys and 24 girls, with an average daily attendance of only 16 for 190 days.

There is also a Russian school for Indian children, supported by the Russian government, which has 3 male teachers and 94 pupils, 44 boys and 50 girls, with an average daily attendance of 38. English is also taught in this school.

The Indian industrial training school at Sitka is the most complete institution of the kind in Alaska, with ample means at its command. It is located on a large piece of ground, facing the bay and extending back to the densely wooded hills, on the road from Sitka to Indian river. The school dormitory, church, and 2 hospital buildings are very large. The cooper shop and the carpenter and shoe shops are small. The efficiency of the school will probably be greatly increased when the superintendent, Professor Docking, carries out his plan of enlarging the industrial department. The institution is in charge of a superintendent, 1 chaplain, 1 physician, 2 teachers, 1 foreman or instructor for each of the carpenter, cooper, and shoemaking trades, 1 matron for each of the departments, cooking, sewing, laundry, and hospital, and 2 matrons and an assistant having general supervision of the boys and girls.

In 1890 the superintendent reported 5 male and 10 female teachers, while the pupils numbered 164, 110 boys and 54 girls, representing every tribe in southeastern Alaska. As the pupils are confined within the school premises, the average daily attendance foots up 142 for 220 days.

Education by book is seldom more than reading, writing, arithmetic, a little geography, and a smattering of grammar. The boys are instructed in painting, carpenter, cooper, and shoemaking trades, while the girls are taught cooking, baking, sewing, and all the work of plain housekeeping; in short, the purpose of the school is the civilization and christianization of native children. Although a great many of the educated natives lack the moral stamina to successfully resist the demoralizing influence of their uncivilized relatives and friends, it can not be denied that the school does much good. To keep them on the right road the pupils are encouraged to marry when their schooling is finished, and 8 new cottages are provided on the grounds for their accommodation.

The institution is controlled by the Presbyterian Board of Home Missions and supported to the extent of $12,500 by the United States. Donations from private persons, wealthy summer tourists, also foot up to a considerable amount. In 1887 a single individual gave $6,000.

Proceeding in a northwesterly direction from Sitka the first school is found at Yakutat, where the Swedish Free Mission Society has established a mission. In 1890 this institution reported 2 male teachers and 28 pupils, 17 boys and 11 girls, with an average daily attendance of 20 for 312 days of tuition. The new mission and school building built in 1891 is 45 by 35 feet and 2 stories high. The chief obstacle which confronts the teacher of native children is the indifference of the natives and the very irregular attendance of the pupils, and these difficulties are very hard to overcome in the Yakutat school.

Over 200 miles to the westward of Yakutat, at Kenai, on Cook inlet, a small school is maintained in connection with the Russian mission. In 1890 a young man who had been educated under the auspices of the Russian church in San Francisco was employed at a nominal salary, but no report was obtained from him.

From the Afognak public school, located in the settlement of that name, no report was furnished in 1890, but a verbal and unofficial statement was made by the teacher, Mr. Duff, that he had 20 pupils, with an average attendance of 10 for 250 days. This school, which was established in 1886, has been referred to above. A very handsome building, combining schoolroom and teacher's residence, has been erected here by the United States government.

At Kadiak settlement, also known as St. Paul, on Kadiak island, 2 schools are in operation. The government established a day school here in 1886, which in 1890 reported 1 male teacher and 67 pupils, 39 boys and 28 girls, with an average daily attendance of 31 for 196 days.

During the season of navigation regular attendance at the Kadiak public school is much interfered with through the absence of adult laborers, making it necessary to employ all able-bodied boys to handle the incoming and outgoing cargoes.

The parochial school of the Russian church at Kadiak reported in 1890 3 male teachers and 40 pupils, evenly divided as to sex, with an average daily attendance of 18 for 212 days. This school, which is confined chiefly to

Russian and religious instruction, is taught in the evening from 5 to 7 o'clock, and over 50 per cent of its pupils also attend the public day school, somewhat to the detriment of their progress in both.

At Karluk, on the west side of Kadiak island, a very handsome schoolhouse and teacher's residence was erected in 1890 and the school was opened in 1891. An educated Russian and his wife were employed here, in deviation from the general system, apparently with the most gratifying results, as appear from the accompanying photographs, which speak plainly of the popularity and prosperity of this school, though no official report has been received to date.

At Unga, on the island of the same name, a government school has been maintained, with some interruptions, since 1886. In 1890 the report from this institution showed 1 male teacher and 28 pupils, 15 boys and 13 girls, with an average daily attendance of 14 for 162 days.

At the settlement of Belkovsky, on the Alaska peninsula, no public school was taught during the census year or previous to it, but the commissioner was making preparations to engage a teacher. In connection with the Russian church at that place a small number of children were taught by a creole lady who had been educated in San Francisco. Tuition was not continuous, attendance was very irregular, and no report was received from this institution.

The report of the school at Unalaska, the most important point in western Alaska, is somewhat confusing. The teacher reported the establishment as a public day school, supported by the United States government, with 1 male teacher and 40 pupils, of which 2 were males and 38 females, with an average daily attendance of 13 for 196 days. The fact is that the institution is a home for girls, established under the auspices of the Methodist church, and the average daily attendance of 13 represents the number of boarders (girls) who are confined to the house. The number of boarders has since been much increased.

The parochial school at Unalaska connected with the Russian church reported in 1890 3 male teachers (members of the clergy) and 46 pupils, 16 boys and 30 girls, with an average daily attendance of 26 for 160 days. This is one of the points referred to above, where the fact that the United States teacher is a missionary interferes very seriously with the success of the public school.

In connection with the Moravian mission at Carmel, on Nushagak river, a public day school is taught by Rev. Frank E. Wolff, who in 1890 reported 1 male teacher and 35 pupils, 23 boys and 12 girls, with an average daily attendance of 20. This number then included 7 or 8 girls and 4 boys kept as boarders at the mission. Since that time a large school building and dormitory has been added to the establishment and the number of boarders increased. The attendance in the day school suffers here from the same cause as at Unalaska. Nushagak, or Fort Alexander, has long been a Russian missionary station, the present incumbent of which fails to discriminate between the government teacher and a rival missionary represented by the same individual, and thus far the older church seems to have the stronger influence. Unfortunately, the Russian mission here does not extend its educational work beyond the desultory instruction of children of the clergy and creole traders. The Moravian school, however, is quite successful in obtaining boarding scholars from the interior.

In a northwesterly direction from Carmel, on the west bank of Kuskokwim river, the Moravians have another mission, in charge of Rev. John H. Killbuck, who also teaches a public day school. The report of this school for 1890 did not reach the Census Office, being remote from all mail connection, and the visit to the place was in vacation time. The school home is large, with sleeping accommodations for boys in the loft. The attendance was verbally reported as between 20 and 30. Here, also, the boarding school presents the only means of reaching the people, whose habits are too migratory to allow of regular attendance by their children in day schools.

On the Pribilof or Seal islands 2 schools have been maintained by the lessees of the islands, under the terms of their contract, at their own expense, but under supervision of the government agents stationed on the islands.

In 1890 the school on St. George island was reported with 1 male teacher and 26 pupils, 9 males and 17 females, with an average daily attendance of 24 for 153 days of tuition. The school at St. Paul had 1 male teacher and 63 pupils, 22 boys and 41 girls, with an average attendance of 61. The high average attendance in both these schools is easily explained when we consider that during the winter season, when school is taught, the government agents may devote their energies wholly to the task of keeping the children at school, having absolutely no other occupation.

The former lessees of the islands erected handsome buildings for these schools, provided with all the latest improvements in apparatus and paraphernalia, all of which is being maintained intact by the present management. In view of all these advantages and constant schooling for more than 20 years it appears inexplicable that of the young people who have grown up since the compulsory education was enforced but very few can be induced to speak English at all, and none speak it habitually. The reports of all the successive government agents testify to this state of affairs, giving as the cause the influence of the Russian church, which, however, is here maintained by the people, without pecuniary assistance from the Russian government.

On Yukon river the school connected with the oldest mission is the most insignificant in scope. The missionary at Ikogmiut reported his school in 1890 as follows: "3 male teachers (members of the clergy) and 15 pupils, 12 boys and 3 girls, the children of the clergy." No average attendance was given, and school was taught for 150 days.

About 50 miles above Ikogmiut, on Yukon river, is the Roman Catholic mission of the Holy Cross, established by the Jesuit Fathers, and in connection therewith a day school and a boarding school are maintained, partly by government assistance under contract, but chiefly by private contributions and church funds. The tuition of the boarding pupils and domestic management are in the hands of the Sisters of St. Ann. In 1890 the day school was reported as having 2 male and 3 female teachers, with 50 pupils, evenly divided as to sex, and an average daily attendance of 40 for 200 days. The boarding school reported the same teachers and 29 pupils, 14 boys and 15 girls, with an average attendance of 26 for 303 days. This institution has since been much enlarged, and its success has been phenomenal. The impressions imbibed during a personal visit to Kozerevsky are found in another part of this report, but here is inserted an extract from a letter of Father Tosi, who superintends this and other establishments on the Yukon river, written in 1889, and showing what was intended to be done:

The place selected for a school is Kozerevsky, where 3 sisters of St. Ann will begin teaching some time next month. At this place, where we are now ready to open a boarding school, having completed the necessary buildings, I think we will have no difficulty in opening with nearly 100 children. The natives, without exception, are most anxious to send their children to our school. Kozerevsky is situated about 150 miles above the Graeco-Russian mission, where there has never been any school whatever. The place has a population of about 250 people, who are stationary. In its vicinity, up and down the river, are 9 other villages, the most distant of which can be reached in a day's journey when the traveling is good in winter. In addition to this there are 2 large villages about 3 days' journey south from Kozerevsky. In all these villages the natives evince a good disposition, and are endowed with a kindlier nature than one might expect. They are stationary and not a roving people, for the reason that they can get all the fish they require the year round right at their doors.

This will be the first industrial boarding school on the Yukon, or, for that matter, north or west of Sitka. Of course the buildings are not very commodious to start with, but next year we will have much better accommodations. The present buildings were erected this summer, and it was not intended to make the school a large one in the beginning, as the sisters will need a year or so to become acclimated and properly fitted for the work they have undertaken. The boys will be instructed in reading and writing English, carpentry, blacksmithing, gardening, and in all occupations most practical and useful for the country in which they live. The girls, on the other hand, besides being taught to speak, read, and write in English, will be trained in housekeeping, sewing, knitting, and other things most useful to the wife and mother of a family.

As I have said, we do not expect to receive a very large number of children at the start, but in time will have as many as we can support. The children are numerous and well disposed. They will readily learn to speak good English, as they have in their own language all the hard English sounds, such as th, hard and soft, tr, ing, etc.

In my opinion the only plan by which these people can be raised to some degree of civilization is through the establishment of good boarding schools, where the children can be taught, besides English speaking, reading, and writing, some kind of work calculated to promote their welfare and home comfort. The children should be removed as far as possible from contact and association with the elder ones of their race, and at a proper age legally married, and helped to make a comfortable home for themselves. Then we may expect them to continue to improve and bring their children up to a still higher degree of usefulness. Those who imagine that a few years of preaching and teaching in day schools will suffice to civilize and christianize wild native tribes are, in my opinion, greatly mistaken. Of course the day school is perhaps better than none at all as a means of making them christians, but how it will do much in the way of advancing them toward a true civilization I can not see. Too much has been said and written in favor of day schools, upon which a great deal of money has been wasted. For my part, I have seen too much of the workings of day schools during my many years of experience among the Indians to permit me to say much in their favor as a means to the accomplishment of any permanent good to the people they are ostensibly intended to benefit.

All that was promised for Kozerevsky has been fulfilled twice over since the above was written, and in addition other schools have been opened at Nulato, above the mouth of the Koyukuk tributary, and at Tununuk, near Cape Vancouver. Of the former school no report has been received, but the other, under the name of the Immaculate Conception, reported in 1890 1 male teacher and 13 pupils, 7 boys and 6 girls, with an average daily attendance of 7 for 195 days. This school has also grown since the census year, serving in a measure as a recruiting station for the central establishment at Kozerevsky.

Between Kozerevsky and Nulato, at the junction of the Anvik and Yukon rivers, the Christ Church mission has been established by the Episcopal church, and in connection therewith a boarding and day school is maintained, which in 1890 reported 2 male teachers and 33 pupils, of whom 27 were boys and 6 girls, with an average daily attendance of 16. This school also has since received assistance from the government, under contract, and has grown in numbers and scope. A sawmill has been set up, affording an opportunity for the employment of boys, and both sexes are encouraged and urged to practice their native industries of grass weaving and pottery, with such improvements of methods as civilization can teach them.

Mr. John W. Chapman, who is in charge of both mission and school, made the following brief statement in 1890:

Christ Church mission, Anvik, Alaska. Site selected by Rev. Octavius Parker, 1887; occupied by Rev. O. Parker and Rev. J. W. Chapman, summer of 1887. Mr. Parker retired 1889. School has been kept 3 winters, beginning 1887-1888. First year's average daily attendance, 8.0; second year's average daily attendance, 15.0; third year's average daily attendance, 15.8.

The mission has a mission house 23 by 26 feet, 2 smaller houses, a carpenter shop, and is furnished with a steam sawmill, not yet erected. In the summer of 1890 Mr. Marcus O. Cherry joins the mission as lay assistant.

Of the school taught in connection with the Episcopalian mission at Nuklukayet, near the junction of the Yukon and Tanana rivers, no report was obtained in 1890. The missionary was averse to giving any statistics to the United States government because "the station was supported by the Church of England". He soon after retired to the British Possessions, and a clergyman from the United States succeeded him.

On the eastern shore of Norton sound, at the village of Unalaklik, the Swedish Free Mission society has maintained a station for several years, and in connection therewith a school is taught, with some assistance from the government. In 1890 this school was reported with 1 male teacher and 42 pupils, 33 boys and 9 girls, with an average daily attendance of 33 for 157 days. The cause of this high average was not evident.

Two other schools have been established with the assistance of the United States government since 1890: one at Cape Prince of Wales, in the village of Kingaghee, with a population of nearly 500; the other at Point Barrow. The teacher at the latter place reported in 1891 that sufficient attendance could not be secured for a day school because of the roaming life the people are obliged to lead in their struggle for existence.

PRIVATE SCHOOLS.

NAMES.	TEACHERS.			PUPILS.			Average daily attendance.	Number of days taught.	By whom supported.
	Total.	Male.	Female.	Total.	Male.	Female.			
Total	54	35	19	878	473	405	.....	.....	
Blagovestchensky	3	3	.....	15	12	3	.....	150	Russian Imperial government.
Christ Church mission	2	2	.....	33	27	6	15.80	80	Board of Missions, Protestant Episcopal church.
Holy Cross	5	2	3	29	14	15	26.00	303	Government contract and private contributions.
Huna	2	1	1	126	66	60	44.00	95	Presbyterian Board of home missions.
Haida mission	2	.....	2	31	6	25	20.00	365	Presbyterian Board of home missions.
Immaculate Conception	1	1	.....	13	7	6	7.00	195	Catholic.
Indian Industrial Training School	15	5	10	164	110	54	142.00	220	Presbyterian Board, home missions.
Juneau Thlingit Presbyterian mission	2	.....	2	21	11	10	20.00	260	Presbyterian Board, home missions.
Kadiak	3	3	.....	40	20	20	18.00	212	Russian Imperial government.
Metlakahtla Industrial Home	1	1	.....	6	6	.....	6.00	130	Appropriation by general government.
Russian Indian	3	3	.....	94	44	50	88.00	138	Holy Synod of Russia.
School of the Annunciation	3	3	.....	15	12	3	10.00	150	Russian Imperial government.
School of the Church of the Ascension	3	3	.....	46	16	30	26.00	160	Russian Imperial government.
School of the Sisters of St. Ann	1	.....	1	40	25	15	20.00	205	Sisters of St. Ann.
St. George	1	1	.....	26	9	17	24.00	153	North American Commercial Company.
St. Paul	1	1	.....	63	22	41	61.00	154	North American Commercial Company.
Unalaklik mission	1	1	.....	42	33	9	33.02	157	American Branch, Swedish Mission Friends.
Voznesensky	3	3	.....	46	16	30	.....	200	Russian Imperial government.
Yakutat	2	2	.....	28	17	11	20.00	312	Swedish Evangelical Union.

PUBLIC SCHOOLS.

Total	23	9	14	899	466	433	.....	.....	
Carmel	1	1	.....	35	23	12	20	191	United States government.
Douglas city, No. 1	1	.....	1	27	14	13	20	105	Do.
Douglas city, No. 2	1	1	.....	72	38	34	20	195	Do.
Fort Wrangell	1	.....	1	84	45	39	40	200	Do.
Holy Cross	5	2	3	50	25	25	40	200	Do.
Jackson	1	.....	1	87	49	38	28	191	Do.
Juneau, No. 1	1	.....	1	33	19	14	22	184	Do.
Juneau, No. 2	1	.....	1	51	35	16	23	190	Do.
Kadiak	1	1	.....	67	39	28	31	196	Do.
Killisnoo	1	.....	1	35	15	20	15	180	Do.
Klawak (a)	.....	.....	.....	.....	.....	.....	.....	.....	Do.
Metlakahtla	5	2	3	178	97	81	67	168	Do.
Sitka, No. 1	1	.....	1	68	30	38	45	190	Do.
Sitka, No. 2	1	.....	1	44	20	24	16	190	Do.
Unalaska	1	1	.....	40	2	38	13	196	Do.
Unga	1	1	.....	28	15	13	14	162	Do.

a No school in census year.

In thus briefly reviewing the present status of education in Alaska, it became evident from the first that sufficient material of a satisfactory character could not be obtained to permit of critical examination into the effects of the spread of school facilities among the people. An experimental attempt in that direction has, however, been made with reference to the Indian inhabitants of a few places in southeastern Alaska, where schools have been longest in existence. The figures upon which this comparison is based were taken from the census schedules for the settlements of Howkan, Huna, Klawak, Metlakahtla, Sitka, and Wrangell, and from these the Indian males and females were selected from 10 to 23 years of age, the period beyond which the influence of our present schools probably does not extend.

The result is gratifying in all but one of the places selected, and if we add up the Indian males and females of the age selected in all 6 settlements and compare the result with the number of those among them who can read or read and write, we find that the latter foot up 435 out of a total of 823, or 53 per cent, or, divided by sexes, 56 per cent of literates among the males and 49 per cent among the females.

While the percentage of literate females in the total is less than that of males, it is greater at Klawak and Wrangell, and the two are equal at Huna.

Within the 3 age periods covered by this inquiry the percentage of literacy increases in an inverse ratio, the younger being more affected by the presence of the schools.

The greatest spread of education is noticed in Metlakahtla, where among 125 males and 97 females between the ages of 10 and 23, inclusive, we find 104 males and 75 females able to read and write, or 83 per cent of the former and 77 per cent of the latter.

LITERACY STATISTICS OF INDIANS BETWEEN THE AGES OF 10 AND 23 YEARS AT CERTAIN VILLAGES WHERE SCHOOLS ARE TAUGHT.

VILLAGES.	TOTAL POPULATION BETWEEN THE AGES OF 10 AND 23 YEARS.			LITERATE POPULATION BETWEEN THE AGES OF 10 AND 23 YEARS.			PER CENT OF POPULATION LITERATE BETWEEN THE AGES OF 10 AND 23 YEARS.			LITERATE POPULATION BETWEEN THE AGES OF 10 AND 14 YEARS.			LITERATE POPULATION BETWEEN THE AGES OF 15 AND 19 YEARS.			LITERATE POPULATION BETWEEN THE AGES OF 20 AND 23 YEARS.		
	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.
Total	823	459	364	435	257	178	53	56	49	173	101	72	188	105	83	74	51	23
Howkan	28	18	10	17	12	5	61	67	50	10	6	4	3	2	1	4	4	.....
Huna	133	76	57	14	8	6	11	11	11	6	4	2	7	3	4	1	1	.....
Klawak	76	43	33	23	12	11	30	28	33	7	2	5	12	7	5	4	3	1
Metlakahtla	222	125	97	179	104	75	81	83	77	69	41	28	77	44	33	33	19	14
Sitka	301	168	133	176	110	66	58	65	50	74	44	30	78	46	32	24	20	4
Wrangell	63	29	34	26	11	15	41	38	44	7	4	3	11	3	8	8	4	4

The next highest percentage of literacy is found at Howkan, where 67 per cent of the males and 50 per cent of the females of the selected age can read or read and write.

At Klawak the percentage is 28 for males and 33 for females; at Sitka, 65 for males and 50 for females.

At Huna the census schedules revealed, among a total of 76 males and 57 females of the selected age, but 8 males and 6 females who can read and write, giving the low percentage of 11.

GENERAL ILLITERACY.

The table of illiteracy appended to this chapter presents some rather peculiar features. The number of individuals of both sexes over 9 years of age in the territory is 25,489, and of these 18,262, or 72 per cent, are illiterate. This is nearly the percentage of Indians in the whole population, but illiteracy is by no means confined to them, as we find by entering into details.

Of the 4,045 whites over 9 years of age we find but 233 males and 36 females illiterate, or about 7 per cent. In the mixed class we find among 1,287 individuals of the ages here considered 731 illiterate, or 57 per cent, of whom 435 are females and 296 males. A majority of the 43 per cent of this class able to read or read and write can do so only in the Russian language.

Of the 17,758 Indians over 9 years of age 16,594, or 93 per cent, are illiterate. By including children of mixed and Indian birth from 5 to 9 years of age, these percentages would be somewhat lowered, thanks to the effect of educational work among them.

Of 2,287 Mongolians, chiefly Chinese and a very few Japanese, 606, or 26 per cent, are illiterate, but nearly all of the remaining 74 per cent can read and write only in Chinese.

Of "All others" on our table, comprising Africans, mulattoes, Malays, Hawaiians, etc., 62 out of a total of 112 are illiterate.

ILLITERACY BY SEX, RACE, AND AGE PERIODS: 1890.

AGE PERIODS.	Population.	BOTH SEXES.												
		Aggregate.	Can not write.						Can neither read nor write.					
			Total.	White.	Mixed.	Indians.	Mongolians.	All others.	Total.	White.	Mixed.	Indians.	Mongolians.	All others.
Total	25,489	18,650	388	79	89	189	30	1	18,262	269	731	16,594	606	62
10-14	2,784	2,320	49	1	12	35	1	.....	2,271	7	76	2,188	.....	.....
15-19	3,160	2,622	47	4	11	31	1	.....	2,575	12	141	2,390	32	.....
20-24	3,347	2,534	52	7	8	30	7	.....	2,482	36	113	2,238	73	22
25-29	3,719	2,461	61	20	13	24	4	.....	2,400	41	129	2,064	138	28
30-34	3,306	2,042	48	12	9	22	5	.....	1,994	52	69	1,707	160	6
35-39	2,866	1,915	47	14	11	17	5	.....	1,868	30	62	1,682	91	3
40-44	2,194	1,492	41	13	12	11	4	1	1,451	42	40	1,305	61	3
45-49	1,499	1,138	16	3	4	7	2	.....	1,122	21	34	1,041	26	.....
50-54	1,053	808	9	2	2	4	1	.....	799	8	18	756	17	.....
55-59	676	546	9	.....	5	4	.....	.....	537	11	18	501	7	.....
60-64	492	415	7	2	2	3	.....	.....	408	6	11	390	1	.....
65-69	199	177	2	1	.....	1	.....	.....	175	1	12	162	.....	.....
70-74	104	94	.....	.....	.....	.....	.....	.....	94	1	2	91	.....	.....
75-79	50	48	.....	.....	.....	.....	.....	.....	48	1	6	41	.....	.....
80-84	21	21	.....	.....	.....	.....	.....	.....	21	.....	.....	21	.....	.....
85-89	10	9	.....	.....	.....	.....	.....	.....	9	.....	.....	9	.....	.....
90-94	3	3	.....	.....	.....	.....	.....	.....	3	.....	.....	3	.....	.....
95-99	3	3	.....	.....	.....	.....	.....	.....	3	.....	.....	3	.....	.....
100-104	2	2	.....	.....	.....	.....	.....	.....	2	.....	.....	2	.....	.....
105-109	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

AGE PERIODS.	MALE.													
	Aggregate.	Can not write.						Can neither read nor write.						
		Total.	White.	Mixed.	Indians.	Mongolians.	All others.	Total.	White.	Mixed.	Indians.	Mongolians.	All others.
Total	9,776	272	71	39	131	30	1	9,504	233	296	8,308	606	61
10-14	1,258	27	.....	6	20	1	.....	1,231	1	38	1,192	.....	.....
15-19	1,189	28	3	4	20	1	.....	1,161	9	53	1,067	32	.....
20-24	1,335	41	7	2	25	7	.....	1,294	31	46	1,122	73	22
25-29	1,338	47	20	6	17	4	.....	1,291	37	51	1,038	138	27
30-34	1,110	36	12	5	14	5	.....	1,074	48	27	833	160	6
35-39	1,033	33	13	4	11	5	.....	1,000	27	28	851	91	3
40-44	780	34	13	8	8	4	1	746	41	13	628	61	3
45-49	626	14	3	2	7	2	.....	612	17	16	553	26	.....
50-54	432	5	.....	.....	4	1	.....	427	5	6	399	17	.....
55-59	283	4	.....	1	3	.....	.....	279	10	6	256	7	.....
60-64	215	2	.....	1	1	.....	.....	213	4	2	206	1	.....
65-69	81	1	.....	.....	1	.....	.....	80	1	7	72	.....	.....
70-74	52	.....	.....	.....	.....	.....	.....	52	1	.....	51	.....	.....
75-79	28	.....	.....	.....	.....	.....	.....	28	1	3	24	.....	.....
80-84	11	.....	.....	.....	.....	.....	.....	11	.....	.....	11	.....	.....
85-89	2	.....	.....	.....	.....	.....	.....	2	.....	.....	2	.....	.....
90-94	2	.....	.....	.....	.....	.....	.....	2	.....	.....	2	.....	.....
95-99	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
100-104	1	.....	.....	.....	.....	.....	.....	1	.....	.....	1	.....	.....
105-109	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

ILLITERACY BY SEX, RACE, AND AGE PERIODS: 1890—Continued.

AGE PERIODS.	FEMALE.									
	Aggregate.	Can not write.				Can neither read nor write.				
		Total.	White.	Mixed.	Indians.	Total.	White.	Mixed.	Indians.	All others.
Total	8,874	116	8	50	58	8,758	36	435	8,286	1
10-14	1,062	22	1	6	15	1,040	6	38	996	.....
15-19	1,433	19	1	7	11	1,414	3	88	1,323	.....
20-24	1,199	11	.....	6	5	1,188	5	67	1,116	.....
25-29	1,123	14	.....	7	7	1,109	4	78	1,026	1
30-34	932	12	.....	4	8	920	4	42	874	.....
35-39	882	14	1	7	6	868	3	34	831	.....
40-44	712	7	.....	4	3	705	1	27	677	.....
45-49	512	2	.....	2	.....	510	4	18	488	.....
50-54	376	4	2	2	.....	372	3	12	357	.....
55-59	263	5	.....	4	1	258	1	12	245	.....
60-64	200	5	2	1	2	195	2	9	184	.....
65-69	96	1	1	.....	.....	95	.....	5	90	.....
70-74	42	.....	.....	.....	.....	42	.....	2	40	.....
75-79	20	.....	.....	.....	.....	20	.....	3	17	.....
80-84	10	.....	.....	.....	.....	10	.....	.....	10	.....
85-89	7	.....	.....	.....	.....	7	.....	.....	7	.....
90-94	1	.....	.....	.....	.....	1	.....	.....	1	.....
95-99	3	.....	.....	.....	.....	3	.....	.....	3	.....
100-104	1	.....	.....	.....	.....	1	.....	.....	1	.....
105-109	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

LANGUAGE.

Linguistic statistics have been extracted from the Alaskan schedules only for persons over 9 years of age, and of this material the subjoined table has been compiled, from which it appears that 16,122 individuals (63.26 per cent) speak dialects belonging to the 5 Indian linguistic stocks. Of these a large majority (40.42 per cent) belong to the Eskimo stock; the Athapascan and Koluschan languages claim nearly equal shares of about one-sixth each, and the Chimmesyan and Skittagetan represent together less than 2 per cent.

The English language ranks second in distribution, being exceeded only by the Eskimo dialects. A total of 7,115 individuals over 9 years of age were reported as speaking English.

The Russian language, once supreme in all the coast regions, is gradually disappearing, being now spoken exclusively only by 3.16 per cent of the population over 9 years of age. Were it not for the influence of the Russian church the elimination of this linguistic element would proceed much more speedily. In many of the communities of mixed descent the native dialects are habitually spoken in the families, though all of this class retain enough Russian to serve them at church and for trading purposes.

That the Italian language is represented in this table is owing altogether to the temporary presence at the canneries of Italian fishermen, a majority of whom do not speak English.

LANGUAGE, BY DISTRICTS AND SEX, OF PERSONS 10 YEARS OF AGE AND UPWARD.

LANGUAGES.	Per cent.	THE TERRITORY.			SOUTHEASTERN DISTRICT.			KADIAK DISTRICT.			UNALASKA DISTRICT.		
		Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.
Eskimo	40.42	10,302	5,108	5,194	.....	.....	.....	1,317	679	638	571	245	326
English	27.91	7,115	6,038	1,077	3,161	2,393	768	1,645	1,608	37	1,050	827	223
Koluschan	10.86	2,769	1,275	1,494	2,569	1,173	1,396	200	102	98	.....	.....	.....
Athapascan	10.12	2,579	1,386	1,193	.....	.....	.....	663	378	285	.....	.....	.....
Chinese	5.04	1,284	1,284	.....	157	157	.....	848	848	.....	44	44	.....
Russian	3.16	805	366	439	82	44	38	397	189	208	256	97	159
Chimmesyan	1.11	282	115	167	282	115	167	.....	.....	.....	.....	.....	.....
Skittagetan	0.75	190	95	95	190	95	95	.....	.....	.....	.....	.....	.....
Italian	0.46	118	118	.....	.....	.....	.....	103	103	.....	15	15	.....
All other	0.01	3	3	.....	2	2	.....	.....	.....	.....	.....	.....	.....
Dumb	0.16	42	31	11	8	6	2	3	2	1	1	.....	1

LANGUAGES.	NUSHAGAK DISTRICT.			KUSKOKWIM DISTRICT.			YUKON DISTRICT.			ARCTIC DISTRICT.		
	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.
Eskimo	1,419	700	719	3,845	1,897	1,948	1,109	562	547	2,041	1,025	1,016
English	494	473	21	22	15	7	252	231	21	491	491	.....
Koluschan	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Athapascan	31	19	12	297	168	129	1,588	821	767	.....	.....	.....
Chinese	235	235	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Russian	11	4	7	10	5	5	49	27	22	.....	.....	.....
Chimmesyan	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Skittagetan	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Italian	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
All other	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....
Dumb	5	5	.....	16	9	7	9	9	.....	.....	.....	.....

NATIVITIES OF MALES (10 YEARS OLD AND UPWARD) EXCEPT THOSE SPEAKING INDIAN LANGUAGES.

FOREIGN BORN SPEAKING ENGLISH.

NATIVITIES.	Total.	Alien.
WHITE.		
Total	2,282	748
Africa	2	2
Australia	4	1
Austria	34	18
Azores	13	10
Belgium	7	2
Brazil	1	1
British Columbia	3	1
Canada	142	51
Cape Verde	5	3
Central America	1	1
Chile	7	5
Denmark	111	32
Ecuador	1	.....
England	186	66
Finland	131	51
France	32	14
Germany	240	58
Gibraltar	1	.....
Greece	11	3
Hawaiian islands	1	.....
Holland	9	2
Ireland	183	31
Isle of Man	1	1
Italy	68	43
Japan	1	1
Mexico	4	3
New Brunswick	11	3
Newfoundland	6	1
New Zealand	4	1
Norway	340	125
Nova Scotia	51	18
Peru	2	1
Poland	1	1
Portugal	15	9
Prince Edward island	10	4
Prussia	12	3
Russia	89	26
Russian America	29	.....
Scotland	88	20
Siberia	6	3
South America	2	2
South Sea islands	2	1
Spain	6	6
Sweden	381	118
Switzerland	9	.....
Turkey	1	1
Wales	13	1
West Indies	5	4

NATIVITIES.	Total.	Alien.
BLACK.		
Total	17	11
Africa	1	1
Canada	1	.....
Cape Verde	1	1
France	1	.....
Jamaica	1	1
Nova Scotia	1	1
Portugal	4	4
South Sea islands	2	.....
West Indies	5	3
MULATTO.		
Total	38	34
Azores	1	.....
Cape Verde	7	5
Portugal	28	27
West Indies	2	2
KANAKA.		
Total	19	16
Hawaiian islands	18	15
South Sea islands	1	1
MIXED INDIAN.		
Total	148	.....
British Columbia	2	.....
Canada	3	.....
Russian America	141	.....
Siberia	1	.....
South Sea islands	1	.....
MONGOLIAN.		
Total	999	997
China	977	977
Japan	22	20
MALAY.		
South Sea islands	27	24
INDIAN.		
Total	611	.....
British Columbia	250	.....
Russian America	361	.....

FOREIGN BORN NOT SPEAKING ENGLISH.

NATIVITIES.	Language.	Total.	Alien.
China	Chinese	1,289	1,199
Germany	German	1	1
Italy	Italian	118	111
Norway	Norwegian	1	1
Spain	Spanish	1	.....
Finland (white)	Russian	1	.....
Poland (white)	Russian	1	1
Russia (white)	Russian	2	.....
Russian America (white)	Russian	12	.....
Russian America (mixed)	Russian	175	.....
Russian America (Indian)	Russian	69	.....

NATIVITIES OF MALES (10 YEARS AND UPWARD) EXCEPT THOSE SPEAKING INDIAN LANGUAGES—Continued.

NATIVE BORN SPEAKING ENGLISH.

NATIVITIES.	Total.	Alien.	NATIVITIES.	Total.	Alien.	NATIVITIES.	Total.	Alien.
WHITE.			MIXED.			CHINESE.		
United States	1,292	.....	Total	138	.....	United States	4	.....
BLACK AND MULATTO.			Alaska	132	.....	INDIANS.		
United States	10	.....	United States outside of Alaska.	6	.....	Alaska	453	.....

NATIVE BORN SPEAKING RUSSIAN.

WHITE.			MIXED.			INDIANS.		
Alaska	7	.....	Alaska	90	.....	Alaska	9	.....

PART II.

RESOURCES AND INDUSTRIES.

CHAPTER XIII.

THE FURS OF ALASKA.

Of the various industries of Alaska, the fur trade is the one that may be discussed in the most satisfactory manner, because we have authentic records of shipments, prices, and the old modus operandi of this peculiar business reaching back to the beginning of the present, and, in part, even to the middle of the last century. At the Siberian ports of Okhotsk, Bolsheretsk, and Petropavlovsk regular and generally reliable registers were kept of all furs arriving from the east by sea, including the islands as well as the coast of the American continent. The figures obtained from these records may safely be considered below, rather than above, the actual numbers, because, as the Russian government exacted a tithe or other percentage from all such shipments, it was quite natural that some of the traders should have endeavored to smuggle through as much of their catch as possible without reporting it. But even at this late day it is possible to apply a check to these totals of importation of furs from the region now called Alaska by comparing the same with equally authentic figures of transactions in furs and teas of the Chinese frontier, and at Irkutsk, the center of trade of all Siberia.

Of the large quantity of furs, principally sea otter, that found their way to Europe or China directly in the vessels of American and British northwest traders during the end of the eighteenth and beginning of the nineteenth century, we have full statements contained in the published journals of these vessels.

Only two instances of shipments of furs from the Alaskan coast to France are known, one the famous expedition under the command of La Perouse, which skirted this coast in the year 1788; the other a trading venture by merchants of Marseilles, who sent out a ship under the command of Captain Roquefeuille, in the year 1818. This French captain, who had sailed with the most sanguine expectations of opening to the venturesome traders of his native seaport a new field of enterprise, and of ultimately establishing a traffic to rival that of the famous East India Company, was doomed to disappointment. The poor quality of the goods was one of the causes of his failure among Indians who had for many years reaped the benefits of fierce competition between English, American, and Russian traders. We have the testimony of his own narrative that he looked upon the inferior grade of woolen goods with which he had been provided in France as the cause of his ill success. He boasted of the superior quality of French muskets; but, as he confesses to having paid as much as 2 muskets and 12 pounds of powder for a single sea-otter skin, it seems that he profited but little by the superiority of his one article of trade.

After a summer's cruise among the islands of the Alexander archipelago, Roquefeuille came to the conclusion that his expedition would prove a total failure unless he followed the example of the "Bostonian" northwest traders, in organizing a hunting expedition on joint account with Baranof, then chief manager of the Russian colonies. In this venture also he met with misfortunes; being supplied with Aleutian hunters in their canoes, he was compelled to sign an agreement to pay the sum of 200 Mexican dollars for any native who should lose his life while in his employ by drowning or at the hands of hostile aborigines. In the course of this expedition 26 Aleutian hunters were killed by the Haidas, a Thlingit tribe living on Prince of Wales island, and, as the number of sea otters secured did not exceed 200, Roquefeuille left the shores of Alaska somewhat disappointed, reporting on his arrival at Marseilles that there was no field for French enterprise on the northwest coast of America.

The English and American explorers and traders (they always managed to combine the two functions) continued for many years to hunt sea otters in partnership with the Russian American Company, being furnished by Baranof and his successors with Aleutian hunters and canoes. Their operations, however, were chiefly carried on along the coast of what was then called New Albion, and of California, and the results of these ventures do not fall within the scope of this report.

The English and American sea captains who visited Prince William sound and the Alexander archipelago previous to Vancouver's voyages reaped a most abundant harvest of sea otters in that section of the country, as many as 2,000 skins having been secured by a single vessel in one season. At the beginning of the present century Alexander Baranof, who had the best facilities for observation, estimated that 120,000 sea otters were carried away by "the foreigners", mostly to China.

The prices of this valuable skin, even at that early day, were remarkably high. In the journals and reports of these traders, which have nearly all been preserved, we find instances of 10 or 12 blankets, and even $40 in silver, paid for a single skin. The Russians, who were compelled to transport all their trading goods across the width of the Asiatic continent and then by ships from Okhotsk, were not slow to discover that it was impossible to compete in trade with these English and American rivals. The valuable animal was rapidly becoming extinct in the more accessible hunting grounds when Baranof concluded to extend the original policy of his company, of hunting in preference to trading, to the sea-otter grounds of the southeast. He summoned large numbers of natives of the Aleutian islands and of the Kadiak group, with their canoes, and ordered them to proceed to the then newly established settlement at Sitka, hunting as they made their way eastward. Parties composed of from 600 to 800 canoes set out on this perilous journey of over 1,000 miles of stormy ocean, following the line of the coast. One-third of these fleets was lost on the way.

Although these expeditions were accompanied by small sailing crafts to carry supplies, it frequently happened that the natives in their canoes were surprised by violent gales in crossing the open sea from one promontory to another. Many also suffered death at the hands of the more warlike and hostile Thlingits inhabiting the mainland between the Copper river and Cape Spencer. Those who finally reached their destination were divided into smaller parties and sent out to scour the intricate inlets, fiords, and channels of the Alexander archipelago and the mainland to the eastward. Of these smaller expeditions also a large percentage never returned to report their success or their losses.

When hunting in the southeastern region proved no longer profitable the Russian American Company continued to purchase of the Thlingits a few sea otters killed by them, but owing to the close vicinity of several of the Hudson Bay Company's stations, the prices paid for such skins were abnormally high. The Aleutian and Kadiak Eskimo natives who were compelled to hunt for the company under the provisions of its charter received but the equivalent of $10 for the very best grade of sea otter, while the independent Thlingits sold the same quality of skin for $30 or $40 in silver at Sitka. The managers of the Russian company in their reports acknowledged that no profits were derived from these transactions, but that the skins were purchased only to prevent their acquisition by the Hudson Bay Company.

In the waters surrounding the Aleutian islands the killing of sea otters was brought into system and order as soon as the Russian American Company obtained control of the country by their charter of 1799. At first the company claimed the right to employ all native men as hunters without any compensation beyond their subsistence as an "offset from their exemption from imperial taxes and other duties". This profitable but unjust procedure was forbidden by the emperor Alexander I, and the company was instructed to pay the Aleutian hunters for every skin deposited in the company's storehouses. The emperor's manifesto was complied with, but the prices paid to the poor Aleutians for their sea-otter skins were ridiculously small. Only 10 rubles of colonial scrip or leather currency, the equivalent of about $2, was paid to the hunter for a first-class skin. He was also required to furnish his own subsistence, with the exception of a few articles of luxury, a very small quantity of flour and tobacco.

The Russian American Company, even in those early days, realized $100 each for their sea-otter skins in the markets of Asia and Europe.

When the Siberian hunters and traders first advanced from the coast of Asia along the Aleutian chain of islands, the expeditions, fitted out mostly by wealthy merchants of Irkutsk, and consisting of 1 or 2 small vessels each, were generally absent from 5 to 7 years, and at the end of that time returned with from 2,000 to 7,000 sea-otter skins, in addition to the less valuable skins of foxes of various kinds. Their primitive crafts were of such wretched construction (being in many instances built almost without the use of iron, with planks lashed together with rawhide thongs) that fully 50 per cent of these valuable cargoes were lost by shipwreck.

In spite of these losses, however, the value of sea-otter and fur-seal skins imported through the port of Okhotsk alone was estimated at the end of the eighteenth century at nearly 2,000,000 rubles (in silver) per annum, of which the imperial government exacted one-tenth as royalty from the hunters. Under the indiscriminate slaughter of many rival hunting expeditions the sea otters disappeared rapidly, so that when the Russian American Company at last obtained exclusive control of the whole industry the annual catch of sea otters did not exceed 2,500 skins for nearly half a century succeeding the first charter. At no time during the existence of this company was the annual sea-otter catch officially reported as exceeding 2,000 skins. The policy adopted by the Russian company was to hunt thoroughly over a certain sea-otter ground for two successive seasons and then to let it remain undisturbed for 3 years following. But even under such careful management the total catch did not increase at any time to the figure attained subsequent to the transfer of the country to the United States. The waters surrounding certain islands and their outlying reefs were more prolific then in the valuable animals than they are now, but the total yield of sea-otter skins in Alaska from the time of its purchase to within a few years was four times as large as any reported by the Russians.

It is true in the records of the customhouse at Okhotsk we find such entries as the following: "The ships of the promyshleniks (Siberian term for hunters) discharged at the customhouse in the year of 1770 16,000 sea otters, 23,000 sables, 2,400 black foxes, 14,000 red foxes, 25,000 fur seals, 36,000 blue foxes, valued at 2,000,000 rubles in silver. The value of the goods exported by these traders on setting out upon their expeditions was

200,000 rubles"; but we must consider that the entries for that 1 year may show the result of the transactions of several ships during 4 or 5 years.

In an official report laid before the emperor by the imperial chamberlain, Rezanof, who visited the Russian colonies in America between the years 1805 and 1807, the value of sea-otter skins exported annually was estimated only at 80,000 rubles. Lieutenant Kotzebue, who visited the northwest coast of America during his voyage around the world from 1815 to 1817, reported the value of the sea-otter catch as from 100,000 to 150,000 rubles. That both these estimates were far below the reality has since been ascertained, but it is safe to state that from the time of Kotzebue's visit until the transfer of Alaska to the United States from 2,000 to 3,000 sea-otter skins were placed upon the market each successive year, and also that to these shipments and to the catch of fur seal was due the continued maintenance of the Russian establishments on this continent.

The tables appended to this chapter show clearly that the shipments of sea-otter skins increased very largely in price after the transfer of the Russian colonies to the United States. An official statement, published in 1863, of shipments of sea otter from Sitka during the period of 20 years preceding, places the aggregate at 29,899, showing an annual average production of 1,295. In 1880 the catch approached 6,000, but from that time it has steadily dwindled until now only from 1,500 to 2,000 of these valuable skins reach the market every year.

The remarkable increase in the catch in our time was due solely to the increased inducements offered to the natives for exerting themselves to the utmost in order to satisfy new wants growing upon them every year. The animal certainly must have been more numerous in former times, but in those days whenever a large body of these shy animals moved from one feeding ground to another no effort was made to trace and follow them up, as is done now. For between 15 and 20 years succeeding the purchase of Alaska no decrease was perceptible; occasionally a considerable increase in the shipments of sea-otter skins was reported, but now the turning point seems to have been passed, and in due course of time, perhaps in a very few years, the inevitable collapse must come. In fact the black cloud of prospective ruin and starvation is even now within the poor Aleut's limited scope of vision.

Within the last 10 years the hunting of sea otters by means of small sailing craft provided with boats and crews of white men has increased in volume from year to year. This mode of hunting is carried on in both summer and winter, giving the animals almost no chance to recuperate. In many of the most prolific hunting grounds the sea otter has already become extinct. Trading stations located at various points of the mainland and islands, from which formerly several hundred of the valuable pelts were shipped every year, now report from 4 to 10 skins. During the last year one firm sent out schooners provided with steam launches to chase the much-coveted animal, and therefore the final extermination of the species can not be far distant.

The sea otter is an exceedingly shy and sensitive animal, and does not appear to congregate in any large numbers. It rarely sets foot upon shore, unless it be for a few hours of repose upon some outlying rock or sand dune, and probably during the breeding season in some secluded retreat. It is frequently found 60 and 80 miles from land, singly and in pairs, and even families with their young may be seen drifting about at that distance from shore. Patches of floating kelp are their favorite places for resting, and in still water the female can be seen floating on her back, holding her offspring between the forefeet. Some hunters with well-developed sense of hearing, or very vivid imagination, assert that the animal gives forth a crooning sound, or lullaby, hushing the baby, as it were. A few instances are on record of sea otters having come ashore on the coast of Cook inlet, driven from the water by ice during extremely cold winters.

The mode of hunting the animal did not essentially change among the natives from the earliest times until within a few years past. The universal use of firearms in killing sea otters is of comparatively recent origin, and even now a large proportion of the native hunters prefer the spear and the bow and arrows for the purpose, and there can be no doubt that the noise of firearms, as well as the constant pursuit, contributed to the driving away and scattering of the shy animals. The natives always hunted the sea otter in parties of from 4 to 7 canoes, each manned by 2 hunters. Of late years it has been the practice of the firms trading in Alaska to assemble many such parties, numbering from 40 to 60 canoes, and to carry them on sailing or steam vessels to the more distant hunting grounds. Upon landing, these parties pitch their tents in locations not visible from the sea, and the hunters, who are generally accompanied by a few women to do the camp work, settle down in patience for the first favorable day, as only a smooth sea and clear weather permit of pursuing the sea otter with canoes with any prospect of success. In the inhospitable climate of Alaska weeks and months may sometimes pass by without giving the patient hunters a chance to try their skill. A weatherwise individual, here known under the Russian name of "Astronome", generally accompanies each party to give out notice of the approach of favorable weather, and to fix the exact time when it is best to set off. But few natives, even in the present day, are bold enough to begin a hunt without the sanction of such an individual. When the right day arrives at last, the hunters, who all belong to the Russian church, embark after a brief prayer for success, fully equipped and in the best of spirits, exchanging jokes and banter until the beach is left far behind. Then silence becomes the rule, a chosen leader assumes command, and at a signal from him the canoes form a semicircle, with intervals of from 50 to 100 yards between them. Each hunter anxiously scans the surface of the water, while at the same time keeping an eye upon the other canoes. The sea otter comes up to the surface to breathe about once in every 10 minutes, its small, smooth, glossy head remaining visible but a few seconds each time.

The first hunter who spies an otter lifts his paddle as a signal, and then points it in the direction taken by the animal in diving. The scattered canoes at once close in a wide circle around the spot indicated by the fortunate discoverer. If the animal comes up within this circle the hunters merely continue to close in gradually, beating the water with their paddles to prevent the escape of the quarry; but very often the wary animal changes its course after diving, and the whole fleet of canoes is obliged to change direction frequently before the final circle is formed. As soon as the otter comes up within range of spear or arrow, the nearest hunter exerts his skill, and lodges a spearhead in the head or neck of the animal, which immediately dives. The shaft of the spear or arrow, to which an inflated bladder is fastened, becomes detached from the point, but still connected by a line, and serves as a buoy, preventing the otter from diving to any depth. The animal soon comes up again, only to receive additional missiles. The intervals between diving become shorter each time, until exhaustion forces the otter to remain on the surface and receive its death wound. The body of the animal is then hoisted on the top of one of the canoes and the hunt continues as long as the weather is favorable. On returning to camp each animal killed is inspected by the leader of the party, in the presence of all the hunters, and its ownership ascertained by the spear or arrowhead that caused the mortal wound, each weapon bearing its owner's mark. The man who first struck the otter receives from $2 to $10 from the one who finally slays it. The skins of the animals are at once removed, labeled, and classified, according to quality, by the agents of the trading firm accompanying the hunting parties, and carefully stored for shipment. The hunters do not receive their pay until the return of the whole party to the trading post.

These primitive and conservative processes are, however, rapidly becoming a thing of the past. Even the native hunter neglects his bow and spear, relying chiefly upon his breech-loading rifle or shotgun. Though the white sea-otter hunters still take native parties with them to the hunting grounds, they arm themselves with guns exclusively, and, with their stanch little schooners, they can keep up the pursuit of the otter far into the winter, giving the animal no time to recuperate. The greatest damage to the sea-otter interest is inflicted by the wealthy trading firms who for several years have sent their well-fitted schooners to the otter grounds provided with steam launches and all the latest inventions for the destruction of marine animal life. The puffing and churning of these miniature steam craft can now be heard on the waters of all the most valuable hunting grounds, sounding the death knell of the highly prized mammals, the skins of which heretofore furnished the native hunter with necessaries, as well as the simple luxuries, essential to his domestic economy. The day is rapidly approaching when an answer will be demanded to the question as to what may be done to repair his loss. Unless a stop is put to the hunting by steam, the sea-otter fur will be exceedingly rare and correspondingly costly before another decade passes by.

FUR SEALS.

At an early day in the history of the Russian colonies in America transactions in the skins of fur seals began to rival in magnitude the trade in sea-otter skins. During the year immediately succeeding the discovery of the Pribilof group, in 1786, over 500,000 fur seals were killed by the Russian hunters. Veniaminof, the most prominent missionary of Alaska, in his descriptive letters, which were published and obtained wide circulation, gives these figures at 2,000,000. Whether this was an exaggeration or not it is impossible now to say, but it appears from official reports that within 20 years from that time the fur seals had almost disappeared from the islands.

Fully one-half of the skins taken on the Pribilof islands during that period were thrown into the sea in an advanced state of decomposition, poisoning the waters for miles around to such an extent as to drive away the seals for several successive seasons. Soon after the first seal pelts had been placed upon the Siberian market it was ascertained that the Chinese merchants trading on the frontier placed a high value upon these skins. They frequently refused to exchange teas for any other commodity of which the Russian traders could dispose. When the Russian American Company finally obtained exclusive control of the Russian possessions in America the fur seals were so nearly extinct that at first the new company's traffic in their skins was quite insignificant.

The imperial chamberlain, Nicolai Rezanof, previously mentioned, was the first to observe the threatened extinction of this lucrative industry. He promptly applied the most efficient remedies by at once prohibiting the killing of any more fur seals for a period of 5 years succeeding his visit in the year 1807. At the end of that time the shy animals had returned and recuperated sufficiently to afford a regular and reliable source of revenue to the Russian American Company.

On the Pribilof islands, as well as in other portions of the Russian colonial possessions over which the company had exclusive control, the natives were paid for each skin secured. The price was, however, out of all proportion to the real value of the article. From 20 to 30 cents each was all the poor Aleuts on the islands received for skins then worth from $5 to $20 in the Chinese market.

The seal islands were early looked upon by the managers of the Russian Fur Company as an unfailing treasury from which to draw in times of need. At the beginning of the nineteenth century, when breadstuffs and all other kinds of provisions were shipped to the colonies through Siberia by land, and thence across from the Okhotsk sea to Sitka, frequently failing to arrive at the proper time, Baranof, the chief manager, was obliged at times to purchase whole cargoes of provisions and merchandise from the English and American traders, and having no money on hand for transactions of such magnitude, and drafts upon the company's agents at Hamburg and St. Petersburg being looked

upon with distrust, he hit upon the expedient of paying in fur seals, a currency always at hand when needed. At first this mode of payment proved to be profitable enough, the masters of such vessels accepting each skin as the equivalent of 1 Mexican dollar. No sooner, however, were these transactions known by the shrewd merchants of Boston and New York than expedition after expedition was fitted out from these American ports, with the sole view of exchanging cheap provisions and merchandise for fur seals at Sitka, and then selling the same at an immense profit in Chinese ports. This, of course, occurred before the Russians had any intercourse with the Chinese through their seaports.

The managers of the Russian American Company in St. Petersburg being informed of this traffic, at once ordered the shipment of seal skins to China direct on account of the company; but being almost continually in want of provisions, the company's representative on the American coast could not always comply with his instructions. This measure, however, was the cause of raising the price of seal skins when used as currency from $1 to $2. An end was finally put to these transactions by peremptory orders from St. Petersburg to make no further payments in fur seals. The reason for this order was a rather sharp transaction on the part of a Yankee skipper, who, having sold a cargo of provisions to Baranof at Sitka at a good price, and having received in payment seal skins at the rate of $1 each, crossed over to the coast of Kamchatka with his ship, and there sold the skins to the agent of the same company for $3 each.

At the time of Pribilof's discovery of the seal islands they were uninhabited. The vast number of seals shipped thence during the first decade succeeding the discovery were killed by laborers imported from the Aleutian islands.

It will thus be seen that the Russians recognized no proprietary rights as vested in the Aleutian natives, whom they themselves had carried to the islands. Subsequently, when the Russian American Company obtained exclusive privilege, these laborers were allowed and often compelled to remain for long periods of time, sometimes for a whole generation, without being relieved. Under one clause of the company's charter the corporation became for the time over which their lease extended sole owner of "everything within the limits of the Russian possessions in America, found upon the surface, or in the air, or in the bowels of the earth"; and consequently every fur-bearing animal killed by the natives was considered the company's property, any compensation being looked upon as the equivalent for time and labor expended in securing the skin.

The restrictive measures adopted as before mentioned upon Rezanof's recommendation proved effective, as only 10 years later Lieutenant Kotzebue, who circumnavigated the globe under the auspices of the Russian government, reported that from these 2 seal islands the Russian American Company derived a more regular and ample revenue than from any other portions of its vast possessions.

The skins that had accumulated on the Pribilof islands previous to Rezanof's arrival had been most carelessly cured by the crude process of drying them over fires. Of 60,000 such skins, shipped from the islands to Canton on the Russian ship Neva, one-half were entirely spoiled before the vessel reached the tropic latitudes, and had to be thrown overboard. Gradually, however, improvements were introduced in the management of the business and in the operations of curing and packing. The art of plucking and dyeing the seal skin was an invention of the Chinese, reported by the Russian company's agent at Okhotsk as early as 1799. The exact date at which this process was adopted by English furriers can not now be ascertained, but it is safe to presume that it occurred at some period during the first half of the nineteenth century, as a regular demand for seal skins in England can be traced to that time. At a later period, about the year 1850, shipments directly to New York and London were inaugurated, and these shipments continued at the rate of from 20,000 to 40,000 skins per annum until the transfer of the Russian possessions to the United States.

When the question of acquiring Russian America was agitated in Congress no particular stress was laid upon the prospective value of the fur-seal industry, though it was known as one of the principal sources of revenue of the Russian American Company. This firm was then but beginning to reap the benefits resulting from careful management extending over half a century, and during the last few years of their control of the Alaskan territory they found themselves enabled to send to the fur markets of the world from 60,000 to 80,000 seal skins per annum. It is not easily explained why the managers of the Russian company should have agreed to sell or abandon their rights and privileges at a time when the prospect of an abundant and regular revenue was more promising than it had been for the preceding half century. During the last decade of Russian possession the agents in charge of the Pribilof islands reported each year that the fur seals were increasing in such a degree that the rookeries were crowded beyond their capacity; and each report was accompanied by urgent requests to kill more seals to make room for the increasing millions.

The fact that it was possible to continue the slaughter of seals at the rate of 100,000 per annum for 20 years after the sale of the territory would seem to prove that when the United States acquired this valuable resort it was in as prosperous condition as when first discovered by Gerassim Pribilof on that memorable foggy day in June, 1786.

The first limitation of the killing of seals to 100,000 per annum was based upon careful observations and estimates, but the indiscriminate slaughter inaugurated within a few years past by sealing vessels hailing chiefly from British Columbia, who strike the migrating animals on their way to the breeding grounds, killing males and females alike, the latter almost ready to drop their young, has fully justified the late more radical restrictions as to the number of seals to be killed on the breeding grounds.

In times past, when there seemed to be no danger of the extinction of the animal, the prices of seal skins in London sometimes fluctuated and were affected by temporary overstocking of the market, but for the future there can be no prospect except a constant rise in the value of this commodity, the beauty and durability of which as a material for garments is such as to insure for it a demand among the votaries of fashion as long as it can be obtained; and just so long as the fur-seal industry can be maintained Alaska will be a valuable possession, without reference to any other resources that may be developed within its borders.

METHOD OF CAPTURE OF FUR SEALS.—The killing of fur seals by the lessees of the Pribilof islands is accomplished altogether on land, and it has been reduced from long observation and practice almost to a science, everything connected with it being conducted with the most perfect system and dispatch.

The able-bodied Aleutian hunters now living upon the islands of St. Paul and St. George, under the terms of the lease and under agreement between themselves and the lessees, are the only individuals permitted to kill and skin seals, to the number of the annual quota, as long as they are able to perform the labor satisfactorily within a given time. For this labor they are remunerated at the rate of 40 cents for killing and skinning each seal. Life-long practice has made them expert in using their huge clubs and sharp skin knives, both instruments being manufactured expressly for their use. These men are as a class proud of their skill as sealers, and too proud to bemean themselves by doing any other kind of labor. For all kinds of incidental labor, such as building and repairing, strapping and packing the bundles of skins, loading and unloading the vessels, etc., the lessees find it necessary to engage laborers from the Aleutian islands. These latter individuals are paid at the rate of $1 per diem, but are not allowed to remain on the islands beyond the killing season.

The labor connected with the killing of the annual quota of fur seals may be divided into two distinct processes. The separation of the seals of a certain age and size from the main body and their removal to the killing grounds form the preliminary operation; the final process consists of another selection among the select and killing and skinning the same. The driving as well as the killing can not be done in every kind of weather, a damp, cloudy day being especially desirable for the purpose.

As it is the habit of the young male seals up to the age of 4 years to segregate themselves from the main herd and lie upon the mossy ground in the rear of the so-called rookeries or groups of families that line the seashore, the experienced native can easily crawl in between the families and these "bachelors" (kholostiaks), as they were named by the Russians. This once accomplished, the animals are driven inland in packs of from 1,000 to 3,000 each. It is unsafe to drive the seals more than 5 or 6 miles in a day, as they easily become overheated, which injures the quality of their skins. When night comes on the driving ceases and sentries are posted around each drove to prevent the animals from straying; occasional whistling on the part of the guards suffices to keep the animals together. In the morning, if the weather be favorable, that is, cool, rainy, or overcast, the drive is continued until the killing ground is reached, where the intended victims are again allowed to rest over night under guard. Finally, as early as possible in the morning, the sealers appear with their clubs; small groups of 20 or 30 seals are successively separated from their fellows, surrounded by the sealers, and the slaughter begins. Even at this last moment another selection is made, and any animal appearing to the eye of the experienced Aleut to be either below or above the specified age or size is dismissed with a gentle tap of the club and allowed to scamper off on its way to the shore, rejoicing at its narrow escape.

The men with clubs proceed from one group to another, striking the seal violently on the nose. They are immediately followed by men with long, sharp knives, who stab each stunned seal to the heart to insure immediate death. These men are in turn followed by the skinners, who, with astonishing rapidity, divest the carcasses of their valuable covering, leaving, however, the head and flippers intact. Only a few paces behind the skinners come the carts drawn by mules, into which the skins are rapidly thrown and carried away. The wives and daughters of the sealers linger around the rear of the death-dealing column and reap a rich harvest of luscious blubber, which they carry away on their heads and shoulders, the oil dripping down over their faces and garments.

The skins, yet warm from the body, are discharged into capacious salt houses and salted down for the time being like fish in kenches. This treatment is continued for some time under the application of heavy pressure, and finally they are rolled in bundles of two each, with the fur inside, securely strapped, and are then ready for shipment.

PROCESS OF CURING FUR-SEAL SKINS.—The process by which these unsightly, ill-smelling bundles are transformed into the beautiful fabrics of fashion may be briefly described as follows: when the skins are received by the furrier, with the salt still adhering, the latter is washed off and the remaining fat removed from the inside with a beaming knife, great care being taken that no cuts or uneven places are made in the pelt. The skins are next thoroughly cleansed by being stretched upon beams, with their fur side up, when all grease and other matter attached thereto is carefully removed. The next step in the proceeding is the stretching of the pelt upon frames and drying the same at a moderate heat. After this first drying they are soaked in water and roughly washed with soap. After this the fur is dried again, the skin being kept moist, and the operator pulls out the long hair with the assistance of a dull knife. This operation, a very delicate one, is repeated several times, until nothing but the soft fur remains. The pelts are then again alternately dried and dampened on the skin side, and shaved until the

latter obtains a fine, even surface. Then follows the slow and tedious process of drying and softening the skins by treading them with bare feet in tubs or hogsheads with a sprinkling of the finest hard-wood sawdust to absorb any fragment of grease still adhering to the fur. In dyeing, the liquid dye is applied with a brush, carefully covering the points of the standing fur. The skin is then gently pulled to and fro, so as to make the points touch each other, and partially dried. The dyed surface is then brushed and another coat applied, the same process being repeated a number of times. From 8 to 12 coats produce a good color. The American furriers then wash the skins again and cleanse them with sawdust, while the English manufacturers dispense with washing after dyeing.

The manner in which the proceeds of the joint labor of all the sealers are divided among them is quite worthy of attention, as in its way it solves to a certain extent one of the problems of communal labor. This rather complicated system was founded upon measures adopted centuries ago by the Russian trappers and hunters of Siberia. As an example, the division of proceeds on the island of St. Paul for one year is presented.

The sum total of joint earnings is first ascertained, next the number of claims upon the total is found, that is, the families, individuals, and institutions to be supported. Special donations are next in order, these consisting of gifts to the chiefs or superintendents of labor of $150 each, $100 to 2 men connected with the church service, and one annual donation of $450 to the parsonage of Unalaska. The total remaining after these deductions is divided among the church of St. Paul island, the priest of that church, 64 actual laborers and heads of families, and 14 invalids and widows, the latter two being divided into 3 classes, according to their wants. The church, priest, and able-bodied men are entitled to what is called first-class shares in the proceeds, the others receiving second, third, and fourth class shares, respectively. The total number of persons to divide earnings by shares in that year was 82, counting the church and priest at 2 shares. The sum total of earnings was in that instance divided by 82 in order to ascertain the value of 1 first-class share. The value of a second-class share is ascertained simply by deducting 10 per cent from the first, and the same rule is followed as to the third and fourth class shares. The reduction made in 3 classes of shares leaves a sum sufficient to cover all the special gifts before mentioned.

In the year referred to the division was as follows: the total earnings of sealers were $32,153.40; there were 68 first-class shares, 6 second-class shares, 6 third-class shares, and 2 fourth-class shares. No better plan could be devised to provide in a just and equitable manner for all the members of an isolated community cut off from all means of support than this one secured by the government.

LAND FURS.

Of land furs the records now available are less satisfactory with regard to the past. We have, however, an official statement covering 21 years, from 1842 to 1862, both inclusive, in which skins of foxes of three kinds, black, cross, and red, are reported as numbering 111,851, or 5,326 per annum; beaver, 157,484, or 7,499 per annum; land otter, 170,473, or 8,118 per annum; marten, 13,682, or 652 per annum.

The marten or sable, though inferior to the Siberian species, is quite valuable, but the supply is limited. Whether it ever existed in large numbers is difficult to ascertain, because the Russian company did not ship them from the colonies, but gave or sold them to the higher class of its employés. Under the present rule of permitting only natives of the soil to hunt or trap, the balance between supply and consumption seems to be well preserved. No complaints are heard of the extinction of any fur-bearing animals with the one exception of the beaver.

As the whims of fashion change the prices of certain kinds and qualities of furs, traders induce the natives to secure those kinds in preference to others, and thus discrepancies arise in the annual catch, but this makes no difference as to the total. The fact that game, such as moose and reindeer, has been killed off to a great extent in the regions furnishing the principal land furs would lead us to expect that the natives, deprived of their natural food supplies, would be compelled to purchase largely of the imported provisions of the traders and hunt more actively to provide means for the purchase of food. As far as can be observed, that is the case only with regard to flour, though they seem to spend now for food money which was formerly squandered in beads and gaudy clothing unsuited to their mode of life. If extinction of fur-bearing animals in the continental region of Alaska should take place in the future it will be due entirely to the constant drain from the Arctic shore, where the Eskimo are constantly exchanging furs for whisky and other intoxicating liquors, drawing largely upon furs obtained from their neighbors in the interior as far south as the Yukon, for which they receive no return but the means of stupefying themselves for days and weeks, and perhaps a breech-loading rifle, which becomes useless in their hands as soon as the fixed ammunition is expended. The fur-bearing animals on the immediate seacoast are almost exterminated or are of little value, but the equivalent return of supplies of alcohol must be obtained, and as a consequence a traffic with their southern neighbors is carried on by these people on the plan of buying furs for a little whisky and selling them for a larger quantity, the evils of this system working in both directions.

DISTRIBUTION OF FUR-BEARING ANIMALS.

THE FUR SEAL (Callorhinus ursinus).—The only hauling or breeding grounds of the fur seal known in Alaska are on the islands of St. Paul and St. George, with the addition perhaps of the adjoining Otter islands, where these animals occasionally haul up but do not breed. From early spring until late in the autumn fur seals are met with in all portions of the North Pacific inclosed by the Alaska coast, from latitude 54° 40′ to Mount St. Elias, and thence westward along Prince William sound, the east side of Kenai peninsula, and along the Alaskan peninsula and its continuation, the Aleutian chain of islands. In Bering sea the animal has not been observed to the northward of latitude 58°. In the spring of the year only fur seals are found in large numbers in the vicinity of the Straits of Fuca and along the coast of Vancouver and Queen Charlotte islands. During the time of the general migration to and from the breeding grounds several of the passes through the Aleutian chain are crowded with adults in the spring and with young seals and yearlings in the late summer and autumn. The presence of large numbers of these animals in these secluded waters and those of Prince William sound late in the season (in June and July) has often given rise to the supposition that some breeding grounds must exist in these localities, but the most minute and persistent search has failed to sustain the supposition.

About 50 miles south of the Aleutian chain large numbers of seals are frequently seen during the summer, and for half a century rumors of the existence of breeding grounds in the neighborhood were launched from time to time.

The Russian American Company fitted out numerous exploring expeditions, but these were always unsuccessful. The last enterprise of the kind was undertaken by a former employé of the Russian company, under the auspices of the former lessees of the seal islands, on the schooner John Bright, in 1873, being the third expedition of the kind fitted out by the Alaska Commercial Company in 2 years. On this occasion indications of land, such as are accepted by all navigators, were not wanting in the waters included in the search. After a season of fruitless search the captain finally abandoned his undertaking, coming to the conclusion, however, that within a short distance southward from the Aleutian islands there existed banks sufficiently shallow to serve as feeding grounds for the seals, which possibly visit them for that purpose even during the breeding season, as a journey of 300 miles is but a brief excursion for these rapid swimmers in search of food.

All other expeditions in search of the supposed "winter home" of these seals have met with the same lack of success. The Pacific ocean and the Antarctic have been scoured by the sealers and emissaries of trading firms, but at the present day the fact seems to be established that the fur seals, after leaving their confined breeding places, scatter over the broad Pacific to localities where extensive elevations of the bottom of the sea enable them to subsist upon fish until the instinct of reproduction calls them again from all directions to one common goal.

HOME OF THE SEA OTTER.—The sea otter seems to exist chiefly on a line parallel with the Japanese current from the coast of Japan along the Kurile islands to the coast of Kamchatka, and thence westward along the Aleutian chain, the southward side of the Alaska peninsula, the estuaries of Cook inlet and Prince William sound, and thence eastward and southward along the Alaska coast, the Alexander archipelago, British Columbia, Washington, and Oregon.

At the beginning of the present century large numbers of these animals were also found on the coast of California, from which they have now disappeared altogether, and on the coast of Oregon, Washington, and British Columbia they have decreased to such a degree that only at long intervals is the patient hunter rewarded with the prize of one of these valuable skins. On the west coast of Vancouver island, in the vicinity of Nootka sound, where Meares, Portlock, Dixon, and others of the earliest English northwest traders found thousands of sea-otter skins in the possession of chiefs, the animal has been almost exterminated, and there can be no doubt that had it not been for the protection afforded under the Russian monopoly for nearly three-fourths of a century this animal would be extinct to-day in Alaskan waters.

The Eskimo tribes entered understandingly into the measures of protection introduced by the Russians. The Thlingits, on the other hand, a fierce and savage people opposed to system and order or control of any kind, were the most active agents in the extermination of the animal. From the time they began to understand the value of sea-otter skins, from the eagerness with which the early English visitors purchased all they had, even mere scraps and rags, the Thlingits, all along the coast from the mouth of the Copper river southward, hunted and slaughtered the sea otter indiscriminately and in the most clumsy manner, frightening away as many as they killed. Had these tribes joined to their recklessness the same skill and patient persistence observed among the Eskimo and Aleuts, there would be no sea otters on that coast to-day; but, in their wooden canoes, they can only hunt in fine weather, and at such times the sea otters retire from the coast to a distance to which no Thlingit would venture.

In the Russian possessions, about the Kurile islands and the coast of Kamchatka, but few sea otters are now killed annually. At three different times during the existence of the Russian American Company their agents on the Kurile islands and at Kamchatka reported the sea otter extinct, and each time the animals appeared again after they had not been hunted for a few years. Along the Aleutian chain the sea otters frequently change from one feeding ground to another. For instance, for a long series of years the island of Attu and several smaller islands surrounding it furnished many hundreds of sea-otter skins every year, but for some unexplained reason a

migration eastward took place, and at the present time from 4 to 8 skins are all that the poverty-stricken inhabitants sell to the traders. The numerous islands between Attu and Atka are each visited in turn by the hunters about once in 3 years, and under such management the numbers of the animals appear to remain the same.

The outlying reefs of Atka, which once furnished the most abundant supply of these valuable skins, are now entirely deserted, and the inhabitants take long hunting voyages to the westward under convoy of schooners belonging to the trading firms. From the island of Umnak eastward the sea otters become more frequent, until they are found in their greatest abundance in the district of Sannak and Belkovsky. Here, within a radius of not more than 50 miles, over 1,000 sea otters are secured every year by the fortunate hunters, without any apparent decline in numbers. From this point in a northeasterly direction the coast of the Alaska peninsula is lined with hundreds of islands and reefs, affording ample facilities for shelter and refuge to the persecuted animal, and though it is hunted here recklessly by white and native hunters alike, using firearms, in violation of existing regulations, no alarming decrease was noted previous to the introduction of steam launches. Still further northward, in the waters of the Kadiak archipelago and the southern half of Cook inlet, and thence eastward to Prince William sound, sea otters are found in less numbers than in the district described above, the annual catch having dwindled to 400 or 500 skins.

As far as it is possible for us to know the only enemy of the sea otter is man, with the exception, perhaps, of the orca or killer whale. We have reports of natives only in support of the last statement, but as this whale is known to make sad havoc among fur seals, there is no reason to doubt that it occasionally attacks the somewhat larger sea otter. Skins have come under observation marked with scars produced evidently by the teeth of some large marine animal.

The distribution of the sea otter along the coast of Alaska has not essentially changed within historic times. Certain localities have been abandoned by the animal altogether, others temporarily; but where Bering, Chirikof, and Steller, and subsequently the Russian promyshleniks, found the sea otter more than a century ago, we find it now, and the supply of such skins in the fur markets of the world was up to within a few years as great as at any time since the first indiscriminate slaughter prior to the establishment of the Russian monopoly; in fact, it was but recently much greater.

THE LAND OTTER.—The land otter is one of the most widely distributed fur-bearing animals in Alaska, ranking in this respect next to the common cross fox. The skin, however, is much more valuable, since of late it has been utilized for the manufacture of an imitation of seal skin. The skin has always met with ready sale in Russia, where it is used extensively for collars and cuffs of the uniforms of army officers of the line who can not afford the more expensive sea-otter trimmings. The demand for it in former times was so great that the Russian American Company, in leasing a strip of land to the Hudson Bay Company, was not only willing but anxious to accept the land-otter skins. The Chinese also have a liking for this fur.

The land otter is found on the whole coast of Alaska from the southern boundary to the northern shore of Norton sound. It also occurs on all the islands inside of these limits as far as Unimak in the west and Nunivak in the north. Within the Arctic circle the land otter is confined to the upper courses of rivers emptying into Kotzebue sound and the Arctic ocean, such as the Colville, the Kowak, the Inland, and the Selawik. It is found also along the whole course of the Yukon as far as known, along the Kuskokwim, and all over the delta lying between the mouths of these rivers, in the valleys of the Togiak and the Nushagak, and in nearly all parts of the Alaska peninsula and Unimak island, as well as on the Kadiak archipelago, the shores of Cook inlet, on the Kinik and Sushitna rivers emptying into the same, on Prince William sound, and on the Copper river. The traders report the land otter also along the whole coast from Mount St. Elias to the southern boundary, with the exception of the smaller islands.

THE BEAVER.—The beaver was once one of the most important among the fur-bearing animals of continental Alaska, but both in supply and demand a great decline has taken place during the last half century. It would seem that the smaller demand would cause an increase in the supply, but this has not been the case. Throughout the whole interior region north of Cook inlet and south of the Yukon river the beavers have frequently suffered from excessive and prolonged cold during the winter, the ice in rivers and ponds forming so rapidly and to such thickness that the animals found it impossible to keep open the approaches to their dwellings under water, and they died from starvation before the thaws of spring opened their prisons. The Indians of the Kinik and Tanana rivers state that after an extraordinarily cold winter they have frequently found the putrefying carcasses of hundreds of beavers in their so-called lodges. Thousands of old beaver dams over the continental portion of Alaska also testify to the former abundance of the animal, which now is thinly scattered over the same ground. At nearly every trading post throughout Alaska, where beaver skins are secured at all, hundreds are purchased now where thousands appear on former records.

The northern limit of the beaver seems to be but little to the southward of that of the land otter, considerably above the Arctic circle, being identical with the limit of trees. Skins are obtained from the natives living on the northern tributaries of the Yukon river, which have passed into the hands of the latter from the waters of the Colville and other rivers emptying into the Arctic.

All the streams emptying into Kotzebue sound are still inhabited by the beaver, and it is found on the east shore of Norton sound, along the whole coast of the Yukon and its tributaries, among all the lakes and streams of the Yukon and Kuskokwim deltas, in the lake and river systems of the Togiak and the Nushagak, about Lake Iliamna, and the lakes and rivers of the Alaska peninsula down to a line identical with that forming the northern boundary of the Aleutian tribe. On the shores of Cook inlet and the rivers emptying into the same beavers are still comparatively plentiful, especially in the vicinity of the large lakes occupying the central portion of the Kenai peninsula. Beaver skins are also obtained from the natives occupying the headwaters of Copper river and the series of lakes connecting this river with the Kinik and the Sushitna rivers.

In the southeastern section of Alaska, west of Mount St. Elias, traders report the existence of the beaver on streams and rivers of the mainland, but it is possible that the skins obtained in that vicinity come from British possessions, whence all these rivers flow.

In the past, when the Hudson Bay Company reigned supreme throughout the beaver country of northwestern America, the skins of these animals represented in trade the value of an English shilling each, and were used and accepted as common currency. Within the Russian possessions the value was always somewhat higher, and at the present time the price of a beaver skin of average size in Alaska is from $1.50 to $2, according to weight, and the market price from $5 to $12.

The Indians of the interior and a few of the Eskimo tribes look upon the meat of the beaver as a great delicacy. It is a dish that is always set before honored guests, and is much used during festivities. The long incisors of the beaver form an important item in the domestic economy of the natives who hunt this animal, the extraordinary hardness of these teeth making it possible to use them in the manufacture of chisels, small adzes, and other tools used in the working of wood and bone. Under the rule of the Russian American Company the exportation of castoreum was quite extensive, but now that article meets with no demand outside of the Chinese market. The Celestials still look upon it as a valuable part of their materia medica.

THE BROWN BEAR.—The brown bear of Alaska, a huge, shaggy animal, varying in length from 6 to 12 feet, is distributed over nearly every section of the territory, but seems to prefer an open, swampy country to the timber. The northern limit of this animal is about latitude 67° north, where it is found on the headwaters of the rivers emptying into the Arctic, and occasionally on the streams emptying into Kotzebue sound and in the interior of the Kotzebue peninsula. Being an expert fisher, the brown bear frequents during the salmon season all the rivers emptying into Bering sea and the north Pacific and their tributaries as far as the fish will go, and at the end of the annual run of fish the animal retreats into the recesses of hills and tundra, where berries and small game are most plentiful. The banks of all the streams are lined on either side with the well-trodden trails of these huge animals, offering better facilities for the progress of the traveler than do the paths of men. The brown bear is the great roadmaker of Alaska, and not only are the swampy plains intersected with paths made by him in all directions, leading generally to the easiest fording places of streams and rivers, but the hills and ridges of mountains to the very top show the traces of this omnipresent traveler. He shows great judgment and local knowledge, for his road up the mountain is safe to follow as the most practicable route. In great numbers this animal is found in the region between the lower Kuskokwim, the Togiak, and the Nushagak rivers, and also on the Alaska peninsula and the island of Unimak. On the island of Kadiak this species of bear is still plentiful, but the largest specimens are shipped from the coast of Cook inlet.

On the steep sides of the volcanic range of mountains on the west side of Cook inlet brown bears can be seen in herds of 20 or 30. Their skins are not very valuable, and owing to this fact, and to the fierce disposition of the animals, they are not commonly hunted. All the natives of Alaska respect them, and it is the universal custom of hunters to address a few complimentary remarks to the intended victims before attempting to kill them. Perhaps the skins of fully one-half of the brown bears killed throughout Alaska are retained by the natives for bedding, and to hang before the entrances of houses in place of doors. The smaller skins are tanned and cut up into straps and lines, and the natives of the interior utilize them for manufacturing sledge fastenings and the network bottoms of snowshoes, because this leather does not stretch when exposed to moisture, as moose and deer skins do.

THE BLACK BEAR.—The black bear of Alaska is widely distributed over the continental portion of the territory, but is generally confined to regions of timber and mountains; as far as known it exists only on a few islands on Prince William sound and on Kadiak island. The northern limit of the black bear extends, according to observations made by Mr. E. W. Nelson, even beyond that of his brown cousin. It is said to exist farther down the rivers emptying into the Arctic, and to be quite plentiful thence southward to the valley of the Yukon. The western limit of the region where the black bear is found is perhaps a line drawn from the Selawik river southward to Nulato, and thence across to the Kuskokwim river, in the vicinity of Kolmakovsky.

From the upper Nushagak many skins are obtained, and one trader reports black bear even west of this line, on the lower left bank of the Kuskokwim and on the Togiak peninsula, but as that region is not timbered the statement appears doubtful. From Bristol bay eastward the black bear is confined to the timbered regions about Lake Iliamna, but is more plentiful on the coast of Cook inlet and in the interior of the Kenai peninsula. From the headwaters of the Yukon, Tanana, Sushitna, Kinik, and Copper rivers many black bear skins are brought down

to the seacoast, and from Prince William sound and eastward the mountains and forests harbor large numbers of these animals. These skins command high prices, and are still increasing in value; but the animals are shy, and to hunt them requires much time and patience. The natives do not fear them in the least, and, in fact, it is considered a boy's work to kill them. Owing to its value, probably, the natives never use the black bear skin for bedding. The glossiest and largest of these skins come from the St. Elias alpine range and the vicinity of Prince William sound, but the black bear never attains the size of the brown variety.

THE FOX.—The only fur-bearing animal found in every section of Alaska is the red fox. From Point Barrow to the southern boundary and from the British line to the island of Attu this animal is ever present. It varies in size and quality of its fur from the finest Nushagak variety, equal to the high-priced Siberian fire fox, down to the diminutive yellow-tinged specimen that rambles furtively over the rocky islands of the Aleutian chain. Its color introduces variety among the uniform snow-white robes of its polar cousin along the Arctic shores, and, with the unwelcome persistence of a poor relation, it mingles with the aristocratic black and silver foxes, always managing to deteriorate in course of time the blood and coating of the "first families". Mountain or valley, forest or swampy plain, all seem to be the same to him. The red fox seems perfectly indifferent in regard to his diet, fish, flesh, and fowl being equally to his taste, with such little entremets as shellfish, mussels, and eggs of aquatic birds. He has an advantage over his fellows in the fact that his skin is cheap and the natives do not eat his flesh except in times of famine. They hunt or trap the red fox only when nothing else can be obtained; the interior tribes, however, make winter garments of their skins.

Being an inveterate traveler, the red fox is not above making an occasional sea voyage on the ice, which explains his presence on all the islands of the Aleutian chain, the Shumagin group, and even on St. Lawrence and Pribilof islands, over 100 miles from any other land. It is common practice among the Innuit and Indian tribes in the north to make household pets of young foxes whenever they can be secured alive. The average price of red fox skins throughout the country is about $1.

The king among the various tribes of the vulpine family is the black or silver fox. He is found in his prime in the mountain fastnesses of the interior and on the headwaters of the large rivers. Here he appears of large size, with long, soft, silky fur, varying in color from a silver tint to a deep jet black, the latter being the most rare and highly valued. These two qualities are found principally in the mountains on the boundary between southeastern Alaska and British Columbia, in the country of the Chilkats and the Takus, on the Upper Copper river, the Upper Yukon, Tanana, and Kuskokwim rivers. In the last-named regions the traders pay from $10 to $15 for each skin, but in southeastern Alaska, where competition is more fierce, as much as $40 or $50 in coin is frequently paid for one skin.

Along the Yukon and its northern tributaries the black fox of an inferior quality is found almost on the seacoast, and on the shores of Norton sound, and in the interior of Kotzebue peninsula. The animal is also reported to exist on the headwaters of the Colville river up to the 68th degree of latitude. Black foxes are quite plentiful on the Kadiak islands; and they occur on the Shumagin group, Unimak island, and on most of the Aleutian islands as far as Atka, but to many of these points they have been transported through the agency of man. On the timberless highlands of the far west the fur of these animals seems to deteriorate in quality.

Another species of the fox family is generally found with the silver fox, forming, in fact, the connecting link between the plebeian and the black aristocrat. This is the cross fox, partaking of the distinguishing qualities of both the red and black, evidently the result of an unrestrained intermixture. The quality and the color of the fur of the cross fox come much nearer those of the red, and the skin of the former exceeds that of the latter but little in value, from $2 to $3 being paid in Alaska for the best of them. While the distribution of the cross fox is naturally almost identical with that of the silver variety, the animal is found farther westward on the Aleutian islands, and is more frequent on the Alaska peninsula, though on the islands of Prince William sound and on Kadiak island both the black and cross varieties exist.

The skins of silver foxes form the most important element in the trade of the whole Yukon basin, being almost the only high-priced skins found in that vicinity, but they are by no means numerous. The only section of Alaska where these animals are of the best quality and in large numbers at the same time is in the mountains about the Chilkat and Taku rivers, and there the reckless competition of traders leaves but little margin for profit.

Of the Arctic fox we find in Alaska two varieties, one white and the other a bluish gray, commonly called "blue fox" by the traders. The white fox is found along the coast of continental Alaska from the mouth of the Kuskokwim northward to Point Barrow and the eastern boundary. Its fur is of a snowy white, especially in the young, and both soft and long, but owing to the lack of durability it does not command a high price in the market.

These animals are very numerous north of Norton sound and are not at all shy. Natives and travelers alike report instances of the fearlessness with which these foxes enter their camps and even dwellings in search of food or out of mere curiosity. A large portion of the skins secured by Eskimo and other natives is used by themselves for trimming their garments, and the remainder falls chiefly into the hands of the whalers and whisky smugglers, so that it is impossible to obtain accurate figures as to the annual catch. They may be called omniverous, and they refuse nothing that will fill their stomachs. In the depths of winter the natives find it dangerous to leave any article of clothing, dog harness, or boat material within their reach.

The blue fox exists now on several of the Aleutian islands, where it was found by the first discoverers in 1741. This animal is also found on the Pribilof islands, and here, where it has been possible to protect the species against intermixture with other and inferior foxes, the skins are of the finest quality, commanding a high price in the market. Traders report the existence of the blue fox to a limited extent in the vicinity of the Ugashik, on the Alaska peninsula, and on the Lower Kuskokwim; and it also occurs on the delta between the mouths of the Yukon and the Kuskokwim. Captain Hooper, of the revenue-marine service, who commanded the United States ship Corwin during several successful cruises in the Arctic, reports that he saw blue foxes at Cape Espenberg, Elephant point, Hotham inlet, Point Hope, Point Belcher, and Point Barrow. He states also that he "found the blue fox more plentiful on the Siberian than on the American coast, and that all the blue foxes in the far north are so inferior to those on the islands of Bering sea as to suggest the possibility of their being a different species". Even on the Arctic coast Captain Hooper saw blue foxes, taken at the same place and time, but differing very much in the color and quality of the fur. On the Pribilof islands from 1,000 to 1,500 of the best quality of blue fox skins are annually shipped and several hundred of a little inferior quality from Attu and Atka islands, but it is impossible to ascertain the quantity obtained along the Arctic coast by whalers and traders.

THE MINK, MARTEN, AND OTHER FUR ANIMALS.—The Alaska mink is distributed almost as widely as the red fox, but does not extend to the islands. It is most plentiful in the vast tundras or mossy marshes of the Lower Yukon, Kuskokwim, Togiak, and Nushagak basins. The skin is of very little value. The Russian American Company did not purchase it at all, and even now the trade in this article is confined chiefly to the natives, who manufacture it into garments or use it for trimming. No more than 10,000 or 15,000 are exported annually. The northern limit of the mink is but little south of the Arctic coast, and from thence southward it is found everywhere throughout the continent, until its southern and western limits are reached on the Alaska peninsula, on a line between Cape Strogonof and Sutkhum island. The only islands on which minks are found to exist are those in Prince William sound and perhaps some of those in the Alexander archipelago. No skins of this kind shipped from any portion of Alaska equal in quality or value those of British Columbia, Washington, and Oregon, the traders simply buying them for the sake of accommodating their customers. The region about Togiak river and lakes, which furnishes scarcely any other fur than mink, has for that reason been entirely neglected by hunters and traders. Until a few years ago no white man had penetrated into the recesses of the tundras, and the inhabitants, having no intercourse with civilized men, are still in their primitive state of barbarism. The natives living on the Yukon and Kuskokwim deltas are called "mink people", in derision, by the other natives, a term equivalent to beggar.

The limits within which the marten is found throughout Alaska are almost identical with those of standing timber. The animal is occasionally found as far north as latitude 68°, and inhabits the valleys of the Yukon, Kuskokwim, and Nushagak rivers, from the headwaters down as far as timber exists, on the wooded mountain ranges of Cook inlet and the Kenai peninsula. On the Chugatch alps, the Copper River range, and the St. Elias alps, martens are plentiful and of the finest quality. Very fine skins of this kind are also purchased by the traders in southeastern Alaska, a portion of these probably being obtained from British possessions. The Alaskan marten or sable is inferior to the Siberian fur of that name ("sable" is merely a corruption of the Russian word for marten, "sobal"), and is by no means a distinct animal. The Russian American Company considered the Alaska sable of so little value that it did not export it at all from the colonies, but sold the whole catch to officers and employés of the company. The price set upon these skins was small indeed, being only 10 cents each. After the transfer of the territory a demand for them arose, and a few years of competition raised the price to $4, and even $5 and $6, much to the delight of the astonished natives; but the inferiority of the animal soon made itself felt, and reaction set in, until, at the present day, the price of marten skins in northwestern Alaska does not exceed $1.50, though in the southeastern section excessive competition still keeps up a higher figure.

A few more fur-bearing animals existing in Alaska may be mentioned, but they are not of sufficient importance to deserve more than a passing notice. The polar bear is found only on the Arctic coast, where ice in large bodies exists, and with the moving ice fields he enters and leaves the waters of Bering sea. The number of skins annually secured forms but a very small item in the bulk of trade.

The lynx is found only in the wooded mountains of the interior on Kenai peninsula and the St. Elias range of mountains, the skins being used chiefly for carriage robes and trimming, but the fur is not durable.

Wolves, both gray and white, are found, but are rarely killed.

Muskrats exist all over Alaska, but the skins at most are of low value and but few are shipped away.

Rabbits and marmots are killed for their flesh, and occasionally the poorer natives use the skins of the latter for garments.

Wolverines are rarely exported, as they find a ready market among the inhabitants of the coast region of the Yukon and Kuskokwim divisions, who prefer this shaggy, piebald fur to any other trimming for their garments.

EXPORTS OF FURS FROM ALASKA.

The first authentic list of fur shipments from Russian America was compiled at the beginning of the present century by Lieutenant Vassili Berg, of the Russian navy, who, having access to all the archives of Petropavlovsk, Nishnekamchatsk, Bolsheretzk, and Okhotsk, included in his list all the importations from America from 1745 to 1797, with the exception of one cargo containing nearly 4,000 sea-otter skins (the ship Vladimir, Captain Zaikof, in 1779).

With the year 1797 the systematic operations of the Russian American Company began, though their charter was not promulgated until a year or two later, and from that time forth official tabulated statements of furs shipped from the colonies were published from time to time. Other tables can be found in the works of various authors and travelers, but it is safe to say that, generally speaking, the totals thus furnished were below the actual yield of furs. These tables, furthermore, do not include the large shipments of sea-otter furs from the Alexander archipelago by American and English traders at the end of the last and the beginning of the present century, aggregating at least 20,000 or 30,000 skins. The transactions of Baranof, the first chief manager of the Russian American Company, who paid for many ships' cargoes of provisions and trading goods in fur-seal skins, were also ignored, and no account was kept of the losses by frequent shipwrecks and through carelessness of subordinate employés. Thus, in one instance, the captain of the ship Nadeshda, in 1805, was obliged to throw overboard 30,000 fur-seal and several hundred sea-otter skins, which were found to have reached an advanced stage of putrefaction in the hold of the vessel. The naturalist Langsdorff, who accompanied Lissiansky in his voyage around the world, learned from the sealers stationed on St. Paul island that they had killed at least 30,000 for their blubber only, the skins having been thrown into the sea for lack of time, hands, and fuel to cure them.

Large quantities of furs formerly found their way from the Lower Yukon river and Norton and Kotzebue sounds to Siberia through the hands of Chukche and Mahlemiut traders, who obtained trading goods from Siberian merchants on the Anadyr and Indigirka rivers. These Alaskan furs were of course not included in any estimate, nor can one now give the number of skins purchased annually along the Arctic coast by the whalers and traders, many of whom carry rum and breech-loading guns and spread ruin and destruction along these ice-bound shores. From the persistence with which these men continue to assume the risks of an unlawful traffic, in spite of the earnest efforts of our revenue marine, it must be concluded that both its volume and profit are large.

From southeastern Alaska also large numbers of furs are carried into British Columbia of which no record can be obtained, both natives and whites being there engaged in smuggling them across the frontier. All this goes to show that all returns of Alaska's yield of furs always have been, and necessarily must be, below rather than above the reality.

A tabular exhibit of fur shipments from Alaska since its first invasion by Siberian fur traders has been compiled from records found in the archives of the Russian American Company, from Russian official reports and other publications, and from the records of the San Francisco, Portland, and Port Townsend customhouses, supplemented by statements furnished by the few firms engaged in the Alaska trade. This table shows strikingly the extraordinary increase in the number of furs purchased annually since the transfer of Alaska to the United States. This discrepancy may, however, be only apparent to a certain extent, and could probably be much reduced were the means at hand of ascertaining the reliability of Russian returns. The officials of the Russian American Company were disposed to conceal the actual extent of their transactions, as the company, during the latter part of its existence, was constantly striving to obtain relief from the vast expenditure (for administrative and protective purposes) imposed upon it by the imperial charter. Another factor in the deficiency of returns may be found in the dishonesty of subordinate employés of the Russian company, who filled their own pockets at the expense of the shareholders. It was, however, the accepted policy of the managers of the corporation to keep the wants of the natives within the narrowest possible limits and thereby to reduce, as far as practicable, the quantity of merchandise required for the colonial trade, which had to be shipped around the world at an enormous expense. Since the transfer of the country, on the other hand, and since the breaking up of the monopoly, the rival trading firms for many years vied with each other in dazzling the eyes of fortunate hunters with a lavish display of costly articles of luxury and delicacies for the palate, exciting them to the utmost exertion in the pursuit of fur-bearing animals.

The annexed tabular statement, showing the shipments of furs from the Russian possessions in America, which subsequently became Alaska, between the years 1745 and 1890, furnishes an exhibit of this extensive traffic for the period mentioned. We can note at a glance the gradual advance of the Russian trappers and hunters along the Aleutian chain of islands toward the mainland, as we do not find any account of furs, such as are secured on the mainland only, until the third period here given, beginning with the formation of the Russian American Company. The figures are based altogether upon official records for the period covered by the Russian authority over the country. Subsequent to the transfer of the country to the United States exact figures were more difficult to obtain, but through patient inquiry it has become possible to obtain what may be considered as thoroughly reliable data. In most instances a careful comparison between the customhouse records and statements of trading firms and the great London fur sales was necessary to obtain a satisfactory result.

With reference to the fur-seal industry alone, we have compiled a few special tables showing the shipments of all kinds of fur seal from Alaska only, those secured by the Alaska Commercial Company during the continuance of their lease, as well as those shipped by private parties and the so-called seal pirates.

In speaking of Alaska seals all those secured in the waters adjoining the northwest coast of America are included, because we know enough of the habits of these peculiar animals to convince us that everyone of those seals was born on Alaska soil, on the Pribilof islands; no other breeding ground is ever frequented by the seals found on the American side of the Pacific.

The table hereto appended contains only the more important furs; those omitted would affect the total output by a few hundred thousand dollars at the most for the whole period covered by the table. The values of furs obtained from Alaska since the purchase of the territory are based chiefly upon statements of dealers made to special agents of the Census Office in the course of this inquiry, and checked by means of the bulletins of sales issued by the London auction firms.

One of the most prominent features of this exhibit is the disproportion between the quantities and values of marine furs and those of land animals (the former being nine-tenths of the total output), proving clearly that but for its claim of control over the waters frequented by the fur seals and sea otter the Russian company would have found no inducement to maintain its costly establishments on the shores of Bering sea and on the North Pacific.

Another feature brought out by this table is the excess in volume of the American fur catch in 23 years over all Russian shipments covering a period of 125 years. Unless suggestions, expressed elsewhere, as to the inaccuracy and undervaluation of Russian returns be justified, the only deduction to be drawn from such figures is that under the American régime the fur industry of Alaska has been conducted with criminal carelessness and wastefulness, which must end with its annihilation in the near future.

Within the last decade other resources of our ultimate northwest have been developed (among them the fisheries and gold mines), but if we consider the fur trade as the primary cause and reason for the settlement and development of Alaska, looking upon its total volume, representing a sum of less than $100,000,000 in all the years, we are struck with the comparative insignificance of persistent and prolonged endeavor of the struggling masses of mankind. This sum, quite formidable in itself, represents the result of a fierce struggle of thousands of hardy men with inhospitable nature and adverse circumstances. Hundreds, yes thousands, of lives lost in the raging sea under lowering northern skies; hundreds of deaths amid whirling snows and chilling blasts; thousands more caused by the hardships and privations inseparable from the hunter's and sailor's life in those high latitudes; hundreds slain in conflicts between native tribes or rival Russians; hundreds more of daring hunters and mariners lost in those latter days in reckless pursuit of the precious otter—all these have been sacrificed, in addition to money spent and risked, to make up a sum that in these extravagant times does not exceed the wealth of several individuals in the United States.

FURS SHIPPED FROM RUSSIAN AMERICA AND ALASKA FROM 1745 TO 1890.

PERIODS.	Number.	Cost.	Value.
Total			$93,102,970
1745–1797			13,288,720
Sea otter	114,195	$100	11,419,500
Fur seal	557,024	2	1,114,048
Land otter	5,039	5	25,195
Black fox	16,563	20	331,260
Cross fox	20,369	3	61,107
Red fox	20,665	1	20,665
Blue fox	62,961	5	314,805
Beaver	428	5	2,140
1798–1821			13,314,058
Sea otter	86,644	100	8,664,400
Fur seal	1,767,340	2	3,534,680
Land otter	17,768	5	88,840
Black fox	15,112	20	302,240
Cross fox	24,535	2	49,070
Red fox	35,456	1	35,456
Blue fox	50,934	6	305,604
Beaver	56,001	5	280,005
Marten	17,921	3	53,763
1822–1841			6,561,351
Sea otter	25,446	100	2,544,600
Fur seal	458,502	5	2,292,510
Land otter	29,442	5	147,210
Black fox	18,783	20	375,660
Cross fox	39,312	2	78,624
Red fox	60,579	1	60,579
Blue fox	41,000	5	205,000
Beaver	162,034	5	810,170
Marten	15,666	3	46,998
1842–1862			7,801,195
Sea otter	25,899	100	2,589,900
Fur seal	372,894	8	2,983,152
Land otter	170,473	5	852,365
Black fox	15,341	20	306,820
Cross fox	29,650	2	59,300
Red fox	66,860	1	66,860
Blue fox	20,130	5	100,650
Beaver	157,484	5	787,420
Marten	13,682	4	54,728
1863–1867			$3,618,717
Sea otter	11,137	$100	1,113,700
Fur seal	198,718	10	1,987,180
Land otter	21,816	5	109,080
Black fox	5,860	20	117,200
Cross fox	13,675	2	27,350
Red fox	16,920	1	16,920
Blue fox	11,314	5	56,570
Beaver	37,409	5	187,045
Marten	918	4	3,672
1868–1870			3,743,206
Sea otter	12,208	100	1,220,800
Fur seal	214,461	10	2,144,610
Land otter	6,367	5	31,835
Black fox	1,847	20	36,940
Cross fox	14,398	2	28,796
Red fox	16,461	1	16,461
Blue fox	16,263	5	81,315
Beaver	17,041	5	85,205
Marten	24,311	4	97,244
1871–1880			21,049,940
Sea otter	40,283	100	4,028,300
Fur seal	1,033,832	15	15,507,480
Land otter	27,730	5	138,650
Black fox	20,100	30	603,000
Cross fox	37,308	2	74,616
Red fox	47,298	1	47,298
Blue fox	23,615	5	118,075
Beaver	41,217	5	206,085
Marten	81,609	4	326,436
1881–1890			23,725,783
Sea otter	47,842	100	4,784,200
Fur seal	1,162,806	15	17,442,090
Land otter	27,730	5	138,650
Black fox	15,910	25	397,750
Cross fox	53,151	2	106,302
Red fox	62,718	1	62,718
Blue fox	21,314	5	106,570
Beaver	60,940	5	304,700
Marten	127,601	3	382,803

VALUE OF FURS SHIPPED FROM RUSSIAN AMERICA AND ALASKA.

Russian:	
1745–1797	$13,288,720
1798–1821	13,314,058
1822–1841	6,561,351
1842–1862	7,801,195
1863–1867	3,618,717
	44,584,041
American:	
1868–1870	3,743,206
1871–1880	21,049,940
1881–1890	23,725,783
	48,518,929
Total	93,102,970
Sea otter	36,365,400
Fur seal	47,005,750
Total	83,371,150

NUMBER OF ALASKA FUR SEAL SKINS SOLD IN LONDON.

YEARS.	Aggregate.	SALTED.		Dried.	Dressed.	YEARS.	Aggregate.	SALTED.		Dried.	Dressed.
		Alaska Commercial Company.	Other traders.					Alaska Commercial Company.	Other traders.		
Total	2,411,099	1,861,052	412,254	50,288	87,505	1878	103,521	99,911	264	912	2,434
						1879	115,563	100,036	12,212	918	2,397
						1880	113,662	100,161	8,939	.....	4,562
1868	134,366	.....	132,225	2,141	.....	1881	116,494	99,921	9,997	686	5,890
1869	45,746	.....	44,075	1,671	.....	1882	123,307	100,100	11,727	321	11,159
1870	10,649	9,965	.....	684	.....	1883	85,008	75,914	2,319	390	6,385
1871	113,391	100,896	.....	12.495	.....	1884	120,029	99,887	9,242	785	10,115
1872	112,595	96,283	1.029	14,584	699	1885	119,984	99,719	2,078	1,520	16,667
1873	102,179	101,248	.....	891	40	1886	133,885	99,910	17,909	979	15,087
1874	97,993	90,150	4,949	2,772	122	1887	143,279	99,940	36,907	2,843	3,589
1875	103,209	99,634	1,646	1,351	578	1888	139,998	100,000	36,816	1,252	1,920
1876	94,364	90,267	2,042	993	1,062	1889	141,808	100,000	39,563	228	2,017
1877	77,355	75,410	.....	1,173	772	1890	62,714	21,700	38,315	699	2,000

FUR SEAL SKINS LANDED AT VICTORIA, BRITISH COLUMBIA, IN 1890.

(From records of her Britannic Majesty's customhouse.)

DATES.	Name of vessel.	Number of skins.	Where caught.	DATES.	Name of vessel.	Number of skins.	Where caught.
Total		35,462		September 9	A. C. Moore	635	North Pacific ocean and Bering sea.
				September 10	Walter L. Rich	633	Do.
March 21	A. C. Moore	91	North Pacific ocean and Bering sea.	September 11	Adele	431	Do.
March 21	Mary Ellen	115	Straits of Fuca.	September 15	Kate	.....	Oil from Bering sea.
March 31	Pathfinder	144	North Pacific ocean and Bering sea.	September 15	E. B. Marvin	918	Bering sea.
April 11	San Diego	84	Straits of Fuca.	September 15	Pioneer	984	North Pacific ocean and Bering sea.
April 14	W. L. Rich	122	North Pacific ocean and Bering sea.	September 16	Favorite	1,284	Bering sea.
April 16	Sapphire	416	North Pacific ocean.	September 17	Ocean Belle	480	Do.
April 21	City of San Diego	18	Straits of Fuca.	September 19	Geo. R. White	400	Do.
April 22	Mollie Adams	368	North Pacific ocean and Bering sea.	September 19	Teresa	450	Do.
April 23	Sea Lion	255	Straits of Fuca.	September 20	Maggie Mc	1,948	Do.
April 26	Juanita	103	Northwest coast.	September 24	Juanita	777	Pacific ocean and Bering sea.
April 26	Penelope	150	North Pacific ocean.	September 24	W. P. Sayward	458	Bering sea.
April 30	Aurora	187	North Pacific ocean and Bering sea.	September 27	Beatrice	857	Do.
May 9	Venture	150	Northwest coast.	September 29	Mary Ellen	564	Bering sea for American schooner Venture.
June 25	Dispatch	900	West coast.				
July 28	Mischief	12,566	North Pacific ocean (transshipment from Sand point).	September 29	Penelope	1,050	Bering sea.
				September 30	Minnie	1,477	Do.
July 30	Aurora	2,024	North Pacific ocean.	October 1	Sea Lion	744	Do.
August 28	Mattie Dyer	74	Do.	October 7	San Diego	579	North Pacific ocean and Bering sea.
September 5	Mary Taylor	579	North Pacific ocean and Bering sea.	October 7	C. H. Tupper	765	Bering sea.
September 5	Triumph	473	Bering sea.	November 21	Triumph	83	North Pacific ocean and Bering sea.
September 5	Sapphire	746	Do.	December 18	Adele	380	Result of raid on Pribilof islands.

CHAPTER XIV.

THE FISHERIES OF ALASKA.

THE SALMON INDUSTRY.

Next in value to the fur trade of Alaska stands the salmon industry, which has been developed to an astonishing degree during the last decade.

Under the Russian régime a few isolated instances have been recorded of shipments of salted salmon from Alaska to foreign ports, chiefly to the Sandwich islands, and a few cargoes to California. After the transfer of the Russian possessions to the United States the immense numbers of food fishes crowding the waters and rivers of Alaska were at first almost totally neglected. The rush of adventurers and capitalists immediately following the sale of the country was directed solely in search of furs, the only exception being the cod fishery conducted about the Shumagin islands and in Bering sea by two San Francisco firms. Both of these firms have carried on this industry without interruption from the year 1867 to the present day. Of this class of fish products more detail is given further on.

The first attempt at canning salmon in Alaska was made in the year 1878 under the auspices of the Cutting Packing Company, of San Francisco, which established a salmon cannery at a place named Old Sitka, situated about 6 miles to the northward of the present settlement of that name. This enterprise was immediately followed by the firm of Sisson, Wallace & Co., of San Francisco, which set up a salmon-canning establishment at Klawak, on the west coast of Prince of Wales island. For a period of 4 years in succession the total pack of these 2 establishments did not exceed 17,000 cases per annum, which were sold at a comparatively low figure, owing to the difficulties met with in overcoming the unwillingness of buyers at that time to purchase anything but Columbia river salmon. In the year 1882 another canning establishment sprang up in southwestern Alaska, swelling the annual pack of that year to nearly 25,000 cases, all of which sold at somewhat less than $4 per case.

In the year 1883 the first canning establishment west of Sitka was located on Kadiak island, which resulted in nearly doubling the output of the year before. At the same time prices began to mend, and the attention of dealers and canners was directed to the possibilities of Alaska as a basis of the salmon supply on an extensive scale. In 1884 2 more canneries were established, and the annual pack was greatly increased. In 1885 the pack exceeded but little that of the preceding year, but from that time forth to the present day the pack has increased rapidly every succeeding year, until in 1889 it reached the enormous quantity of 696,732 cases, representing a value of $2,786,929.

The salmon of Alaska have not thus far been known to frequent any large river in such quantities as has made the Columbia famous for its wealth of fish. The salmon streams as a rule are small, but few of them affording a supply adequate to the wants of more than 1 or 2 canning establishments. The only exceptions to this rule now known to exist are the Karluk river, a narrow stream not above 50 feet wide, which supplies 6 or 7 of the large canneries, with a capacity of from 200,000 to 300,000 cases, and the Nushagak river, from the waters of which 4 canning establishments extract annually from 25,000 to 35,000 cases each. The salmon canneries located on the Kassilof and Kenai rivers, on Cook inlet, have not thus far reported a total pack exceeding 40,000 cases per annum. On Prince William sound, in the vicinity of the Copper river mouths, 3 canneries have been erected, with a combined output of about 40,000 cases per annum. All the salmon canneries now in operation in southeastern Alaska are of limited capacity, with an annual output of from 4,000 to 10,000 cases each.

The fact that the most diligent search for new cannery sites prosecuted during the last 4 or 5 years has failed to reveal any new discoveries in that line seems to justify the conclusion that the "high-water mark" of this industry has been reached for the present, and that the annual output will not probably be increased to any considerable extent until some way is found to get at the wonderful quantities of the finest salmon that crowd the vast channels of the Yukon river each succeeding season.

The prosecution of the salmon industry in Alaska is connected with great expense, partly owing to the great distances intervening between the field of operations and the bases of supplies, which greatly increased the original outlay as well as the working expenditure. Another item of great expense to Alaska's salmon packers is the necessity for carrying up skilled as well as common laborers to the canneries every year, which implies 2 voyages on sailing vessels extending over a period of from 3 to 4 weeks, during which time these laborers must receive pay without doing any work whatever.

The salmon fishery of Alaska resembles the fur trade in so far as it is conducted by corporations and individuals who do not reside within the territory, and that both are carried on with outside capital; but while the expenditure of money in the shape of wages and payment for furs on the part of the firms engaged in the fur trade is to a great extent distributed among native and other residents of Alaska, the vast sums paid out every season by the canning companies fall almost entirely into the hands of nonresidents of the territory, both white and Chinese. The number of native laborers employed in any of the fishing establishments is insignificant compared to that of imported laborers.

The salmon and cod fishing industries of Alaska give employment to a large number of men, but thus far few of the fishermen, packers, and sailors engaged in the work have become permanent residents of the country, which is being rapidly drained of its principal resources without even getting a partial return in wages paid for labor. In southeastern Alaska alone the figures are a little more favorable to the territory, as there a large proportion of the fishermen are white residents or natives. In this district there are 27 fishing stations, and among them 10 salmon canneries. The value of the permanent improvements at these stations, consisting of buildings and plant, is $309,005 (buildings, $126,475; plant, $182,530). They employ 1,000 men for an average period of 63 days. Of these 1,000 men 312 are Chinese, who receive on an average 45 cents per case of salmon put up. On an output for the season of 116,716 cases they have received $52,522, or $168 for each man.

The white and native fishermen and packers in this district averaged $48.50 per month for the same period of time. They numbered 491, and consequently received $51,555, or $105 each for the season. The majority of these men were employed in small salting stations. The value of the total product of these stations was $505,122.

In western or rather central Alaska there are 26 canneries, with buildings, boats, and machinery, valued at $1,584,500, and an annual working plant worth nearly $1,000,000 more ($957,500). In this section also the Chinese packers, who number 1,837, receive on an average 45 cents per case, which, on a pack of 515,271 cases, amounts to $231,871.95, or $126 for each man for the season. The average time consumed, owing to the long voyage in sailing vessels from and to San Francisco, is from 5 to 6 months.

The white fishermen and laborers employed in these canneries, numbering about 1,559, averaged about $30 per month (with their board) for 6 months, and $10 per thousand fish, which increased their average earnings to $275 for the season, or a total approaching $500,000.

The value of the pack of salmon for the season in this section of Alaska, including 9,267 barrels of salted salmon, is $2,142,487.

The fishermen of the central Alaskan canning district are largely composed of Italians and Greeks, and where they congregate by the thousand, as is the case at Karluk, with its 5 magnificent canneries, they make up an unruly, lawless element of society; but there is no provision made by the government for keeping them in check any more than the Chinese, who equal them in number and openly violate the law by peddling the vilest kind of liquor, known as Chinese gin. At this point 24 gangs of 16 men each were seining 6 days of the week throughout the season, and succeeded in securing nearly 3,000,000 fish.

Thus far only 2 species of the Alaska salmon have obtained a permanent footing in the markets of the world: the so-called redfish, which is small, but with flesh of a deep red color, and the king salmon, a large fish somewhat lighter in color and very fat. 3 or 4 other kinds of salmon are found in the waters of Alaska in greater numbers than the 2 above-named species, but though of delicate flavor and fatter than the redfish, all attempts to introduce them, together with other kinds of salmon, have resulted only in a general lowering of prices.

In connection with the salmon industry is appended one table of the shipments of canned salmon from the year 1878, the year of the first inauguration of the salmon canning industry in southeastern Alaska, to 1890, inclusive, and another showing the shipments of salted salmon from 1881 to 1890 and their estimated value.

The statements on the following pages show the receipts of both canned and salted salmon from Alaska as the cargoes arrived in San Francisco.

SHIPMENTS OF CANNED SALMON FROM ALASKA FOR 1890.

DATES.	From—	Number of cases.
Total		642,175
June 3	Wrangell	1,000
June 3	Burroughs bay	2
June 14	Cook inlet	1,149
June 18	Labouchere bay	1,300
July 5	Pyramid harbor	1
July 5	Chilkat	500
July 5	do	4
July 5	Labouchere bay	2,000
July 5	Loring	1,617
July 16	Kayak island	1,302
July 17	Kuni bay	1,051
July 17	Chilkat	2,520
July 17	Pyramid harbor	2,832
July 17	Labouchere bay	2,500
July 18	Karluk	5,357
July 18	Prince William sound	5,116
July 24	Karluk	9,635
July 24	do	365
July 24	do	1,001
July 24	do	500
July 29	Nushagak	10,853
August 8	Pyramid harbor	3,230
August 8	Chilkat	2,672
August 8	Loring	4,180
August 8	Burroughs bay	2,213
August 12	Bristol bay	19,240
August 12	do	26,100
August 12	do	12,000
August 12	do	3,000
August 14	Nushagak	24,326
August 14	do	5,000
August 14	Karluk	9,001
August 14	do	3,002
August 14	do	1,223
August 16	Bartlett bay	1,071
August 16	Kuni bay	880
August 16	Chilkat	2,599
August 16	do	3,014
August 16	Pyramid harbor	2,228
August 16	Labouchere bay	2,217
August 26	Cook inlet	15,905
August 26	Uyak	17,413
August 27	Chignik bay	12,213
September 1	Bartlett bay	890
September 1	Point Ellis	1,809
September 1	Pyramid harbor	2,886
September 1	Chilkat	2,930
September 1	Pyramid harbor	3,514
September 1	Labouchere bay	1,550
September 1	Loring	3
September 1	Burroughs bay	2,000
September 1	Loring	1,539
September 1	Chignik bay	9,266
September 1	do	9,266
September 1	do	9,266
September 2	Karluk	10,250
September 4	Kayak island	6,250
September 5	Karluk	5,290
September 5	do	5,585
September 5	do	868
September 5	do	7,660
September 11	Karluk	9,987
September 11	do	1,869
September 11	Afognak	2
September 12	Thin point	7,039
September 14	Cook inlet	9,777
September 15	do	1,650
September 15	Kuni bay	2,533
September 15	Chilkat	2,884
September 15	Pyramid harbor	2,348
September 15	Labouchere bay	3,200
September 15	Loring	20
September 22	Kadiak	12,976
September 22	do	9,450
September 22	do	1,537
September 22	Nushagak	15,850
September 29	Kadiak	1,499
September 29	do	500
October 1	Uyak bay	12,500
October 4	Afognak	26,300
October 4	do	8,447
October 4	Klawak	10,188
October 4	do	61
October 8	Karluk	15,681
October 8	Kadiak	2,303
October 13	Kuni bay	2,123
October 13	Bartlett bay	4,361
October 13	Pyramid harbor	1,308
October 13	Chilkat	4,874
October 13	do	8,626
October 13	Labouchere bay	520
October 13	Pyramid harbor	4
October 13	Wrangell	245
October 13	Labouchere bay	1,041
October 13	Burroughs bay	2,594
October 14	Chilkat	2,283
October 14	Pyramid harbor	161
October 14	Loring	2,814
October 20	Karluk	21,762
October 20	do	824
October 23	Point Ellis	34
October 25	Alitak bay	11,311
October 25	do	14,918
October 25	Odiak	4,200
October 25	Karluk	4,118
October 26	Uyak bay	2,068
October 26	Prince William sound	14,361
November 4	Karluk	8,000
November 5	Kayak island	1,300
November 6	Bartlett bay	1,079
November 6	Redoubt bay, Sitka	10,414
November 15	Kadiak	17,654
November 18	Karluk	7,675
November 24	Loring	2,663
November 24	Yess bay	3,823
December 1	Chignik bay	2,250
December 2	Loring	12
December 11	Uyak bay	2,427
December 11	do	1,988
December 11	do	3,072
December 11	do	2,416
December 11	do	4,366
December 11	do	5,731

SHIPMENTS OF SALTED SALMON FROM ALASKA FOR 1890.

DATES.	From—	Number of barrels.
Total		18,039.00
February 2	Nacket inlet	107.00
March 5	Nichols bay	427.00
May 10	Kadiak	231.00
May 26	Sand point	42.00
July 5	Killisnoo	1.00
July 17	Salmon bay	500.50
July 21	Kadiak	57.00
July 28	Sand point	68.00
July 29	Nushagak	103.00
August 8	Killisnoo	353.00
August 8	Nichols bay	212.00
August 8	Hunters bay	48.00
August 8	do	150.00
August 12	Bristol bay	342.00
August 12	do	243.00
August 14	Karluk	9.00
August 14	Cook inlet	894.00
August 16	Fish bay	20.00
August 16	do	33.00
August 16	Killisnoo	34.00
August 16	Juneau	20.00
August 16	do	21.50
August 16	Wrangell	62.00
August 16	do	4.00
August 16	Salmon bay	195.00
August 16	do	215.50
August 16	do	0.25
August 26	Uyak	2.00
August 26	Cook inlet	6.00
September 1	Chignik bay	132.00
September 1	do	133.00
September 1	do	133.00
September 1	Killisnoo	256.00
September 1	Pyramid harbor	1.00
September 1	do	1.00
September 5	Karluk	101.00
September 5	do	1.00
September 5	do	1.50
September 5	do	1.00
September 11	do	310.00
September 12	Ugashik	1,100.00
September 12	Thin point	235.00
September 12	Bristol bay	900.00
September 15	Killisnoo	213.00
September 15	do	6.00
September 15	Pyramid harbor	1.00
September 15	Douglas island	2.00
September 15	Loring	13.00
September 15	do	194.00
September 15	Loring	2,911.00
September 15	Tongass narrows	87.00
September 15	Cook inlet	133.00
September 15	do	27.00
September 22	Nushagak	1,416.00
September 22	Kadiak	3.00
September 29	do	0.50
September 29	do	0.50
October 4	do	440.00
October 4	Klawak	31.00
October 8	Kadiak	86.00
October 8	do	22.50
October 8	do	10.50
October 11	Thin point	324.00
October 11	do	164.00
October 13	Labouchere bay	1.50
October 13	Douglas island	107.00
October 13	Killisnoo	49.00
October 13	Salmon bay	287.00
October 13	do	57.00
October 14	Fish bay	40.00
October 14	Pyramid harbor	1.00
October 14	do	1.00
October 14	Juneau	1.00
October 14	Lake bay	502.00
October 14	do	256.00
October 14	Loring	0.50
October 14	Cordova bay	230.00
October 14	Nichols bay	22.00
October 14	do	133.00
October 25	Alitak bay	659.00
October 25	Karluk	240.00
October 26	Uyak bay	30.00
November 6	Redoubt bay, Sitka	410.00
November 15	Kadiak	380.00
November 18	Karluk	20.00
November 18	Kadiak	49.00
November 24	Wrangell	40.00
November 24	do	120.00
November 24	Yess bay	20.00
December 2	Killisnoo	25.50
December 2	Sitka	1.00
December 2	Lake bay	199.00
December 2	Loring	0.25
December 5	Karluk	218.00
December 16	Metlakahtla	1.50
December 16	do	17.00
December 16	do	56.00
December 16	do	53.00
December 16	do	20.50

The shipments of salmon from Alaska in 1890, as far as could be ascertained from the records of the United States customhouses on the Pacific coast, amounted to 642,175 cases and 18,039 barrels, consigned by 56 firms. A record was also found on the books of the Dominion customhouse at Vancouver, British Columbia, of the receipt of 11,000 cases of salmon from Alaska. Of this number 9,956 cases have been traced to the Alaska Salmon Packing and Fur Company, which would increase the output of that firm for the year 1890 to 22,781.

TABLE SHOWING THE PACK OF CANNED SALMON IN ALASKA FROM 1878 TO 1890.

YEARS.	Canned salmon. (Cases.)	Estimated value.	YEARS.	Canned salmon. (Cases.)	Estimated value.
Total	2,252,124	$9,003,497	1884	66,840	$267,360
1878	14,854	59,416	1885	69,100	276,400
1879	12,560	50,240	1886	126,735	506,940
1880	13,198	52,792	1887	175,664	702,656
1881	16,719	66,876	1888	350,839	1,403,356
1882	24,652	98,608	1889	696,732	2,786,929
1883	42,056	168,224	1890	642,175	2,568,700

TABLE SHOWING THE SALTED SALMON PACK IN ALASKA FROM 1881 TO 1890.

YEARS.	Salted salmon. (Barrels.)	Estimated value.	YEARS.	Salted salmon. (Barrels.)	Estimated value.
Total	67,072	$603,548	1885	3,230	$29,070
			1886	4,861	43,749
1881	1,760	15,840	1887	3,978	35,802
1882	5,890	53,010	1888	9,500	85,500
1883	7,251	65,259	1889	6,457	58,013
1884	6,106	54,954	1890	18,039	162,351

The reputed frugality of the celestial workman is often set in contrast with the wastefully extravagant habits of Caucasian laborers. Below is inserted a bill of supplies purchased by one of the Alaskan canning firms for 238 Chinese laborers in their employ. These provisions and luxuries were furnished upon a requisition of the Chinese contractor for the maintenance of his men for a period of from 5 to 6 months.

1,700 mats rice at $3.75	$6,375.00
700 pounds sperms at 30 cents	210.00
30 boxes China salted eggs at $9	270.00
453 pounds green ginger at 25 cents	114.50
229 pounds flatfish at 60 cents	137.40
354 pounds China fish at 40 cents	141.60
20 baskets bamboo shoots at $3.50	70.00
10 chests China tea at $24	240.00
10 boxes China lily flour, 542 pounds, at 25 cents	135.50
22 boxes China oil fish at $14	308.00
2 jars China onion at $4.50	9.00
16 barrels salted turnip, 1,466 pounds, at 10 cents	146.60
2 jars garlic at $4.50	9.00
10 jars salted plums at $4.75	47.50
14 boxes China bean cake at $14.40	201.60
36 boxes China nut oil at $12	432.00
2 boxes China shellfish, 402 pounds, at 40 cents	160.80
2 baskets China yams, 134 pounds, at 15 cents	20.10
4 mats China beans at $4	16.00
8 barrels China salted cabbage, 1,810 pounds, at 8½ cents	153.85
10 boxes China bean sticks at $12	120.00
132 pounds China mushroom at 80 cents	105.60
10 jars China salted peas at $4.50	45.00
8 jars China lemons at $4.50	36.00
300 pounds China salted fish at 15 cents	45.00
40 pounds China seaweed at 80 cents	32.00
50 barrels salted pork, 11,100 pounds, at 18 cents	1,998.00
6 jars China salted sperm eggs, 294 pounds, at 25 cents	73.50
2 mats white beans at $4	8.00
2 sacks onions, 194 pounds, at 6 cents	11.64
8 boxes salted China olives, 640 pounds, at 25 cents	160.00
22 boxes China vermicelli, 1,650 pounds, at 25 cents	412.50
10 China books at 35 cents	3.50
4 boxes China salted peas, 200 pounds, at 20 cents	40.00
6 baskets China salted cabbage, 455 pounds, at 20 cents	91.00
30 pounds China orange peel at 75 cents	22.50
4 sacks garlic, 260 pounds, at 25 cents	65.00
4 boxes China seaweed, 231 pounds, at 60 cents	138.60
20 pounds China dried oysters at 90 cents	18.00
12 boxes China sauce at $4.80	57.60
6 boxes China dried cabbage, 357 pounds, at 25 cents	89.25
74 pounds China greens at 25 cents	18.50
28 sacks of potatoes at $2	56.00
2 pieces ink at 25 cents	0.50
20 Chinese pens	2.00
10 sets China writing paper	$6.90
2 China counting boards	3.50
2 cases coal oil at $4.50	9.00
4 hotel dish pans at $2.50	10.00
4 hotel dish pans at $2	8.00
934 pounds ham at 20 cents	186.80
30 boxes soda and sugar crackers	86.20
6 boxes cake	19.80
10 boxes soap at $2	20.00
6 boxes China bowls at $9	54.00
6 boxes China brown sugar, 374 pounds	44.94
60 cases tomatoes at $3.20	192.00
40 cases oysters at $5	200.00
30 boxes candles at $3.10	93.00
200 pounds Old Judge tobacco	200.00
200 papers China tobacco	80.00
120 pounds China sago at 9 cents	10.80
40 pounds China crushed sugar at 19 cents	7.60
4 boxes China fruits, 320 pounds, at 13 cents	41.60
40 sets China dominos	20.00
14 boxes soap at $1.35	18.90
140 boxes China pills at 47 cents	65.80
20 pounds China dried oysters at 70 cents	14.00
600 cigars at $5.50 a hundred	33.00
500 cigars at $3 a hundred	15.00
60 papers China pills at 45 cents	27.00
4 boxes China sugar cakes at $8	32.00
10,000 China cakes at 1½ cents	150.00
1,000 China cakes at 1½ cents	15.00
2 cases China sugar cane	32.50
2 boxes China plums, 160 pounds, at 13 cents	20.80
2 boxes China fruits, 140 pounds, at 13 cents	18.20
4 boxes lobster at $7.40	29.60
120 papers sweetmeats at 28½ cents	34.20
120 papers China chestnut flour at 14 cents	16.80
24 pounds tobacco at 55 cents	13.20
40 pounds tobacco at 31 cents	12.40
22 pounds isinglass at 50 cents	11.00
90 pounds opium at $13.50	1,215.00
40 pounds opium at $7.60	304.00
20 cases China wine at $11.75	235.00
12 boxes cigarettes	26.40
48 cases gin	300.00
4 cases China wine	72.00
Chinese merchandise	373.50
Fresh pork	396.30
Total	17,623.88

We find among these supplies articles of luxury and delicacies (at least from a Chinese standpoint) such as the most liberal employer would not provide for his white laborers. It is only necessary to point out the item of opium, amounting to $1,519; 48 cases of gin, amounting to $300; 24 cases of Chinese wine, amounting to over $300; also tobacco, cigars, and cigarettes to the amount of nearly $400. The amount of rice provided for these men, 1,700 mats of 50 pounds each, costing $6,375, does not suggest the idea of short commons. The total cost of these stores is nearly $18,000. The practice of employers varies so greatly as to making board and supplies a part of the compensation that very positive deductions as to the habits of the employed can not be made simply from a bill of supplies which might in one case be part of the compensation and in another purchasable by the wage earners, but the bill above has a suggestive value.

THE CODFISH INDUSTRY.

The cod-fishing firms permanently located in Alaska have 2 central stations in the Shumagin islands, each with improvements, wharves, etc., worth $35,000. They have vessels valued at $60,000 plying in Alaska only, and employ about 38 shore fishermen and 105 sailors at average wages of $40 per month or $27.50 per thousand fish for 8 months of the year.

A small portion of the fish is caught in the waters of the Alexander archipelago, and a large majority on the Shumagin, Sannak, and Bering sea codfish banks.

The catch for 1890 aggregated 506,000 fish, producing 760 tons of dried fish, valued at $38,000.

Next to the salmon of Alaska the codfish stands foremost in quantity as well as in commercial importance. As already stated, the existence of codfish in Alaska was known in San Francisco previous to the transfer of the country. Early in the year 1868 Prof. George Davidson, of the United States Coast and Geodetic Survey, published a statement to the effect that soundings of Bering sea and the waters immediately adjoining indicated the existence of the largest submarine plateau yet known. In the eastern half of Bering sea soundings of less than 50 fathoms were found over an extent of almost 18,000 square miles. The extent of the banks in the Gulf of Alaska, between longitude 130° and 170° and latitude 54° and 60° north, had not been definitely determined, but it is probably equal to that of the banks of Bering sea.

In general terms it may be stated that codfish is found around the whole south shore of Alaska. The fish is quite abundant in many of the channels of the Alexander archipelago; it is found off Yakutat bay, somewhat inside of what whalers call the fair-weather ground, and along the southern and western shore of Kayak island and Prince William sound. The next codfish bank of any importance is the Portlock bank, located by the explorer of that name along the southeastern coast of the Kadiak group of islands with soundings of from 45 to 90 fathoms. Some distance to the southeast of Kadiak island, in latitude 56° and longitude 153°, there is another bank with soundings of from 22 to 28 fathoms. Still more to the southward is the Simeonof bank, between latitude 54° 45′ and 54° 38′ and longitude 158° and 158° 30′, with soundings averaging 40 fathoms, while about 20 miles east-northeast of this bank a higher plateau is found with soundings of from 26 to 40 fathoms. The famous Shumagin banks are located around the islands of Nagai, Popof, and Unga within a short distance of the shores. The largest shipments of codfish from Alaska to San Francisco were made from here, and quite a large permanent population of Scandinavian fishermen and their families is springing up in the more sheltered nooks and corners of this archipelago.

A very prolific codfish bank was definitely located in the waters of Bering sea, immediately to the northwest of Unimak strait, during an exploration of the United States fish commission's steamer Albatross.

Though over 20 years have elapsed since the inauguration of this industry, it must still be considered in its infancy, as, owing to various circumstances, it is carried on altogether without regard to the abundant supply, solely in accordance with the demands of the local and very limited market on the Pacific coast of the American continent only.

A most careful investigation into the quality of the Shumagin-Alaskan cod, conducted under the auspices of the United States fish commission, shows no essential difference between this species and that of the north Atlantic. The facilities for the pursuit of the industry are far greater on the Pacific coast than they are on the Atlantic. The journey from San Francisco or Puget sound to the Shumagin banks is comparatively brief and very safe, and all the banks are within a few hours' run of sheltered and commodious harbors. It is evident that the great want of the Alaskan cod fisheries is not fish or safety to the fishing craft, but simply a demand for fish. An almost unlimited market, such as the New England fishermen enjoy, would whiten the waters of the Gulf of Alaska and Bering sea with sails of all descriptions.

The following is quoted from the "Report on the fisheries of the Pacific coast of the United States, by J. W. Collins" [for 1888], pages 99–105:

The fluctuations and vicissitudes of the Pacific cod fishery are due to several causes. For a long time one of the chief drawbacks was found in the lack of experience on the part of some of those conducting the business. Often they were deficient in the technical skill and knowledge required for properly curing the products landed from their vessels. Firms and individuals that entered into the trade without sufficient knowledge of its requirements soon became discouraged, as a rule, and dropped out of the business; only those with greater skill and more persistence continued the industry. Wilcox pertinently remarks that "those that remain have by long and sometimes by dear-bought experience thoroughly learned all the details of the business and have familiarized themselves with the needs".

Paradoxical as it may seem, for some years a season of exceptional success was often the cause of disaster. Large profits generally created a temporary "boom". Firms or individuals hastened to engage in the fishery. Frequently sufficient care was not exercised in selecting men and vessels. Generally the market was much overstocked at the close of the season. Prices dropped far below the point where they gave remunerative returns to investors. Too often the products could scarcely be sold at any price, because of the excess of supply over the demand. The result was necessarily disastrous, and those who had hastened to engage in an enterprise because others had been "lucky" usually abandoned it with the utmost precipitation, leaving the field only to those whose "luck" or experience enabled them to succeed under conditions that ruined or discouraged their competitors. The year 1869 is cited as a fair illustration of the above statements. Serious loss was caused that year by overproduction and improper methods of curing. As a consequence, hundreds of tons of spoiled fish were thrown into the sea. One cargo of 140 tons of cod was brought to San Francisco by a foreign vessel. A duty of half a cent per pound was paid on the fish, which, when opened, were in such a condition that the whole lot sold for only $500. The fish were

shipped around Cape Horn to New York to be used for fertilizing purposes, but arrived in such an offensive condition that they could not be landed; they were taken outside of New York harbor and thrown into the sea.

The competition arising from the introduction of Atlantic cod in Western markets has possibly had some influence in causing fluctuations in the Pacific cod fishery. But I look upon this rather as the cause of the general decline noticeable in recent years than as a special reason for the variableness alluded to. It is now difficult to predict what may be the ultimate result of this competition, since so many factors are involved, any one of which may have a great influence. * * *

Compared with former years, when the fleet sometimes numbered upwards of 20 vessels and the products aggregated more than 2,000 tons, the Pacific cod fishery is now unimportant, while it appears at still greater disadvantage if compared with the great cod fishing industry of the Atlantic states. A particularly unfavorable change in its status took place between 1888 and 1889, as will be seen by reference to the historical notes and tabulated statements given elsewhere. Considered, however, from the standpoint of the needs of the population of the Pacific slope, the capital invested, the excellent curing stations, and the experience gained, the cod fishery is by no means an unimportant factor in the industries of the far west, and if not abandoned may ultimately attain a status that its present condition gives little reason to hope for.

According to Alexander, "Lynde & Hough were the only firm of San Francisco that had vessels actually engaged in fishing for cod in the season of 1889". They sent the barkentines Jane A. Falkenburg and Fremont to the Okhotsk sea (the former sailing May 23 and the latter May 6) and the schooners Dashing Wave and Arago to Alaskan waters. The barkentines both arrived home on the 25th of September. Their fares aggregated 327,000 fish, equal to 491 tons, valued at $24,550. The combined catch of the two schooners amounted to 195,000 fish, weighing 293 tons, valued at $14,650. These fish were caught about the Shumagin islands. The Dashing Wave landed two fares, the first on June 28 and the second October 8. The firm has a station at Sand point, Popof island, devoted to salmon fishing and outfitting; this is connected with the cod fishery only to the extent that the vessels can, if necessary, land their fares here and refit for another cruise with salt, dories, provisions, etc., which are kept for this pu pose as well as for supplying the resident population. This sometimes saves a vessel from making the long trip to San Francisco and back in midsummer, when the fishery is at its height.

During 1889 the McCollam Fishing and Trading Company prosecuted the cod fishery from their shore stations as usual. and had employed the schooner Unga (of 20 tons and with a crew of 5 men) as a tender between stations, and the schooner Czar, which carried the products to market. The latter made 3 trips (sailing, respectively, February 11, May 2, and July 10, and arriving home April 16, June 25, and September 1) and brought home an aggregate of 325,000 fish, weighing 490 tons, with a value of $24,500.

The total catch of cod for 1889 amounted to 847,000 fish, weighing 1,274 tons, with a first value of $63,700. The business employed 6 vessels (including 2 used as tenders and freighters), with an aggregate registered tonnage of 1,097.68, and valued at $51,000.

There have always been a greater or less number of New England fishermen employed in the Pacific cod fishery since it became a recognized industry. In the early days, when the fishery was most lucrative and important, it was not uncommon for whole crews of trained fishermen to sail for California on schooners purchased at New England ports for the trade. These men were peculiarly fitted to wield an important influence on the industry, for they carried to the Pacific a skill gained by years of experience in the Atlantic fisheries and hardihood and daring unexcelled. But the business has attracted men of various nationalities, particularly Europeans, and Americans are now, and for several years have been, in a decided minority. Thus, in 1888, out of a crew list of 188, only 30 were Americans, 147 were Scandinavians, 8 were born under the British flag, and 3 were Portuguese. There appears to have been even a greater diversity in 1889. Of 35 fishermen selected at random Alexander states 9 were Americans, 12 Scandinavians, 6 Portuguese, 4 Russian-Finns, 2 Germans, and 2 Irish.

The system of remuneration differs considerably from that generally adopted on the Atlantic coast, resembling the latter only to the extent that, with few exceptions, the amount earned by each fisherman depends upon the quantity of fish taken by him. Some of the men who have special duties receive a monthly stipend and are sometimes paid, in addition, whatever they can earn by fishing. The captain of a cod-fishing vessel going to Okhotsk sea usually receives a stated sum (as agreed upon between him and the owner) per 1,000 fish landed, or he may be hired by the month. The mates, of whom there are generally 3 on the larger vessels, fish in dories the same as the regular fishermen, and are paid a certain amount per 1,000 for their individual catch, the amount being graded according to their respective official positions, and being considerably more than is paid to the crew. Sometimes they are paid a certain amount per month and the same rate for the fish as the ordinary fishermen get.

The fishermen proper, those who hold no official position and devote themselves exclusively to catching fish while on the banks, receive from $20 to $25 per 1,000 cod for all fish which measure 28 inches in length from tip of snout to end of tail. Cod 26 inches long and upward, but less than 28 inches, count 2 for 1; those less than 26 inches are not counted. Each man's catch is counted and credited to him as he comes on board, and several trips may be made each day if fish are plenty, since those who go in the dories have nothing to do with dressing or salting.

On each of the large vessels are 8 men, comprising two gangs, whose special duty is to dress and salt the catch. These include 2 splitters, 2 throaters, 2 headers or gutters, and 2 salters. These men remain on the vessel and receive monthly wages, ranging from $15 to $50, or more, the amount paid depending upon the skill and responsibility of the individual. They also have the privilege of fishing over the vessel's rail when not engaged in other duties. They are paid the same rates for their catch as the regular fishermen, and occasionally add considerably to their earnings.

Each vessel has a "watchman", who is paid monthly wages, and, like the dressing gang, receives additional pay for fish caught over the vessel's side. On passages his duties are those of a common sailor; but on the fishing banks no anchor watch is kept by other members of the crew, who sleep at stated hours (that can hardly be called night in high northern latitudes), while the watchman remains alone on deck and keeps the lookout. He thus often has exceptional opportunities for fishing, and two instances are cited when watchmen were "high line", having caught more fish than anyone else on board.

The vessel furnishes all boats, fishing gear, bait (if any is carried), and provisions free of any expense to the crew. Clothing, tobacco, or other supplies are advanced from the outfitting stores before sailing, or furnished from the "slop chest" during the voyage, the price of these being deducted from the earnings of each man at the final settlement.

The lay of the Alaskan stations differs slightly from that above described. The fishermen are paid from $25 to $30 per 1,000 for all their fish, but with the understanding that they must dress and salt all their catch. The system of measuring and counting differs only in the size of the fish from that in vogue on the vessels; the fish are salted in the warehouses. It has been given in evidence before the Senate Committee on Relations with Canada that $27.50 is the price paid by the McCollam Fishing and Trading Company, with the understanding that "counts" should be no less than 26 inches in length; those from 24 to 26 inches to be counted 2 for 1, and all less than 24 inches long to be thrown away. Each station is under the control of an agent of the company that operates it, and his relations to the men are the same as those of the captain of a vessel. He superintends their work, keeps the record of their catch, and furnishes them with such supplies as they may need from the company's store. The fishermen live in comfortable quarters on shore and are

provided by the company with everything required for fishing, except gear (including trawl lines), which is paid for at a price fixed upon when the men ship for the season. This rule has been adopted to insure greater care for the gear on the part of the fishermen, but it has not been found necessary on vessels fishing at the Okhotsk sea and Bering sea, where hand lines only are employed.

On the vessels fishing in Alaskan waters, according to Tanner—

The captain is paid a stated sum per month, and has no share in the cargo. The mate receives a monthly salary and also a certain sum for every 1,000 fish caught. Each of the crew receives $25 per 1,000 fish; splitters, $50 per month; salters, $40 per month; cooks, $60 per month. On the return from a trip the crew has nothing more to do with the vessel, taking no part in the discharging of the cargo, which is done entirely at the expense of the owners. The cod livers are never saved, and a profitable portion of the fish is thereby thrown away.

I have been told that a system similar to the above has at times been adopted on vessels going to the Okhotsk sea.

Mention has been made of the fact, an important one so far as the welfare of the men is concerned, that vessels fishing off the coast of Alaska can refit at the shore stations when necessary. Those fishing at the Okhotsk are not so favorably situated; the fishing grounds are 10 to 40 miles from land, usually off the mouths of small rivers or creeks that empty into barred and inaccessible harbors; the vessels must ride out gales or scud away to sea; wood and water are generally procurable, and occasionally some poor beef or a bear may be obtained, but other provisions or supplies are not available on that bleak and barren coast.

Hand lines are exclusively used in the Okhotsk and Bering seas, and the system of "dory fishing" is also in vogue. This method is precisely similar to the dory hand-line fishing for cod on the banks of the western Atlantic. A large number of small dories are carried by each vessel, and a single fisherman goes in each boat. Standing in the center of the dory (which is only about 13 feet long on the bottom and a little over 16 feet on top), he throws out a line on each side, and the fish taken are put into the ends of the craft until she is loaded, when they are taken to the vessel and pitched on deck for dressing. The time occupied in loading a dory varies, according to the abundance of fish, from a few hours to a whole day. Sometimes only scattering cod can be taken, not enough to half fill a boat, though this is comparatively rare on Pacific fishing grounds. (*a*)

It has been found impracticable to set trawls in Bering sea. The schooner Constitution tried to use them in 1887, and the attempt was repeated by the Arago in 1888; but no satisfactory results were obtained, because of the great abundance of sea fleas (amphipod crustaceans) on the bottom. These active scavengers not only swarmed upon the bait but they injured or devoured the cod before the trawls could be hauled.

The hand lines used are similar to those employed in dory hand-line fishing on the Atlantic, but rigged with less care and neatness. Captain Tanner says:

The fishing leads are made by the crews of the vessels, and therefore do not compare in finish with those of New England. The lines are not tarred, and soon show signs of wear. Patent swivels are apparently unknown; none of the crew of the Arago had ever seen or used them; but after the method of working them and their advantages had been explained, the fishermen expressed their intention of giving them a trial next year. The dories correspond in shape and size with those used upon the eastern coast, the only perceptible difference being that the stem, timbers, and planking are a trifle heavier. They are manufactured in San Francisco by Lynde & Hough. Galvanized iron rowlocks are used instead of thole pins.

Shore cod fishing is wholly carried on in dories, this method bringing the best returns for the money invested. It would be impracticable to use vessels in this fishery, as the cod feed and school so close to the harbors and coast that dories can make several trips daily to the fishing grounds. This method is successfully followed throughout the year, and in 1889 gave employment to 33 men. The winter catch is salted in kench, in the warehouses and held there until spring, when the freighter arrives to carry the fish to market.

Both trawls and hand lines are used, the former more extensively. The trawls are like those used in the Atlantic cod fishery. The natives at Unalaska have the ordinary type of steel hook for cod fishing, though they still prefer the wooden hooks make by themselves for halibut fishing. Crude and primitive as these hooks are, I am assured by competent authority that they are very effective in catching halibut. Any available material serves the natives as a line for cod fishing; it may be only pieces of old cord knotted together, or a piece of sail or salmon twine, but sometimes cod line is used. Small iron bolts, spikes, or pieces of lead are preferred for sinkers, but stones also serve for this purpose.

Writing of the fisheries at Pirate cove, which may be taken as fairly representative of all the Alaskan stations, Captain Tanner remarks:

Cod fishing is now carried on in the vicinity of this harbor almost exclusively by means of dories, only 1 vessel having been engaged here in actual fishing during the present season. Most of the schooners had been sold, and those retained are used for freighting. The grounds resorted to are all within a short distance of the harbor, where dories are more convenient than larger craft. Trawls are chiefly employed, and during good weather they are hauled two and three times a day, but the fish are not dressed until the last haul for the day has been made. Cod fishing continues throughout the year. In summer, when the salmon are running, cod are not abundant, but they reappear in incredible numbers as soon as the salmon leave. During the winter strong southeasterly gales may prevent the hauling of the trawls for a number of days at a time, but there is no period of the year when they can not be used at least several times a week. This is in marked contrast with the climate of the Grand and Western banks, off the Atlantic coast, some 10 degrees farther south, where the fishing vessels are often compelled to lie to for a week and sometimes for a fortnight with their dories lashed upon the deck.

Salmon are extensively used for bait, particularly in the Okhotsk sea. But halibut, herring, sculpins, flounders, and clams are employed for this purpose and answer well, though less attractive than salmon. (*b*) According to Dr. Bean the Alaska pollock "is one of the best baits known for cod". He also says that the Atka mackerel (Pleurogrammus monopterygius) possesses rare worth as a bait for cod, while the cusk, a species still rare in museums, forms an element in the bait supply for cod at the Shumagins. He also mentions the lant (Ammodytes personatus), which is extremely abundant in most parts of Alaska, and the capelin (Mallotus villosus), which is universal and abundant throughout the territory, as very important factors in the bait supply for the cod fishery of that region. The herring (Clupea mirabilis) is "invaluable as bait". (*c*)

MISCELLANEOUS FISH.

The fish next in importance to the codfish in Alaskan waters is the halibut, which is found in great numbers all along the coast and inside channels of the Alexander archipelago, on nearly all soundings of the shore line of the Gulf of Alaska and the Aleutian islands, and to a limited extent in the eastern part of Bering sea. This fish forms a great staple for consumption by natives, who eat it both fresh and dried. The only shipments of halibut from Alaska comprise a few thousand boxes of smoked fish put up in southeastern Alaska. This is a delicious

a Captain Slocum says that even the inexperienced men he had on the Pato, none of whom had previously seen a codfish, easily caught an average of 500 fish per day (earning $12.50) when the fishing was best.

b Those fishing in Bering sea usually take a few herring to begin with, after which halibut are exclusively used for bait.

c "The Fishery Resources and Fishing Grounds of Alaska", by Tarleton H. Bean, Section III, "Fisheries and Fishery Industries of the United States", pages 81, 82, and 85.

article of food, which sells at from 9 to 12½ cents per pound, but for this article also the demand is exceedingly limited.

Immense shoals of herring visit the bays and estuaries of Alaska at various seasons of the year, and they form an important item in the food supply of the natives wherever this fish is found. The Alaska herring varies in size and quality in different localities. The largest are probably found in the waters surrounding the Aleutian islands and the Kadiak group; the smallest of the species exist in the waters of Prince William sound, and the greatest number are found to frequent the inland channels and bays of the Alexander archipelago. In this region alone has any attempt been made at utilizing this fish for commercial purposes. At Killisnoo, on the west coast of Admiralty island, the Northwest Trading Company, an Oregon corporation, has maintained for more than 10 years a herring fishery, the total catch of which is converted into oil of an excellent quality, and a fish fertilizer, which is shipped chiefly to the Sandwich islands.

The natives consume but a small fraction of the herring catch in fresh condition, most of it being dried for winter stores, while the spawn, which is gathered in great quantities, is either dried or preserved in oil. The shipments of salted herring from Alaska have not been of sufficient magnitude to secure for this article any quotation in the market.

In many parts of the Alexander archipelago, and in Prince William sound, dogfish are known to exist in immense numbers, but thus far no efforts have been made to make a business of extracting the valuable oil of this fish for shipment. At one of the canning establishments near the mouth of the Copper river the first attempt in this direction has been inaugurated within the season just passed, but of this venture no results have as yet been reported.

The eulachon or candlefish, a very oily species of smelt, frequents the streams emptying into the waters of southeastern Alaska in immense numbers. It is also found to a more limited extent in the waters of Cook inlet, Prince William sound, and on the south coast of the Alaska peninsula. Cooked fresh, this little fish makes a delicious article of diet, and is not at all to be despised when salted. Nevertheless, shipments of eulachon from Alaska have been of rare occurrence and insignificant in quantity, nearly the whole catch being consumed by the natives, fresh, dried, or in the shape of oil. In the latter article an extensive local trade is carried on among the Thlingit tribes of the Alexander archipelago, who pack the oil in wooden boxes after extracting it by means of the primitive process of boiling the whole fish in wooden troughs or canoes by throwing into the receptacles stones previously brought to a red heat. The oil is then skimmed off with immense wooden ladles. It is doubtful whether the supply of this fish would allow of anything beyond the present immense local consumption.

Among the marine mammals, aside from the fur seal, previously discussed, we find the beluga or white grampus, which attains a size of from 16 to 20 feet and yields from 75 to 100 gallons of oil. These mammals frequent the waters of Cook inlet, Bristol bay, and the estuaries of the Kuskokwim and Yukon rivers, ascending these streams to a distance far beyond tidewater and sometimes from 300 to 400 miles from the seacoast. The oil and blubber of the beluga are in great demand among the natives inhabiting the coast adjoining, and the oil has to a certain extent become an article of intertribal commerce. The skin of this mammal is also utilized by natives for making straps and lines, boot soles, etc. No attempt, however, has yet been made to place any of the products obtained from the beluga on the general market.

The sea lions and 5 or 6 species of hair seals which are found in nearly all parts of Alaska are hunted almost exclusively by the natives and consumed by them in the shape of oil and blubber, while their skins furnish material for canoes. The demand for the latter article is so great that the firms engaged in the fur trade in Alaska find it necessary to import quantities of sea-lion skins from the Californian and Mexican coasts to make up the deficiency in the home supply.

The walrus formerly furnished the chief food supply for the inhabitants of the coasts and islands of Bering sea as well as the Arctic, but at the present day this huge mammal is rapidly approaching extermination, a result brought about entirely by the almost incessant pursuit instigated by whalers in search of ivory. By far the greater number of walrus killed for their tusks are not even utilized for their meat or blubber, but thrown away and wasted. In Bering sea the animal still frequents a few outlying sand dunes and bars along the north shore of the Alaska peninsula and on the shoals in the vicinity of Hagemeister island and Cape Newenham, but they can no longer be looked upon as being of any commercial importance. The ivory secured by the whaling fleets is derived almost altogether from the Arctic and from traffic with natives inhabiting the northern coast of Siberia.

THE WHALING INDUSTRY.

The Pacific whaling catch, though the result of an industry not strictly confined to Alaskan waters, and which would probably have been developed without our purchase of Alaska, has generally been counted among the benefits resulting from our latest territorial acquisition.

A statement of this catch for a period of 17 years is here inserted, together with its estimated value. The prices of both oil and bone (or baleen) have undergone considerable fluctuations, the market value of the bone reaching the high figure of $4 and even $4.50 per pound within the last few years, but our valuation is based upon a conservative estimate of average prices.

With the employment of steam in pursuing the huge cetaceans to their most remote haunts the output of bone began to increase, apparently reaching the high-water mark in the year 1887, when 526,200 pounds of whalebone were landed in San Francisco and placed on the market.

The high price of bone and low price of oil have had the deplorable effect of directing the whaler's attention to the former article exclusively, and hundreds of carcasses of whales, representing a great many thousand barrels of oil, are cast adrift every season after the baleen has been secured by severing the head of the animal. In this manner vast quantities of valuable substance are wasted, which, even though the price of oil may not warrant the expense of trying and barreling, would furnish an abundance of food for the natives of the Arctic shores, who are subject to periodical seasons of a distressing scarcity of food.

The number of barrels of whale oil secured annually by the Pacific fleet has been declining constantly and steadily since the year 1887.

CATCH OF PACIFIC WHALING FLEET FROM 1874 TO 1890.

YEARS.	Oil. (Barrels.)	Bone. (Pounds.)	Ivory. (Pounds.)	YEARS.	Oil. (Barrels.)	Bone. (Pounds.)	Ivory. (Pounds.)
Total	306,039	4,202,043	284,395	1882	21,100	316,600	17,800
				1883	12,300	160,200	23,100
1874	10,000	86,000	7,000	1884	20,373	295,700	5,421
1875	16,300	157,000	25,400	1885	24,844	451,038	6,564
1876	2,800	8,800	7,000	1886	37,260	304,530	2,850
1877	13,900	139,600	74,000	1887	33,066	526,200	5,615
1878	9,000	73,300	30,000	1888	16,066	320,247	4,918
1879	17,400	127,000	32,000	1889	14,127	310,347	6,128
1880	23,200	339,000	15,300	1890	12,503	231,981	5,799
1881	21,800	354,500	15,500				

VALUE (ESTIMATED).

Oil, 306,039 barrels	$2,853,351
Bone, 4,202,043 pounds	8,204,067
Ivory, 284,395 pounds	147,047
Total	11,204,465

CHAPTER XV.

THE MINES OF ALASKA.

The mining industry of Alaska has been so rapidly developed during the last decade and it has assumed so prominent a place among the resources of the territory that it seemed best to intrust this subject to one of the assistants for special investigation and a full report based upon the results obtained. Mr. Henry Boursin, who enumerated the northern part of the first district, devoted himself to this undertaking and brought it to a highly satisfactory conclusion. In addition to the mineral resources within his district he investigated other industries carried on in the mining towns and camps, or in their immediate vicinity. His report is here inserted in full.

MINING AND OTHER INDUSTRIES OF ALASKA.

BY HENRY BOURSIN.

Gold was first discovered in the vicinity of Sitka at Silver bay, 10 miles northeast of the town, by Frank Mahoney, prospector; Edward Doyle, a discharged soldier, and William Dunlayo. While prospecting for placers these men found (in June, 1873) a gold-bearing quartz vein on Slate creek, about 2 miles from the mouth, and took samples of the ore to Sitka. One of the men to whom they showed the samples was Nicholas Haley, at that time a private in the United States service. Haley, who had mined in California and Nevada, thought the rock good, and being informed as to the location of the vein, went to Silver bay, and after prospecting a few days discovered and located the Stewart claim. Some years after, through Haley's untiring efforts, a company was formed at Portland, Oregon, for the purpose of developing the vein, and in 1879 a 10-stamp steam and water power mill was built. The mine and mill were worked a few months, but failing to make expenses the company suspended operations in the spring of 1880, since which time no serious effort has been made to put the property on a paying basis. The claim was relocated as the Cash mine in 1883. The workings consist of 1 tunnel 150 feet in length, from which a 40-foot shaft is sunk on the vein; 1 tunnel 75 feet long and another 40 feet long. The vein is 7 feet wide, lies in slate, and is well defined. The ore is free milling white quartz, with which slate is more or less associated, bearing gold and containing a small percentage of sulphurets. About $100,000 has been expended on the property. In 1886 the Lake Mountain Mining Company was organized at Madison, Wisconsin, to develop the Lucky Chance mine in the same district, and the following year a 5-stamp water-power mill was built about a mile from the mine, with which it was connected by wagon road. 60 tons of ore were crushed in the mill, when work was stopped; it has not been resumed except in a desultory way.

The property is distant 3.5 miles by trail and 7 miles by wagon road from Silver bay, at about 1,500 feet elevation. The vein is 6 feet wide and lies in slate. It is opened by a 250-foot tunnel, 90 feet of which is in ore, and a 90-foot upraise on ore from the tunnel to the surface. The ore is white quartz, similar to the Stewart ore. The Silver bay vein is 6 feet wide and lies in slate. It is opened by a tunnel about 300 feet from the beach of Silver bay at an elevation of about 60 feet. The tunnel is 96 feet long, from which a shaft has been sunk 26 feet. Several other veins have received more or less attention in the Silver bay district, and give very fair prospects. The characteristic occurrence of gold is in spots or pockets through well-defined veins of low-grade white quartz.

Rich silver-copper ore has been found near Sitka, particularly on the west coast of Chichagof island. In spite of the failure of the two attempts to open mines at Silver bay, and the consequent depression of the industry at Sitka, I have no doubt of the existence of good veins in that district and that the town of Sitka will some day be the supply center of a good mining region.

The hot springs, 10 miles south of Sitka, will in time be made a popular health resort. The Russians built a hospital and baths here some years before the transfer. It was found that the waters were beneficial in blood, skin, and rheumatic diseases, and in many such cases a positive cure was effected. At present there are a few cottages and a bath house for the accommodation of the few who visit the place. There are 3 springs, 1 sulphur and 2 magnesia. The temperature of the former is about 125°; the others are considerably cooler.

With the establishment of a mail route from Sitka westward to Unalaska has begun the development of a vast region whose growth will contribute materially to the prosperity of Sitka.

YAKUTAT.

The 2 small villages of the Yakutats are at Yakutat bay, 240 miles northwest of Sitka. One village is on Khantaak island and the other across Port Mulgrave on the mainland. The natives support themselves by hunting sea otter, fur seal, bear, fox, and hair seal, and subsist almost entirely on fish, game, and wild berries. The women sell a large number of baskets, at making which they are more expert than the women of any other tribe.

A Sitka firm has established a trading station at Yakutat and is doing a light business in furs.

In 1887 the auriferous black sand deposits on the western beach of Khantaak island were discovered, and the following spring 40 or 50 prospectors went to Yakutat and after considerable prospecting and some actual work during the summers of 1888 and 1889 the ground was abandoned. In July, 1891, 3 miners located 40 acres of land along the beach and sluiced out about $3,000 during that summer, realizing as high as $90 in 10 hours' work.

The ground is a ruby-tinted black sand containing scale gold. It lies on the beach between high-tide mark and the sea, and is evidently deposited by the waves.

Near the shore of Disenchantment bay at the head of Yakutat bay are a number of seams of black lignite, on which several shallow shafts have been sunk. The discoverers were compelled to abandon work through lack of means. The coal is said to be of good quality, and the present exploration shows seams large enough to be profitably worked. Good-sized veins of lignite have also been found at Lituya bay, midway between Yakutat and Sitka. No attempt has been made to work them. The croppings reveal a light weight, glossy black lignite, which breaks with a conchoidal fracture and burns quickly, leaving a small percentage of white ashes.

The natives report the existence of petroleum in the country between Lituya and Yakutat bays, and I am reliably informed of one white man who proved the truth of the report by accompanying a party of natives to the locality. Nothing is known concerning the extent of the field.

In 1890 a few men from Juneau began to work the black sand beach a few miles east of Lituya bay. The result was satisfactory, and the work was continued in 1891 on a larger scale, 12 men being employed. The method of working is by sluices, the water being brought by ditch and flume a distance of 2 miles. The yield in 1891 is said to have been $15,000. The auriferous black sand is found scattered along the beach from Glacier bay westward, and deposits have been prospected at Dundas, Taylor, and Dry bays. 3 men were engaged on the black sand at Taylor bay during the summer and autumn of 1891; their success was sufficient to warrant a continuance of the work next season.

JUNEAU AND VICINITY.

The honor of the first discovery of gold in that extensive and important mining region of which the town of Juneau is the center is shared by 2 pioneer prospectors, Richard Harris and Joseph Juneau. In the summer of 1880 these men started in a canoe from the quaint old town of Sitka to prospect the mainland coast, and about August 15 discovered gold in a stream which they aptly named Gold creek. Their stock of provisions being nearly exhausted, they did not ascend the stream to its source and soon returned to Sitka, taking with them 150 pounds of valuable gold quartz and 13 grains of "dust". Having secured another outfit, they hurried back to Gold creek, and soon found its source in a little round valley inclosed by steep, glacier-capped mountains. This spot they named Silver Bow basin, after a place of that name in Montana. On the mountain slopes encircling the basin gravel was found worth from 15 to 30 cents to the pan, and quartz that seemed to have been splashed with gold. October 4 Juneau and Harris, with the aid of 3 natives, located their choice of the placer ground, and within a month located 18 quartz claims, organized Harris mining district, adopted local rules for the new district, and staked off a town site near the mouth of Gold creek, which they named Harrisburg. They then returned to Sitka with 960 pounds of gold ore, worth $14,000.

This golden cargo crazed the quiet town, and a number of adventurous fellows, procuring boats, canoes, or steam launches, rushed off to the new diggings with Juneau and Harris. The season was too far advanced for prospecting in the basin, so log cabins were built on the site staked off by the founders of the camp. During the winter of 1880–1881 the town of Harrisburg flourished; 5 general merchandise stores were established and saloons appeared so quickly as to seem spontaneous; miners and frontiersmen generally flocked in from Wrangell and British Columbia, and all waited impatiently for spring. At a miners' meeting in February, 1881, the town name was changed to Rockwell, in honor of Lieutenant Rockwell, United States navy, and the following November, at another meeting, the place was rechristened Juneau, in honor of Joseph Juneau. On the 27th of January John

Pryor, Antone Marx, Frank Berry, James Rosewald, and William Mehan discovered placer and quartz on the beach of Douglas island, 4 miles from the town. They began working the placers early in March, washing out 27 ounces of gold in the first 3 days' work.

The first shipment of gold from the new camp was taken from this claim and amounted to 84 ounces. The claim, still known as Ready Bullion, yielded about $12,000 in 1881, $3,000 in 1882, and in 1884 was sold to John Treadwell.

The Webster 5-stamp water-power mill was built in Gold creek canyon, about 2 miles from Juneau, in the summer of 1881. The mill has worked small lots of Silver Bow basin ores every summer since Pierre Joseph Erussard and Henry Borien were partners in the first store in the town. Erussard, commonly known as French Pete, was living with a native woman, and learning from the brother of his mistress of a large quartz ledge on Douglas island he located the Paris claim on the 1st day of May, 1881. Soon afterward John Treadwell examined the claim, and having a favorable opinion of the prospect, had a ton of the ore sampled in San Francisco. The test was satisfactory, for Treadwell purchased the claim in September for $400. Mr. Treadwell thoroughly prospected the claim by tunnels and shaft; built a 5-stamp mill in 1882, and organized the Alaska Mill and Mining Company in San Francisco. The company erected a 120-stamp mill, and the next year added chlorination works and built a wharf. In 1887 the present chlorination plant was built and the Brush electric light introduced. In 1888 the company doubled the equipment of the mill, making it 240 stamps. The property was acquired by the Alaska-Treadwell Gold Mining Company in 1889.

From 1882 to 1884 placer miners held the surface ground of the Paris claim, and by right of might sluiced out an amount variously estimated from $40,000 to $120,000. While developing the Paris Mr. Treadwell acquired other valuable ground adjoining, so that the present management owns 2,050 feet on the ledge. The mine is opened by a crosscut tunnel 540 feet long, from which drifts are run on the vein. The southeast drift is 860 feet in length, the last 60 feet being in the ore of the Mexican property, the southeast extension of the Alaska-Treadwell. The northwest drift is 500 feet long. Various other drifts and crosscuts on the same level make the entire length of the workings about 3,000 feet. Three large quarries are connected with the drifts by a number of chutes emptying into a train of 12 cars, transported by locomotive down a slight grade, and dumped into bins at the top of the mill.

The present dimensions of the pits are as follows:

PITS.	Length at top.	Length at bottom.	Width.
	Feet.	*Feet.*	*Feet.*
No. 1	560	340	300
No. 2	360	240	180
No. 3	180	140	100

Snow falls in the pits in winter, causing the ore to clog the chutes, with the result that the mill is often prevented from working to its full capacity. To avoid this, and to open the mine at a greater depth, another level was run in 1891 by sinking a shaft 120 feet deep, near the mouth of the working tunnel and connecting it by a crosscut tunnel with another shaft on the ore. From this tunnel drifts will be run, from which in future winters an uninterrupted supply of ore may be obtained. Although the 120-foot level is 36 feet below high tide, the mine makes little water. The ore and water from the 120-foot level are hoisted by water power. The ledge is 460 feet wide where crosscut by the working tunnel, 250 feet below the surface. It lies between diorite hanging wall and slate foot wall and runs 15 degrees south of east. The dip is about 75 degrees to the north. The ore varies from a pure white quartz to gray quartzite. It carries about $3.60 per ton in gold, 2 per cent of iron sulphurets (carrying gold), and traces of copper, silver, and zinc. The ore in the 120-foot level is a little poorer, and the ledge is not as wide as it is on the surface. The mill is run by 500 inches of water applied to a 7-foot Pelton wheel under 520 feet pressure. When the water supply is short, either from drought in summer or cold in winter, the power is supplied by a pair of 600-horse power Corliss engines, supplied with steam by the Heine safety boilers. 25 tons of Wellington coal are consumed daily when the mill is run entirely by steam. The building containing the air compressor and dynamos is situated a few feet above the batteries of the mill, so that when the supply of water is short the water used in running the air compressor, and dynamos is also used in the mill batteries. An 8-foot Pelton wheel furnishes power for the air compressor, running 5 Ingersoll-Seargent drills, and the same wheel also runs the 2 dynamos for the electric lights. 4 tons of Judson Powder, Nos. 1 and 2, are consumed monthly.

The mill is situated about 150 feet from the mouth of the working tunnel and 600 feet from the beach of Gastineaux channel. It is equipped with 240 stamps, each weighing 900 pounds. The drop is 7 inches; the speed 96 times per minute. 6 Blake rock crushers, 48 Challenge feeders, and 96 plain belt True concentrators are used.

The concentrates are transported by tram car down an easy grade and dumped on the top of the roasting furnaces in the chlorination works. The sulphurets contain nearly $49 per ton in gold, mechanically associated

with the sulphur and iron. 4 3-hearth reverberatory furnaces, each 60 feet in length, are in use; their capacity is 18 tons per day. The consumption of fuel is one-fourth cord per ton of ore. 1.25 per cent of salt is used in roasting. 16 gassing tubes, each with a capacity of 5 tons, and a proportionate number of precipitating vats are in use. The entire cost of the roasting and chlorinating is about $9 per ton of concentrates. 22 arc lights of 1,000-candle power each and 160 incandescent lights of 16-candle power each are used in lighting the works. Residences for the superintendent and other officers of the company, a large boarding and lodging house for the employés, a completely stocked general store, a machine and repair shop, a number of warehouses, woodsheds, etc., are also a part of this great property. About $1,000,000 has been expended in developing the mine, of which amount $225,000 was expended in the construction of 18 miles of ditch.

Following is a statement of the production of the mine since it was first opened in May, 1882, as taken from the report of the directors for the year ending May 31, 1891, as published in the Engineering and Mining Journal. The total receipts were $790,001.71, of which $754,795.81 was from bullion, $14,969.99 from concentrates (501 tons) and tailings, $1,258.75 from interest, and $18,977.16 from the company store. The expenses were as follows: mining 220,686 tons of ore, $155,572.19; milling 220,686 tons of ore, $92,838.41; chlorinating 5,368 tons of concentrates (5,777 tons were saved), $48,400.13; general expenses, $23,020.59 (Douglas island, $17,752.07; San Francisco, $5,268.52); bullion charges (freight, insurance, and refining), $11,652.59; construction account (new machinery), $33,987.57; total mining expenses, $365,471.48; expense of organization of new company, $6,321.33; profits for the year, $418,208.90. The dividends declared during the year amounted to $200,000. The expenses per ton of ore were divided as follows: mining 220,686 tons—labor, $0.4555; supplies, $0.2495; total, $0.7050. Milling 220,686 tons of ore, 5,777 being saved—labor, $0.1940; supplies, $0.2266; total, $0.4206. Chlorination of concentrates: labor, $5.0312; supplies, $3.9852; total, $9.0164, or $0.2193 per ton of ore. General expense, including salaries, interest, exchange, insurance, hospital account, etc., $0.0804. San Francisco office expense, $0.0239. Bullion charges, $0.0528. Total operating cost, $1.5020. Legal and other expenses of incorporation of company, $0.0286 per ton of ore. Construction account, $0.1540 per ton of ore. Total cost of operating and construction, $1.6846. The yield per ton of ore was $3.58, the net profit being $1.90.

The Alaska-Treadwell Gold Mining Company was organized in 1890, with a capital of $5,000,000, divided into 200,000 shares of $5 each, fully paid. The company took over the Paris mine on Douglas island on June 1, 1890. The production of this mine from the time when first opened in 1882 to May 15, 1891, has been as follows:

DATES.	Tons crushed.	Yield free gold.	CONCENTRATES (SULPHURETS).		Total yield.	Total yield per ton after 1884.	Operating profits.
			Tons chlorinated.	Yield.			
Total	837,798	$2,391,645.93	14,734	$717,518.84	$3,109,164.77	$3.70	$1,493,208.90
1882 to 1884	.....	10,902.86	.....	.....	10,902.86	.....	
August to December, 1885	34,495	232,176.33	205	10,143.00	242,319.33	7.02	
January to December, 1886	90,826	283,750.24	1,566	82,429.97	366,180.21	4.03	729,000.00
January to December, 1887	108,306	343,421.80	1,697	133,512.72	476,934.52	4.40	
January to December, 1888	121,173	348,264.20	1,354	81,625.21	429,889.41	3.55	
January to December, 1889	214,544	540,665.03	2,527	111,825.75	652,490.78	3.04	308,000.00
January to May, 1890	47,768	101,279.70	1,516	59,402.16	160,681.86	3.36	38,000.00
June, 1890, to May, 1891	220,686	531,185.77	a5,869	238,580.03	769,765.80	3.49	418,208.90

a Including 501 tons sold. On May 15, 1891, there were about 1,200 tons concentrates on hand, worth (net) over $30 per ton; the total profits have hence been $1,530,000, or nearly one-half of the gross product.

The Bear's Nest group, the northwest extension of the Treadwell or Paris property, was sold in 1889 by M. W. Murray and others to the Alaska Gold Company.

The company erected an 80-stamp mill and ran a 1,200-foot tunnel from a point near the beach of Gastineaux channel to crosscut the ledge. An ore body about 50 feet in width was struck, but the rock was too low grade to be profitably worked, and after considerable prospecting operations were suspended. During the latter part of 1889 and the spring of 1890 some of the stockholders, not being satisfied as to the worthlessness of the property, expended about $25,000 in further prospecting, when they, too, quit work, since which time nothing but the necessary annual labor has been done.

The Mexican group is the southeast extension of the Paris. The property is 3,700 feet in length. The vein has an average width of 45 feet, the greatest width being on the northwest end. The vein is opened by an 800-foot crosscut tunnel, beginning just above high-tide mark, from which a 900-foot drift is run northwest in the vein. The southeast drift is 500 feet long. In this drift the ore pinches out 300 feet from the intersection of the crosscut. The tunnel is connected with the surface by a shaft 140 feet deep. The average elevation of the ledge is about 190 feet. A 500-ton mill test of the ore was made in the Alaska-Treadwell mill in 1891, and was found to contain $7 per ton in gold. The ore is similar to the Paris, a part of the gold being free and the rest mechanically associated with sulphur and iron. The tunnel and shafts were run at a cost of $16 per foot.

The Ready Bullion group is the southeast extension of the Mexican; but little development has been done, however. The ledge is known to have an average width of 40 feet along the 500 feet of croppings. On the beach of Gastineaux channel, where the vein outcrops, about $15,000 was washed out by sluicing in 1881 and 1882, which is certainly a good indication of the value of the vein.

The Mexican group lies south of and adjoins the Mexican property. The developments consist of a crosscut tunnel 365 feet in length, and a 75-foot shaft connecting the tunnel with the surface. The vein is about 250 feet wide where crosscut by the tunnel. The ore is a quartzite carrying free gold and sulphurets.

The Monarch and King property, 1,500 by 1,200 feet, lies south of and adjoining the Mexican group. About $5,000 has been expended in running a dozen short tunnels and sinking a 40-foot shaft. The work exposes a low-grade ledge or deposit of sulphuret ore 700 feet in width.

The Douglas island group adjoins the Bear's Nest property on the northwest. A tunnel 700 feet long has been run from the beach to crosscut the vein at a distance of 1,200 feet (estimated).

The Great Eastern group of 7 claims, 4,000 feet in length, lies northwest of and adjoining the Douglas island. A crosscut tunnel started on the beach just above high tide is now in 400 feet. The ledge is 50 feet wide between diorite (hanging wall and slate foot wall), and has an average elevation of 450 feet.

The ore is low-grade gold, with small percentage of sulphurets. $5,000 has been expended on the property.

About 3 miles northwest of the Treadwell mine on Douglas island is the ground of the Alaska Union Mining Company. In 1887, after an 80-stamp mill, tramway, wharf, boarding houses, etc., were built, a mill test of 500 tons of rock disclosed the fact that the rock carried but a few cents per ton gold. About $300,000 was expended, 5 per cent of which amount, if devoted to tunnels and shafts, would have amply demonstrated the worthlessness of the property.

At the edge of the town of Douglas, on the beach of Gastineaux channel, is the sawmill of the Alaska-Treadwell Gold Mining Company, built in 1884 by the Alaska Mill and Mining Company. Power is furnished by 1 80-horse power engine supplied with steam by 2 safety boilers. The output (consisting of rough and dressed spruce lumber and squared timbers) is entirely consumed in the local market, and chiefly in the construction of quartz mills and other mine buildings. Logs are purchased from the loggers at $6 per thousand feet and towed in booms to the mill by a steam tug. Rough lumber sells for $16 per thousand feet; dressed lumber sells for $22. A locomotive tramway connects the sawmill with the plant of the Treadwell company.

JUNEAU.

2 miles from Juneau, in Gold creek canyon, is the 10-stamp water-power mill of the Taku Consolidated Mining Company. The ground owned by the company extends from Gold creek easterly over the mountains and is several thousand feet in length. No veins have yet been discovered, though nearly all the ground is ribbed with stringers of white quartz carrying free gold. These stringers lie in slate, run with the formation, and vary from a few inches to 6 feet in width. The workings consist of open cuts, from which the ore is blasted, shoveled into cars, and trammed down a gentle grade to the ore bin, from which it is taken by a short wire-rope gravity tramway to the mill. 20 tons of ore are worked daily during the season, May to November, inclusive. No record of the output can be obtained. The management claim that the property netted enough to pay for all improvements in the first season's run of about $50,000.

The Dora group is the northwest extension of the Taku Consolidated. The property is 4,500 feet in length and 1,200 feet wide. About 30 stringers of white quartz carrying free gold are on the ground. The workings consist of a few short tunnels and a number of cuts, from which ore was taken and worked in an arrastre with gratifying results. Development has been retarded by litigation with the Humboldt owners.

The Webster 5-stamp water-power mill is situated in Gold creek canyon a few hundred feet from the Taku Consolidated mill. The mill crushes small lots of ore from the Humboldt claim. The placer mine of the Silver Bow Basin Mining Company is in Silver Bow basin, at the head of Gold creek, 4 miles from Juneau. The altitude is 1,250 feet. The mine is opened by a tunnel 3,000 feet in length, run through slate and requiring no timbers. The property is 110 acres in area. The ground is a loose and easily worked alluvial wash, about 70 feet average depth, lying on slate bedrock, and containing a large number of quartz bowlders and a considerable quantity of black sand (iron and galena). A number of granite and slate bowlders are blasted and handled by derrick. An abundance of water is brought by ditch 1,600 feet and flume 1,400 feet, and applied to 2 monitors (4 and 5 inch nozzle) under a pressure of 240 feet. The tunnel is laid with a double 4 by 4 foot sluice, with a grade of 4 inches to 12 feet. Spruce and granite riffle blocks are used. The entire cost of opening the property, which was completed May 25, 1891, was $325,000. It is said that the yield for the remainder of the season was $100,000. 12 white men at $2.50 per day and board and 20 natives at $2.50 per day are employed during the working season, April 1 to November 20.

The mountain sides south and east of the basin and the gulches leading into it from those directions have yielded most of the placer gold washed out in southeast Alaska. About one-half of the placer ground has been worked off, exposing an astonishing number of quartz stringers rich in free gold and gold-bearing sulphurets. Small areas of placer ground are being sluiced each season by about a score of white men and a somewhat greater number of natives in their employ. The annual yield of these small mines is about $25,000.

The origin of the placer gold in the basin is found in the rich stringers previously mentioned; a small part of the gold contained in these quartz seams having been freed by the resistless action of water and ice. The entire yield of the Silver Bow basin placer mines is estimated at $600,000.

The Fuller First Mine, the first quartz location in Silver Bow basin, has an altitude of 1,650 feet above the sea and 400 feet above the basin proper. The claim is 1,000 feet long and 398 feet wide. The whole claim is ribbed with stringers of white quartz lying in and running with a slate formation.

The ore is free milling, carrying $10 per ton in free gold and 6 per cent of concentrates. The concentrates are iron sulphurets, galena, and blackjack, worth $200 per ton. The mine is worked by open cuts (chiefly) and 2 tunnels. Tunnel No. 1 is a crosscut tunnel 140 feet in length, in which distance 6 rich stringers were found. Tunnel No. 2 is 60 feet long, and is now in 12 feet of ore. A water-power Dodge mill, with a capacity of 10 tons per day, was built on the claim in the summer of 1890 and has run steadily during the working season since. 4 white men are employed in the mill at $3.85 per day average, and 5 white men at $3.50 per day and 3 natives at $2 per day are employed in the mine.

The quartz mine of the Eastern Alaska Mining and Milling Company is on a mountain above the basin at an altitude of 3,000 feet. The property is 4,780 feet long and 600 feet wide. The entire ground is ribbed with stringers of white quartz, carrying free gold, iron pyrites, galena, and zinc blende. The formation is slate. The mine is opened by 3 tunnels, the lowest of which is 170 feet long, all in ore. No. 2 is a crosscut 130 feet long. No. 3 is 110 feet in length, all in ore. Ore is also taken from a number of shorter tunnels and open cuts. The ore body which has been most explored is found to be more than 320 feet long and from 2 to 16 feet wide. 800 pounds of Judson powder are consumed per month. Mining is by hand drilling and costs $4.60 per ton of ore. The ore is transported to the mill by a Huson wire-rope tramway 4,400 feet long. The mill contains 10 stamps, weighing 1,000 pounds each, dropping 106 times per minute, and crushing 28 tons per day. 1 Blake rock crusher, 2 challenge feeders, and 4 True concentrators are in use. The concentrates amount to 2 per cent, and are worth $40 per ton. Power is supplied by 110 inches of water applied to a Pelton wheel under 236 feet pressure. The cost of milling is $2.35 per ton. 28 men are employed in the mine at $3.50 per day, 6 men in the mill at $3.50 per day, and 2 men outside at $2, all whites. The company has expended $108,000 in improvements, $14,700 of which was in making 5 miles of road connecting the mine and mill with Juneau. The mine has yielded to date $33,000, notwithstanding some very bad management. The company propose adding 10 stamps to the mill and introducing electric drills in the mine. The working season is from May to November, inclusive. The company also owns a small water-power sawmill at the mouth of Sheep creek. The output is insignificant.

The Silver Queen mine is 5.5 miles northeast from Juneau, on the mainland. It is distant about 2 miles from navigable salt water, Gastineaux channel, at an elevation of 1,200 feet. The vein lies between slate foot wall and syenite hanging wall, and has an average width of 2 feet, although in the lower workings the width averages 3.5 feet. The property is 2,600 feet long and 1,200 feet wide. The vein outcrops through the entire length of the property. Its course is northeast and southwest, dip northwest at an angle of 80°. The mine is opened by 6 short tunnels, the lowest and longest of which is 270 feet in length. The greatest depth attained is 180 feet. The ore is a white "sugar-grained" quartz, carrying brittle silver (chiefly), zinc, and iron sulphurets. The claim was located in 1887, and during the 3 years following that date several hundred tons of ore were mined and shipped to San Francisco for treatment, netting a small profit over expense of development. In 1891 a 10-stamp water-power mill was built at a cost of $14,000. 800 tons of ore were worked in the mill when operations were suspended, as the machinery was found incapable of recovering the silver. The ore averages $60 per ton, and the mill recovered but $12 per ton. The company proposes introducing the Russell process in 1892. The company has made 1,400 feet of ditch, 2 miles of road, and half a mile of tramway.

The Glacier property is the southwest extension of the Silver Queen. About 120 feet of tunnel has been run, disclosing a greater width of the vein than on the Silver Queen. Ore has been shipped to a San Francisco smelter with satisfactory results.

There are a number of other promising silver properties in the Sheep Creek district, which have received less attention than the Queen.

Very promising quartz veins have been found on Grindstone creek, at Taku inlet, Taku harbor, Limestone harbor, Port Snettisham, Holkham bay, and Windham bay. At the latter place a hydraulic placer mine is being opened by a tunnel 700 feet in length, but as washing has not yet begun, the success of the enterprise is not assured. At Holkham bay is the Bald Eagle group, a very promising gold property, on which the owner will probably build a mill during the summer of 1892.

Gold ledges have been found on Salmon, Leman, Glacier, and Montana creeks, on the mainland north of Juneau, and although some appear to be valuable none have been developed beyond the prospect stage. The gold quartz veins in the vicinity of Berners bay have been worked somewhat in the last 2 or 3 years, and some rich ore has been found on a number of claims. A village with the high sounding title "Seward city" was started in 1890 near Point Sherman, and a 20-stamp mill is to be built on the Comet property in 1892. A number of small mills could be profitably worked in that vicinity.

The Willoughby group is at Funter bay, Admiralty island, 23 miles west of Juneau. The property is 4,500 feet long and 1,600 feet wide. It lies at the edge of salt water, and has an average elevation of 100 feet. There are 4 veins from 2 to 6 feet in width and lying in slate. Their course is northeast and dip about 80° to the northwest. The veins are opened by 2 short tunnels, 40 and 20 feet, and 3 shafts. Shaft No. 1 is now down 15 feet in the 40-foot tunnel; No. 2 is 38 feet deep, and No. 3 is 57 feet. The ore is a hard white quartz, said to contain $20 per ton free gold and 5 per cent of iron sulphurets, worth $50 per ton in gold. Ore is worked in a Huntington mill of 5 tons daily capacity and run by a 3.5-foot Pelton wheel under 65 feet pressure. The sulphurets are recovered by 1 True concentrator. Water is furnished by 1 mile of ditch. The mill was finished in July, 1890, and has been operated about one-half the time since. The 2 owners and about 5 other men are engaged in getting out ore and running the mill. A large number of gold and silver veins have been located on Admiralty island, some of which are valuable prospects. The island is particularly remarkable for the number of very large low-grade gold ledges.

APPROXIMATE DISTRIBUTION OF ALASKAN GOLD AND SILVER PRODUCT FROM 1880 TO 1890, AS ESTIMATED BY THE DIRECTOR OF THE MINT.

YEARS.	Total value.	Gold.	Silver.
Total	$4,631,840	$4,604,500	$27,340
1880	6,000	6,000	.....
1881	15,000	15,000	.....
1882	150,000	150,000	.....
1883	300,000	300,000	.....
1884	200,000	200,000	.....
1885	302,000	300,000	2,000
1886	448,000	446,000	2,000
1887	675,300	675,000	300
1888	853,000	850,000	3,000
1889	910,343	900,000	10,343
1890	772,197	762,500	9,697

LIST OF MINES OPERATED IN THE SOUTHEASTERN DISTRICT OF ALASKA IN 1890.

No.	NAMES.	Number of stamps.	Remarks.
	Total	285	
1	Alaska-Treadwell Gold Mining Company	240	Douglas island; Thomas Mien, superintendent.
2	Eastern Alaska Mill and Mining Company	10	Silver Bow basin; W. A. Sanders, superintendent; Elner, manager, office.
3	Fuller First mine	5	Silver Bow basin; Archibald Campbell, owner. Dodge mill.
4	Humboldt mine	5	Near Juneau; W. I. Webster, owner.
5	.....	.....	Carroll, Murrey, Fuller & Webster own property in Silver Bow basin from which ore was shipped in 1890.
6	Taku Consolidated Mining Company	10	Near Juneau; mill and mine idle part of 1890. Clarence Coulter, superintendent.
7	Willoughby mine	5	Funter bay, Admiralty island; R. Willoughby and Aaron Ware, owners, Huntington mill.
8	Silver Queen Mining Company	10	Sheep creek, Juneau; F. S. Reynolds, superintendent.
9	Dora mine	arrastre	Near Juneau, H. S Wyeman, owner.
10	Bald Eagle mine	.....	Holkham bay (Sumdum); W. F. Reed et al., owners; shipped ore.

COAL AND OTHER MINERALS.

A number of coal seams have been prospected on Admiralty island near Killisnoo, but none are being regularly worked. The coal is a glossy semibituminous and is said to steam well. It occurs in seams from a few inches to 3 feet in thickness between sandstone (top) and shale or conglomerate. About 2 miles from the beach of Murder cove, near the southwestern extremity of Admiralty island, is a fairly well developed coal property. The workings are at an elevation of 800 feet above the sea and are distant 7 miles from a good harbor. They consist of a 210-foot tunnel, which taps a 7-foot vein at a depth of 40 feet, and a tunnel 150 feet long which had been started with the intention of opening the vein 25 feet lower than the other. The coal occurs between sandstone (top) and soapstone, and appears to be on the same coal field as that discovered near Killisnoo. Sandstone, limestone, and conglomerate are the predominant rocks along the southern half of the western shore of Admiralty island and from Point Gardner northeast a distance of 12 or 15 miles, and it is probable that coal will be found throughout the greater portion of that district.

Several belts of pure white marble have been found in the southwestern part of Admiralty island, and particularly at Hoods bay, where some prospect work was done, and the quality found to be excellent. The croppings are badly shattered, and no attempt was made to ascertain if the stone existed in a solid body at a greater depth. Marble has also been found on the west shore of Baranof island near Atka, on the shore of Lynn canal, on Siwash canal, and on the east shore of Baranof island, but wherever found the outcrop is badly broken. Some of the sandstone on Admiralty island is an excellent building material, and some of the limestone on Admiralty, Baranof, and Chichagof islands is a fine crystalline variety, free from silica and suitable for the manufacture of lime.

WESTERN MINES.

The Apollo Gold and Silver Mining Company of Unga, situated upon one of the Shumagin islands, has been in operation for some 3 or 4 years, and considerable money has been invested in machinery and prospecting, but no bullion shipments have yet been reported. Some prospecting is being done on quartz ledges at various points among the Aleutian islands and Alaskan peninsula, but none of these claims have reached a stage beyond preliminary exploitation.

On the shores of Cook inlet, where prospectors have delved for many years in search of the precious metal, which shows itself almost in infinitesimal particles in the surface mold of all that vast section, but 2 surface claims are now being worked during a brief portion of the year: 1 at the promontory of Anchor point, on the east coast of the inlet, where 3 men have succeeded in washing a few hundred dollars each from beach gravel as it is cast up by the tides. This insignificant result has only been obtained after running a ditch back into the swamps for a distance of more than 1.5 miles. The other camp, on Cook inlet, is located on the furthermost branch of the inlet, the Turnagain arm of Captain Cook. The average yield to the men per diem in both of these claims does not exceed $7, while the time of working the claims is curtailed both by the frosts of winter and the drought of summer.

We know of deposits of silver-bearing galena ore in various sections of Alaska, but the only instance of such a deposit having been thoroughly prospected and worked is that of the Oonilak mine on Golofnin bay, from which a few shipments of ore were made to San Francisco. During 1890 operations at this mine were entirely suspended, chiefly owing to the report of experts that no continuous vein of the ore existed, the same being found only in irregular and disconnected deposits or "pockets". In 1891 operations were resumed with increased capital and new energy.

Of almost pure native copper and copper ore very fine specimens have been obtained from the banks of Copper river and its tributaries, as well as from other parts of Alaska, but we have no definite information as to the magnitude of the deposits, while we do know that they are inaccessible and can not be worked until some means of transportation can be devised from the seaboard into the heart of the precipitous mountain regions where the existence of copper ore has been reported.

Coal veins of considerable extent were known to the Russians during the earlier days of their occupation of the territory now called Alaska. In nearly every report rendered to the imperial government by the successive chief managers of the Russian colonies the existence of coal veins is mentioned, but it was not until after the discovery of gold in California that an exploration of these veins was begun in earnest. A combination was formed between San Francisco capitalists and the Russian American Company, experienced miners were imported from Germany and Russia, and Siberian soldiers were obtained from the Russian government to serve as laborers, and extensive works were erected over the coal deposits at Grahams harbor or English bay. A massive stone pier was erected in front of these works, which stands to the present day, a monument of one of the many instances of spasmodic enterprise exhibited by our predecessors on Alaskan soil.

At the beginning of these coal mining operations there was a demand even for an inferior lignite coal, of which those veins are composed, and at the same time the Russian American Company's authorities at home issued orders that no other coal should be burned by steamers of the colonial fleet. It was not long, however, before San Francisco dealers refused to buy this coal, and the engineers of the Russian company's steamers entered a protest against its use, as it was rapidly destroying their furnaces. Operations on the Grahams harbor coal veins were not entirely suspended, however, until within a few years of the transfer of the country.

Since Alaska has been occupied by the United States coal has been found and reported in many localities; in most instances it was tried and found wanting in steam producing qualities. At various locations on Admiralty island, in the Alexander archipelago, the existence of anthracite coal was reported, but in every instance the report turned out to be false, and though at a few points veins of the best quality of lignite have been discovered, the extent of the deposit was not large enough to warrant great expenditure in its development. Within a few miles of the old Russian coal mines on Cook inlet, near the northern point of the Gulf of Kachemak, there exists quite a deposit of lignite coal, which was known to the Russians, but was not prosecuted by them. Here American prospectors have made a number of locations within the last few years, and bonded them all to San Francisco capitalists. One or two small cargoes from these veins were shipped to San Francisco, one of them amounting to several hundred tons, but at present the veins are allowed to remain as they were. A single white man, one of the locators, who has erected a few small buildings, is living there, "holding on", with a coal pile of something less than 100 tons, waiting the advent of purchasers. As this coal deposit was bonded to Mr. John Treadwell, of Douglas island, it can not be lack of capital that is retarding the development of the Kachemak coal mines.

Coal of really good quality, though also lignite, has been discovered and located on the island of Sitkhinak, separated from Kadiak island only by a narrow strait. Great hopes were entertained of this location until it was discovered that on the one hand the deposit was somewhat limited in extent, while on the other, owing to the almost constantly raging surf beating around the shallow coast of Sitkhinak, not a pound of this coal can be shipped without the erection of very costly structures in the way of piers and artificial harbors.

On the island of Unga, on the shores of what is variously called Humboldt bay or Coal harbor, a coal vein was opened within a few years from our acquisition of Alaska; but the first cargo shipped from here to San Francisco, consisting of somewhat over 200 tons, was dumped into the bay on arriving at San Francisco, proving unsalable in that market. This was probably partly decomposed coal from veins that had for ages been exposed to the action of the atmosphere. Not at all daunted by this experience, the owners of the Unga vein continued to expend a certain amount of labor on it from year to year, and a few more small shipments of coal were made, but with little better success. Finally, the property fell into the hands of 2 men, who reside on the claim and eke out a living by combining a little cod fishing and trading with delving in the veins, from which they extract the small quantity required by sea-otter hunters and fishermen living in the immediate vicinity. The pamphlets issued by the first owners of this claim, with the view of selling the stock, are still in existence, having on their covers an enticing picture of locomotives hauling heavily-laden trains from the mines over a magnificent pier, all of which improvements are yet to be made.

Not far from the location just described, on Chignik bay, on the south coast of the Alaska peninsula, a deposit of fine looking coal was discovered 3 years ago by some sea-otter hunters and prospected to a certain extent. Contrary to all experience from coal mining generally, the surface deposit in this instance was of good quality, but was found to be deteriorating as the prospectors' shaft progressed downward. Having no capital and no stock for sale, the hunters dropped the enterprise then and there.

On one of the interior branches of what is known as Moller bay, on the north side of the Alaska peninsula, several of the employés of the Alaska Commercial Company located 2 years ago a coal deposit which promises to be the first of real value. A company was formed to work these veins, and considerable capital has been invested in building tramways, wharves, etc.; a coal yard has been located and fenced in in Unalaska harbor, to supply steam whalers and other shipping in Bering sea with fuel. The first practical use of this coal was made during the summer of 1890, and the reports on its quality vary somewhat. The general drift of opinion, however, seems to be that there is every prospect of these deposits improving in quality as lower depths are attained in working the mine, which is situated upon an isthmus between 2 bays, one opening into Bering sea and the other into the North Pacific, across which a tramway will probably be completed within a year. The number of tons shipped from the Moller bay mine during the present year could not be ascertained at the time the material for this report was secured.

MINING TOWNS AND THEIR TRADE.

With its mountains, sea, and islands, the environment of Sitka is far famed for beauty, while the picturesquely dilapidated old Russian houses give the place a quaint and characteristic appearance.

The capital of Alaska has a population of less than 1,200, of which 280 are white. The white town is supported chiefly by the trade of the Sitka and Yakutat natives, who sell their furs, baskets, carvings, spoons, bracelets, beadwork, etc., and purchase all their clothing and a constantly increasing proportion of food and utensils. The native "curios" are sold to the many tourists who visit southeast Alaska during the summer. The naval vessel and detachment of marines and the chief officers of the district government also add not a little to the life of the place. The business houses are: 4 general merchandise stores, 2 sawmills, 2 drug stores, 2 hotels, 2 restaurants, a weekly newspaper, "The Alaskan", a photograph gallery, a brewery, and 4 saloons. The furs obtained and sold by the natives are: silver gray, cross, and red fox, mink, marten, muskrat, land otter, sea otter, lynx, wolf, wolverine, ermine, black and brown bear, deer, mountain sheep, hair seal, and fur seal. None of these skins are plentiful, and

the entire fur trade of Sitka is small. The old Russian sawmill has been operated but a few days in the last 2 years. The entire machinery is old and out of date and the building almost in ruins. Power is furnished by an overshot wheel. The Sitka Milling Company's sawmill is a small and nearly new steam-power mill. It is run but a few weeks annually, supplying the small amount of lumber used in Sitka and the immediate vicinity. The lumber is spruce; no use has been made of hemlock and yellow cedar except for fuel.

The salmon cannery of the Baranof Packing Company is at the redoubt a few miles south of Sitka. It was established in 1889 at a cost of $21,000, including a steam tug costing $6,000. The average annual pack is about 10,000 cases. 10 white men, 29 Chinese, and about 39 Thlingits are employed. The Chinese are employed in the canning; they are paid by contract 52 cents per case and transportation from California to Sitka and return. The natives are paid $1.50 per day and are employed as laborers and fishermen. The superintendent says that the natives are unsatisfactory employés, and will not be engaged in the future when other labor is obtainable. Drag seines and drag seine boats are used in fishing. A few barrels of salted salmon and a few cases of dried halibut are put up. The season begins about June 28 and ends about October 10. 2 or 3 years ago an attempt was made at Sitka to prepare and ship smoked halibut, but through lack of experience in preparing the article the business proved unprofitable and was abandoned. Halibut are abundant in the waters about Sitka, and there is no reason why the business should be unprofitable if properly carried on. Herring, cod, crabs, salmon trout, and other less valuable food fishes are also abundant.

A salmon cannery was established in 1891 at Red Fish bay, 60 miles southeast of Sitka. The pack was about 8,000 cases.

In April, 1889, Captain W. S. Morrisey established a salmon fishery at Fish bay, Peril strait, about 20 miles northwest of Sitka. The fishing and packing is done by natives under contract. The annual pack is about 800 barrels of salted salmon. A store is run by Mr. Morrisey, as agent of a San Francisco firm, to supply the natives and trade with them for furs.

The steam schooner Leo, owned by a Sitka firm, was engaged in sealing during 1891 with indifferent success. 2 small sailing schooners, owned by persons residing at Sitka, were also sealing with moderate success.

The town of Douglas is on Douglas island, one-half mile northwest of the Treadwell mine. With the exception of a few business houses, the 2 school buildings, the mission, and a few neat residence cottages, the houses are mere cabins, which seem to have dropped at random among a wilderness of stumps. Along the water front is a few hundred feet of good street; all the other streets are imaginary lines indicated in places by a single line of sidewalk. The business houses are: 13 saloons, 1 drug store, 4 general merchandise and 2 grocery stores, 2 hotels, and a barber shop. The post office, a shoe shop, and a small stock of stoves and tinware are in the same building and in charge of 1 man.

Between the Treadwell mine and the town of Douglas is a village with a native population of 300, drawn from every tribe in southeast Alaska. These people procure a larger proportion of their food and utensils from the white traders than do the natives of any other village. The Treadwell mine employs about 50 native men as laborers. They are paid $2 per day, and are satisfactory workmen at that price.

The town of Juneau has a population of 1,253, of which number 671 are whites. It is fairly supplied with sidewalks, the principal streets are graveled, the stores are completely stocked, and there are many neat residences. The business houses are: general merchandise, 9; saloons, 22; hotels, 3; restaurants, 2; lodging house, 1; drug stores, 2; stoves and tinware, 2; jewelry, etc., 2; breweries, 2; furs and curios, 2; cigar factories, 2; slaughterhouse, 1; meat market, 1; lumber, etc., 1; newspaper (weekly), 1; millinery, 1; photographer, 1; confectionery, 1; steam laundry, 1; barber and baths, blacksmith shops, etc. Communication is had with Douglas island by a steam ferryboat. A theater building, with the misfit name "opera house", has a seating capacity of 400, and is used for all entertainments of a public character. The chief support of the town is and will always be the mining industry. The trade with the natives is considerable, however, from whom about $35,000 worth of furs are annually purchased. The varieties are the same as those procured by the Sitka traders. Sea otter, fur seal, and a large share of the bear are obtained from the Hunas. The larger part of all the other furs is bought of the Chilkats and Takus. Juneau is the outfitting point for the miners who enter the interior of Alaska every spring via Chilkoot pass, and from $15,000 to $25,000 is brought to the town in the autumn of each year by these returning miners.

FISHERIES AND OTHER INDUSTRIES.

On a little island barely separated by a narrow channel from the southwest coast of Admiralty island is the plant of the Alaska Oil and Guano Company and the little village of Killisnoo. The principal business of the company is the extraction of herring oil and the manufacture of fertilizer.

The enterprise was begun in an experimental way in 1879 by the Northwest Trading Company. The company had established a trading station at Killisnoo in 1878. It was observed that a large number of finback whales frequented the waters of that vicinity to feed on the herring, and in 1880 whaling was attempted, but was discontinued the same year. The oil and fertilizer business having been found a profitable one, it was gradually increased until in 1887 the maximum production of 380,000 gallons of oil was reached. The present company

acquired the property in January, 1887. The annual production of oil is from 160,000 gallons to 235,000 gallons and from 700 to 800 tons of fertilizer. The capacity of the works per day of 24 hours is 1,100 gallons of oil and 30 tons of fertilizer, the product of 1,500 barrels of fish. 3 steam tugs of 70, 40, and 12 tons register, and 5 scows, each with an average capacity of 1,300 tons, are used in fishing. 2 fishing gangs of 12 men each are employed in fishing, purse seines being used. The fish are hoisted from the scows into the factory by steam. They are cooked by steam in 12 vats, each of 30 barrels capacity. After cooking 3 hours the pulp is pressed 30 minutes in 4 hydraulic presses at a pressure of 20 tons. From the presses the impure oil runs into 16 steam-heated settling vats, where all impurities settle to the bottom, and the pure oil floating on top is run into barrels for shipment. The stearin is caught by strong cotton strainers placed over the settling vats, from which it is taken, pressed, and prepared for market. It is sold in Portland and San Francisco, and in 1891 20 tons were shipped to Liverpool. After the impure oil is removed by the presses the substance which remains in the presses, locally known as scraps, is shoveled into tram cars and conveyed to the drier, where it is stirred by machinery and subjected to a gentle heat until the moisture is expelled, when the fertilizer is sacked for shipment. The capacity of the drier, 8 tons per day, will soon be increased, as the demand for fertilizer is becoming stronger.

The price of oil has been as low as 14 cents per gallon, but the market has improved in the last few years, ranging from 25 cents to 32.5 cents per gallon. Until 1891 all shipments were made by the Pacific Coast Steamship Company's steamer, but in that year the oil company chartered the English bark Martha Fisher, 800 tons. The Fisher delivered at Liverpool for a charter price of $15,000 700 tons of fertilizer, 800 barrels of oil, and 20 tons of stearin.

The business of salting herring was begun by the company in 1888, and 100 barrels were put up; the next year 300 barrels were packed, and in 1890 the demand for this excellent article exceeded the pack of 500 barrels, so that this branch of the business will be increased. Salt herring is marketed in Portland at $8 per barrel. About 35 white men are employed, nearly all being in and about the factory. White laborers receive from $40 to $50 per month and board; skilled men and foremen are paid from $60 to $100 per month and board. About 28 natives are employed, chiefly as fishermen and laborers. The former are paid $1.50 per day and the latter $1. 2 Chinese are employed as cooks. A considerable number of natives supply the company with over 1,000 cords of spruce and hemlock for fuel. $2.50 per cord is paid for the former and $2.25 for the latter variety.

The public day school building at Killisnoo was built by the government in 1888. The maximum attendance (35) during the census year seems very small considering the large native population in the vicinity. A Græco-Russian chapel was built in 1889, and although there is no resident priest, an extraordinary propaganda has been maintained, and a large proportion of the Hoochinoo tribe are nominally converts to that faith. A large part of the whole Hoochinoo tribe is at various times employed by the oil company during the season, which begins about July 15 and ends about January 1, and during that time the native population of Killisnoo is about 100. The larger part of the income of the Hoochinoos is derived from the company, and their primitive food supply of fish, game, and berries is largely supplemented by foodstuffs purchased at the company's store. Nearly every family of Hoochinoos is provided with a garden, potatoes and turnips being the principal crops. A large number of deerskins are sold to the company.

After very careful inquiry among the Hoochinoo natives I am convinced that Kootsnohoo inlet does not connect with Seymour channel, as shown by the latest charts of the United States coast and geodetic survey. All the information on the subject is to the effect that those water ways are separated by a peninsula of low land, across which the natives frequently portage small canoes.

The native village of Huna, with a population of 438, is situated at Port Frederick, Chichagof island. With the exception of Yakutats, these people are the most primitive of all the Thlingits. They subsist chiefly on fish, game, and berries, and their principal revenue is derived from the sale of fur-seal and sea-otter skins. About 70 men hunt along the coast from Cape Spencer to Dry bay, taking 50 or 60 fur seal and about 40 sea otter each season. A large number of hair-seal and deer skins, a considerable number of brown bear, a few black bear, a large number of mink, some marten, and a few land otter are the other skins taken and sold by this tribe. Their principal market is Juneau.

In 1889 and 1890 the cannery at Bartlett bay employed during 3 months of each year about 17 native men as fishermen, etc., and about 20 men, women, and children in the cannery as fish cutters and can fitters. The cannery proved unprofitable and was abandoned in 1891, and the entire tribe is once more dependent upon the primitive means of livelihood.

Herring, halibut, and black cod are particularly plentiful in the waters about Chichagof island and hair seal are numerous in Glacier bay and from that place westward to Cape Spencer. The little prospecting done on Chichagof island has resulted in the discovery of a number of promising veins carrying gold, silver, and copper. Silver, lead, and gold (quartz) locations have been made about Glacier bay, but little work has been done on them, and their value is very uncertain.

On Chilkat inlet, near the mouth of Chilkat river, are 3 salmon canneries. The Chilkat Canning Company and the Chilkat Packing Company have establishments on the east side of the inlet, and the Pyramid Harbor Packing Company has a plant on the opposite side about 2 miles distant.

The last 2 companies combined after the season of 1890, and during the season of 1891 the latter cannery was closed and the Pyramid Harbor cannery was operated, outputting 26,000 cases. 60 white fishermen, at 8 cents per fish, were employed. 25 Columbia river boats and the same number of gill nets were employed in fishing. 2 steam tugs of 14 and 7 tons net are used for towing. 2 wire fish traps of the ordinary kind were also used in fishing. 45 Chinese were employed in packing, at 46 cents per case. In addition to wages all the employés receive free transportation from San Francisco to the cannery and return. The Chilkat Canning Company packed 20,000 cases in 1891. 55 white fishermen were employed at $35 per month and board, and a bonus of 2 cents per fish. 20 Columbia river boats and the same number of gill nets were used in catching fish. A steam tug of 80 tons gross is used for towing. 47 Chinese at 48 cents per case were employed in packing. In addition to wages all employés receive free transportation.

The fishing and packing season at these canneries begins about June 15 and ends September 30. The silver salmon weighing 8 or 9 pounds is the best and most plentiful variety of salmon frequenting these waters; there are very few tyee or king salmon. The fish are taken in Chilkat inlet chiefly, and in Chilkoot river.

The natives do not permit the whites to fish in the streams. From $10,000 to $15,000 is paid to natives each season, nearly all of which is for fish at 10 cents each. A few natives are employed by the Chilkat Canning Company as can fillers and fish cutters, but are not satisfactory workmen. A considerable number of natives were formerly employed as boatmen, but their work was not satisfactory, and whites are now employed in their stead. Each cannery has a store in connection, the trade being almost entirely with the employés. On the east side of the inlet near the Chilkat Canning Company's cannery are 3 trading stores and 2 saloons. The permanent white population of the village does not exceed 25. The Chilkat tribe of 800 Thlingits has 4 permanent villages; Klakwan, the largest, is on the Chilkat river 25 miles from the mouth; Kakwaltoo is a small village 2 miles south of Klakwan; Hindasetukee, at the mouth of Chilkat river, and Chilkoot mission on Chilkoot river about 1 mile from the white village of Chilkat. Probably 200 natives live in cabins near the canneries during the summer months. There is a small summer fishing village at Chilkat lake. A trading station has been established at Taku inlet, and a number of Chilkats and Indians from the interior are transient residents there.

The Chilkats are prosperous, enterprising, and independent. They are chiefly occupied in catching and selling fish to the canneries and in trading with the Stick or interior Indians, with whom they exchange calico, blankets, guns, ammunition, etc., for silver gray, cross, and red fox, black and brown bear, beaver, marten, mink, lynx, wolverine, land otter, and a few other skins. The Chilkats have until recently monopolized this trade, not allowing the Sticks to trade with the whites. Nearly all of the skins purchased by the white traders at Chilkat and a large part of those purchased by the Juneau fur dealers are procured from these native middlemen, the Chilkats. There is not much demand for native labor at $1.50 per day. About 50 miners outfit at Juneau every spring and go into the interior of Alaska via Taku inlet and Chilkoot pass. From the head of the inlet over the pass to Lake Lindermann is 23 miles. Many of the miners employ Chilkats to pack their outfit over the distance, paying $13 per hundred pounds for the service.

A mission and school was established at Chilkoot mission in 1881 by the Presbyterian Board of Home Missions, but was soon abandoned. 10 years later another mission and school was established at Chilkat. No quartz claims of certain value have been found in the Chilkat country, though veins carrying gold, silver, and copper have been found.

A small steam sawmill at Berners bay supplies the very limited demand for lumber in the country north of Juneau.

Very little can be said concerning the agricultural capabilities of the district. By reason of the mountainous character of the country but little land is suitable for agriculture. The densely forested ground is very expensive to clear and the excessive rainfall is discouraging, while a large proportion of the white residents are miners, prospectors, and frontiersmen generally, who do not take kindly to the soil unless it contains gold. These conditions will explain why there is not a farm within the census district.

However, a number of gardeners living near the several towns partially supply Sitka, Juneau, and Douglas with vegetables, and it is certain that all the ordinary vegetables and small fruits are or may be grown at Sitka, Juneau, Chilkat, Huna, Killisnoo, and Yakutat. Potatoes, turnips, beets, rutabagas, carrots, radishes, and all root crops are grown to perfection. Lettuce, celery, and such stuff are also of fine quality. I have seen a 10-pound turnip grown at Chilkat, and strawberries 4 inches in circumference. Plum, apple, and cherry trees were planted at Chilkat in 1889 and were growing vigorously 2 years later.

Gardens are planted about May 1 to 15. Radishes are ready for the table in 33 days; lettuce, 36 days; potatoes and turnips, 76 days. Oats, barley, rye, and wheat have ripened at several places, and it is certain that these grains may be successfully grown by planting hardy, early maturing varieties, and then planting the Alaska grown seed, as it has been observed that the grain and vegetables grown from Alaska seeds produce a more hardy and quicker maturing crop than the seeds from the states. A small quantity of hay is cut near Juneau about July 1 to July 5. All kinds of meadow grasses grow luxuriantly. The country seems to be the natural home of the small fruits, as 10 varieties are indigenous. Enormous quantities of cranberries and salmon berries are consumed by the natives. The salmon berries are of 2 kinds, red and yellow, and resemble the finest blackberry in form, size, and flavor.

The waters are as well supplied with food fishes as the land is stocked with wild fruits. In addition to salmon, black cod, halibut, and herring are eulachon, rock cod, salmon, trout, flounders, crabs, clams, shrimps, oysters, sea urchins, "sea cucumbers", etc., so that in case of a pinch the Alaskans can live on the country if necessary. The steamships of the Pacific Coast Steamship Company bring mail, freight, and passengers twice a month to Juneau, Douglas, Sitka, and Killisnoo. An excursion steamer carrying passengers and mail is put on the route in summer to accommodate the tourists, who, armed with kodak and notebook, annually invade the wilds of Alaska in ever increasing numbers.

TIMBER.

The mild temperature, heavy rainfall, and long summer days are the causes of the luxuriant vegetation which covers nearly all the district between high tide and timber line. Heavy mosses, luxuriant ferns, dense undergrowth, and forest apparently limitless are characteristics of the coast region. Timber line varies from above 2,500 feet in the southern and southwestern part of the district to 1,800 feet in the Yakutat region. Probably three-fourths of the forest area is occupied by trees too branchy, small, or crooked to be used for lumber. The woods are of excellent quality when free from knots. Spruce and hemlock are the predominant varieties. Most of the best timber is found on comparatively level or gently sloping land and at an altitude not exceeding 600 feet; hence the best timber is on the islands, Baranof, Chichagof, and Admiralty islands having as much lumber stuff as all the 30-mile strip north of Cape Fanshaw. The country west of Lynn canal has not much timber suitable for lumber. The trees as compared with those of Puget sound are smaller, more branchy, lacking in length and cylindrical form. Yellow cedar, the most valuable of the woods, grows chiefly on Baranof, Chichagof, and the southern part of Admiralty islands, and on the mainland south of Taku inlet. It is scattered among spruce and hemlock and rarely in groves of 200 or 300 acres in extent. The primitive natives annually killed a large number of the finest yellow cedars by stripping off the bark, of which their summer houses were constructed. Alder, cottonwood, and crab apple are scattered through the forested country and are of slight value. The former is used in the vicinity of the salmon canneries for making charcoal, and it is also a superior wood for fuel. From the crab apple a handsome walking stick is made, which commands a good price from the many tourists who visit southeastern Alaska during the summer months. Red cedar is not abundant. The preparation of hemlock bark for tanning is one of the latest resources of the country.

CHAPTER XVI.

THE COMMERCE OF ALASKA.

Commerce, both intertribal and intercontinental, was carried on in the region now known as Alaska in times prior to the ventures of Cabot, Hudson, and Raleigh on the eastern shores of North America. The commercial instinct seems to be deeply rooted in all our hyperborean tribes. We find it predominating with the Eskimo, but existing also to a more limited extent among the Athapascans inhabiting the higher latitudes.

No sooner had the Cossack adventurers of Russia, endeavoring to escape from the ever tightening yoke of the great white tsar, entered Siberia and advanced in their eastward course from one great river system to the other, than the primitive articles of Muscovite manufacture found their way to the utmost confines of Arctic Asia. Here the pieces of metal, the glass beads, rough cutlery, axes, and knives were eagerly seized upon by the ancestors of the present coast Chukche, and bartered again for skin boats and products of the American continent with the bold Eskimo navigators, who in each successive season made their way across the narrow strait dividing America from Asia.

In due course of time the Asiatics, being superior both intellectually and physically to their eastern neighbors, with whom they intermarried freely, acquired the art of navigation and took the intercontinental traffic into their own hands, as they hold it to-day. For several centuries the interchange of commodities took place on neutral ground, the Diomede islands, situated in the strait of Bering.

The effects of this traffic were felt throughout northwest America. The earliest visitors to the continental coast, the venturesome Spaniards, Englishmen, Americans, and Frenchmen, found in the possession of aboriginal inhabitants blue beads, pieces of metal, and even metallic implements, the origin of which they were unable to trace. The Russians in their first advance met only the isolated Aleutian islanders, and consequently did not find these articles, which they could easily have recognized, and the counterpart of which were then in their own hands for the purpose of beguiling the harmless Aleut, to awaken his slumbering cupidity, and take from him for a nominal price (and often by force) the precious skins of the sea otter, in search of which the wily sable hunter of the endless Siberian forests had transformed himself into a fearless navigator, explorer, and rover in the distant northern seas.

The English and American ships engaged in the northwest trade dealt almost exclusively with the Thlingit tribes, the only exception being Meares' and Portlock's unsatisfactory intercourse with the Chugachigmiut of Prince William sound. Their purchasing medium consisted at first of woolen blankets, pieces of rod and bar iron, beads, and cotton cloth. To these were soon added firearms, flints, powder, lead, and (as an incentive to more active barter) tobacco and rum. Sea-otter skins were the furs most desired, and whenever the quantity obtained was considered sufficiently large, or when the market became temporarily exhausted, the ship was headed for China, sometimes stopping at the Hawaiian islands to complete its cargo with sandalwood for the same market. When the furs had been disposed of directly to Chinese dealers or to English, Dutch, or Portuguese middlemen, teas and other Chinese products were purchased and taken to the United States or Europe by way of Cape Horn or the Cape of Good Hope.

The establishment of the Russian American Company under imperial charter and the extension of its operations eastward to the Alexander archipelago caused a gradual change in the manner of conducting the northwest ventures. The trade was kept up, but it fell entirely into American hands, chiefly of a few Boston firms. So generally was their supremacy in this line of traffic acknowledged that to this day the terms American and Boston man are synonymous among the descendants of the savages who bartered and fought with the famous Boston skippers and their venturesome crews during the last years of the eighteenth century.

The Russians carried with them to the field of the earliest successes gained by the northwest traders their own peculiar methods of obtaining the valuable sea-otter pelts. They brought in their train organized parties of Eskimo

hunters, previously subdued, who were forced to scour the inland channels and vast bays of the labyrinth of islands, exposing their lives to gales and tidal currents, as well as to the attacks of warlike Thlingits, and receiving a nominal compensation for the furs they secured.

Under such altered circumstances the Boston skippers could no longer obtain full cargoes. Several of them were glad to dispose of their trade goods to the Russians, and in this way they discovered that staple provisions, breadstuffs, sugar, lard, and tallow, as well as liquors and tobacco, were always in demand in the Russian settlements, which were then being supplied irregularly from Okhotsk, the price of every pound of provisions or stores being increased by the immense cost of land transportation through Russia and Siberia.

These transactions assumed quite large dimensions, and constituted for long years the bulk of Alaskan, or rather Russian American, commerce, aside from the shipments of furs to Russia and China.

Finding that the ports of the celestial empire were closed to Russian vessels and that shipments through agents under foreign flags rarely resulted in profit to the company, the directors inaugurated an exchange of Alaskan furs for Chinese teas in the Siberian border town of Kiakhta, thus perpetuating and enlarging upon the primitive intercontinental exchange previously existing among the hyperborean denizens of Asia and America.

This trade also grew to large dimensions, being limited only by the fact that the demand for peltries in the Chinese market was confined almost exclusively to fur-seal and land-otter skins, both of which the furriers of the flowery kingdom had learned to pluck and dye as early as the last decade of the eighteenth century, antedating the London process by more than 50 years.

Though under the privileges conferred by its charter the Russian American Company was enabled to send to its colonies large cargoes of goods and supplies by government vessels as well as by its own ships, the wants of the growing settlements were constantly increasing, faster than they could be supplied from the distant home office, and consequently the necessity of making purchases from chance visitors arose from time to time. Frequently it appeared advantageous to purchase both vessel and cargo, in order to recruit the colonial merchant fleet. Such transactions necessitated large payments which could not be met with cash; the political complications existing in Europe at the beginning of this century made bills of exchange an uncertain and unsatisfactory medium, and thus it came to pass that the managers of the Russian company's business on the American coast first resorted to the use of fur-seal skins as a circulating medium. The American northwest traders willingly accepted this currency, which they knew could be disposed of with considerable profit in Chinese ports. The directors of the company in St. Petersburg, however, were not pleased with this mode of paying its bills, chiefly because the large number of skins thus falling into the hands of foreigners affected the fur-seal market and removed its control from their own hands. As soon as affairs in Europe had been restored to a more settled condition peremptory orders were sent to the company's officials in Sitka to discontinue transactions in fur seals in payment of purchases as far as possible.

Circumstances over which the managers of the company had no control prevented strict observance of these orders. From time to time cargoes and ships were purchased and paid for with drafts upon the natural animal reserve fund on the Pribilof islands, which, unlike other deposits, replenished itself from year to year.

One of the Russian company's chief managers reported in 1831 that during the 5 years preceding he had exchanged 87,740 fur-seal skins for goods purchased from foreign vessels and valued at 1,077,913 rubles, making the rate of exchange 12.29 rubles per skin. During the next 5 years 150,725 fur-seal skins were thus used at rates a little higher, and all these skins, not being shipped by the company, remained unaccounted for in the annual statements of the furs obtained from the various districts.

During all this time the barter with the so-called independent natives of the Russian possessions remained very much upon the old footing. In the southeastern section of the territory, where the Hudson Bay Company was beginning to make its influence felt, prices paid to the unruly Thlingit for furs were comparatively high, as much as $30 worth of trading goods for a sea-otter skin and the equivalent of $15 for a black fox, but to the more skillful Aleut hunter, operating in the same waters, but being held in a state of partial servitude, but 10 rubles of colonial currency, or $2, was paid for a prime skin. Foxes, martens, beavers, and land otters were purchased from the "dependent" native for from 20 to 40 cents each, and the quantity and quality of articles which could be purchased with these miserable sums were very much restricted by "sumptuary" regulations.

Among the natives most completely subdued even daily labor was paid for to a great extent in kind, a favorite compensating medium being "parkas" or garments made of the skins of ground squirrels and of aquatic birds. For this purpose parties of old men and boys were detailed to shoot birds and trap squirrels, and the women left at home by these and the absent sea-otter hunters were made to prepare the skins and sew them into garments, to be used in payment of their husbands', fathers', and brothers' services in procuring more valuable skins. Others were made to tan hair-seal and sea-lion hides for covering canoes and to prepare thread from whale sinews and reindeer tendons. All these articles, costing the Russians next to nothing, entered into their transactions with the native tribes, to which, under the circumstances, the term of internal commerce would scarcely be applied; it was simply the most exhaustive exploitation of natives and resources alike.

RUSSIAN TRADE IN COLONIAL PROVISIONS AND SUPPLIES FOR THE YEAR 1860.

ITEMS.	Unit of measure.	Total.	Sitka.	Kadiak.	Atka.	Unalaska.	St. Michael.
Salt salmon	Number	105,135	53,343	31,708	7,639	6,505	5,940
Fresh salmon	do	62,634	20,816	28,528	639	7,693	4,958
Halibut	Pounds	119,360	111,840	6,880	640	.....	.....
Dried salmon	Number	376,589	.....	315,541	14,907	21,879	24,262
Seal meat	Pounds	105,200	.....	12,560	34,680	6,240	51,720
Whale meat	do	132,680	.....	125,240	1,160	6,280	.....
Oil	Gallons	6,856	.....	4,552	500	780	1,024
Seal hides, tanned	Number	4,400	.....	491	219	528	3,162
Seal throat, tanned	do	27,796	.....	73	170	2,025	25,528
Seal gut	Fathoms	34,983	.....	3,917	590	4,035	26,441
Walrus lines (200 feet each)	.....	504	.....	36	.....	.....	468
Salt geese	Number	210	.....	210	.....	.....	.....
Potatoes	Pounds	25,060	.....	22,980	2,080	.....	.....
Turnips	do	25,600	.....	20,320	.....	.....	5,280
Berries	Gallons	716	.....	584	.....	.....	132
Wild fowl	Number	1,179	996	.....	137	46	.....
Herring	Kegs	101	93	.....	8	.....	.....
Deer (venison)	Number	402	390	.....	.....	.....	12

The imperial government required the company, invested with almost unlimited control of the country, to pay the native inhabitants for all furs secured by them, and the company complied with the law, but in a manner which placed the transaction upon the footing of scanty compensation for life-long services of both sexes. Under any other circumstances it would have been impossible for the company to maintain its costly fleet of vessels, its small army of high-salaried officials, and numerous office and countinghouse staff, and still to pay its biennial dividends to the shareholders. The military and naval establishment alone would have bankrupted any ordinary business firm carrying on a legitimate trade open to competition.

As time progressed the methods of the Russian American Company, the only commercial factor of that period, were modified to meet enlarged and altered requirements. The ships of the privileged corporation, on their inward and outward voyages between Cronstadt and the American settlements, called at the various seaports of South America, and connections were formed resulting in exchange of commodities. Sugar, breadstuffs, rum, and brandy were purchased for the colonies, and coffee, sugar, and indigo carried back to Russia. Some articles of Russian manufacture were received in payment for the former, and experimental sales of natural products of the Russian settlements (lumber, spars, and fish) were made as an offset for the latter.

Among the first countries to enter into mercantile intercourse with the Russian possessions in America were California, then a province of Spanish Mexico, and the Hawaiian kingdom. California furnished corn, dried beef, and tallow (the Spanish word for which, "manteca", is still current among the older semicivilized inhabitants), for which Russian goods (tools, implements, and ironware) were received in return. From the Sandwich islands many cargoes of tara root, cocoanuts, and salt were received in times of great scarcity of provisions, to take the place of Russian rye meal or the unground wheat and corn of the California missionary fathers.

Under the régime of Baranof, the father of the Russian colonies, an attempt was made to settle permanently upon the Sandwich islands, with a view of engaging in agriculture, the manufacture of salt, and the trade in sandalwood with China. These plans finally miscarried through failure on the part of the Russian government to back up the company's enterprise, but a limited intercourse was always maintained, consisting of shipments of lumber and fish to Honolulu and of return cargoes of trading goods and provisions, each of these ventures leaving a handsome cash balance to the credit of the Russian firm.

These transactions relieved the directors of the Russian company of many heavy payments and raised hopes among the shareholders which were never to be realized, as with the discovery of gold in California a rival commercial factor sprang into existence on the Pacific coast, which speedily outgrew such encumbered competition as the Russian firm, separated from its headquarters and base of supplies by half the globe, was prepared to maintain.

For a few brief years the company reaped a golden harvest, unloading the accumulation of shopworn goods of several generations into the ever-wanting market of the new gold fields, but before the stock on hand became exhausted American merchandise began to pour into San Francisco on barks and ships, under steam and sail, around the Horn and by way of the Isthmus, and the Russian company's opportunity was at an end.

In this circumscribed condition the commerce of Russian America remained until the early "fifties", when the traffic in ice was added to its volume, San Francisco being the market for this natural product. This was before the days of artificial ice, and the company's managers entertained just hopes of a gradual development of the industry, dreaming of exchanging the product of cheap water and cheaper frost for the silver piasters of the panting cities of Central and South America. Advancing science spoiled these plans, but the traffic in ice with San Francisco was still active when Russia's possessions in North America were transferred to the United States.

The commerce once carried on in Russian America under the auspices of the almost sovereign company presents one remarkable feature, the important part played in its volume by the tea trade with China. From the official balance sheet of the company for the 10 years from 1850 to 1859, inserted here, it would appear that but for the secondary transaction in tea the company would have handled its rich harvest of priceless furs at an actual loss. From the same statement we ascertain that the only revenue derived by the Russian government from its American possessions consisted of the duties paid on tea purchased with Alaskan furs.

RECEIPTS FROM FURS AND MERCHANDISE AND EXPENDITURES OF THE RUSSIAN AMERICAN COMPANY FOR 10 YEARS FROM 1850 TO 1859.

ITEMS.	Total.	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859
Maintenance of colonies	$1,716,156	$182,184	$171,965	$96,717	$139,078	$176,786	$185,721	$160,830	$190,980	$213,852	$198,043
Maintenance of churches and clergy	53,795	5,792	5,792	.....	5,685	5,532	5,417	5,604	5,604	6,960	7,409
Maintenance of benevolent institutions	107,524	12,099	12,099	5,518	10,466	10,631	9,907	10,509	11,141	11,519	13,635
Pensions and education in Russia	73,674	8,827	9,689	9,450	9,442	8,601	5,672	6,802	5,679	4,557	4,955
Collection of furs	706,782	72,098	51,863	131,665	65,705	52,001	60,468	25,173	71,904	61,917	113,988
Freight and packing	160,272	15,003	17,564	18,065	3,809	16,781	6,138	22,848	24,342	18,684	17,038
Insurance on furs	54,257	3,816	5,262	7,248	7,299	4,875	.....	.....	5,688	10,030	10,039
Transportation of employés	272,174	21,900	18,586	18,667	28,147	23,747	29,512	28,654	34,914	33,509	34,538
Maintenance of administration	806,479	71,698	65,974	65,608	87,709	74,977	82,097	82,732	94,715	88,819	92,150
Total	3,951,113	393,417	358,794	352,938	357,340	373,931	384,932	343,152	444,967	449,847	491,795
Furs traded and sold	3,171,474	383,118	259,315	424,398	198,181	259,993	302,338	193,629	451,869	315,889	382,744
Profit	.....	.....	.....	71,460	.....	.....	.....	.....	6,902	.....	.....
Loss	779,639	10,299	99,479	.....	159,159	113,938	82,594	149,523	.....	133,958	109,051
Profit on goods sold in colonies	694,637	86,904	67,198	49,800	51,594	51,444	38,796	84,562	113,103	70,560	80,676
Total profit	.....	76,605	.....	121,260	.....	.....	.....	.....	120,005	.....	.....
Total loss	85,002	.....	32,281	.....	107,565	62,494	43,798	64,961	.....	63,398	28,375

TEA TRADE OF THE RUSSIAN AMERICAN COMPANY FOR 10 YEARS, FROM 1850 TO 1859.

ITEMS.	Total.	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859
Purchase price of tea	$2,974,000	$142,647	$147,258	$223,152	$349,509	$337,861	$206,827	$483,508	$213,980	$418,425	$450,773
Duties on tea	1,323,418	91,177	121,288	168,742	66,063	89,019	122,737	173,845	44,210	221,082	225,255
Freight and packing	440,178	51,342	52,541	64,220	18,917	33,894	45,696	42,297	19,338	54,786	57,147
Insurance	108,515	7,632	10,524	14,496	14,598	9,750	.....	.....	11,375	20,061	20,079
Total	4,846,111	292,798	331,611	470,610	449,147	470,524	375,260	699,650	288,903	714,354	753,254
Sales of tea	6,083,405	297,282	385,605	516,505	665,347	663,408	476,922	992,763	296,016	868,883	920,674
Profit	1,237,294	4,484	53,994	45,895	216,200	192,884	101,662	293,113	7,113	154,529	167,420

BALANCE SHEET FOR 10 YEARS, FROM 1850 TO 1859.

Dr.		Cr.	
Losses in war time	$99,609	Profit on tea in 10 years	$1,237,294
Payment of dividends	1,015,953	Loss on furs in 10 years	85,002
Payment of sinking fund	101,595		
Payment of benevolent fund	5,080	Remaining profit	1,152,292
Payment for buildings	57,732	Other transactions, profit	127,677
Total expenditures	1,279,969	Total receipts	1,279,969

Subsequent to the inauguration of the ice business the Russian American Company attempted to develop the lignite coal veins on Cook inlet with a view to lessening the running expense of their own steamers as well as to add another article of export to the resources of the colonies. Large sums were sunk in this enterprise without creating a demand for the coal, which was used only by the company's own vessels under protest from the engineers and captains, who soon discovered that the saving in the price of the fuel was out of proportion to the increased expenditure for repairs to boilers and furnaces and time lost through wasted power. A few tottering log buildings, abandoned shafts, hoisting and pump houses, and a stone pier remain as monuments of misdirected energy. Even to this day coal has not yet taken its place in Alaskan commerce except as an article of import.

Through all these years the internal commerce of Russian America, the trade with the natives, though valuable to the company in its results, was quite insignificant as to the cost and quantity of goods thereby disposed of. In fact, by far the greater part of the goods and supplies imported by the Russian company was sold to its own employés and charged to their accounts. The system of buying and selling on credit, as it exists

here between employer and employé, always leads to extravagance on the part of the latter, which is fostered by the former in order to relieve himself as much as possible of cash payments for salaries. The Russian American Company, with its numerous retinue of servants and officials, presented no exception to this rule. Fully three-fourths of its personnel either saved nothing or became indebted to the firm. When this happened to any of the higher class of employés they were relieved and sent back to Russia, but the common laborers were kept in the territory from one 7 years' term to another, with their debt hanging over them and laboring for the company for their mere subsistence as long as life lasted.

This was the state of affairs when the Russian emperor decided to abandon his American possessions. With the thunder of guns, the raising and lowering of flags, one rainy October day in 1867 a new era was inaugurated; the field was open to all alike. The military force of the United States which had been dispatched to assume charge of Alaska had no sooner landed at Sitka than an eager crowd of merchants and traders, prospectors and speculators, came ashore from steamers and sailing craft which had been awaiting the formal transfer to begin operations. Lots were staked out without much regard for prior occupancy; houses and huts were purchased at extravagant rates. The newcomers saw the magazines of the Russian company overflowing with goods and peltries, the few streets crowded with Russians and half-breeds with money in their pockets, and they naturally came to the conclusion that they had struck a bonanza. They made their arrangements for conducting business on a large scale and ordered up increased supplies from California and Oregon. These jubilant pioneers did not know then that the goods in the warehouse represented a 5 years' supply for the whole country, which was always kept on hand at Sitka. They did not know that the hundreds of eager buyers of their wares had been gathered from all parts of the Russian possessions only to be returned to their homes, and that the coin they were spending so freely represented the savings of long years and the only cash payment the company's servants and officers had ever received during their voluntary exile from Russia.

The commercial transactions of these early days in Sitka were quite large, but no record was kept, nor is any standard now available by which to estimate their volume. Several American firms competed with each other in their efforts to secure the stock and improvements of the Russian company as a whole, and thereby to step into the shoes of the former lords of the country. The shareholders of the San Francisco Ice Company, which had been associated with the Russians for many years, relying too much upon verbal promises, allowed themselves to be overreached by shrewder men, and were obliged to be satisfied with their ice plant at Kadiak, with its incidental trade.

When the feverish local trade at Sitka began to subside with the departure of the Russian employés with the residue of their money, the merchants turned their attention to traffic with the natives of the country, only to find themselves confronted by a state of affairs entirely new to them. The Russian system had failed to prepare the aboriginal inhabitants for commercial intercourse upon a business basis; they were accustomed to satisfy their limited wants on long credit, knowing that each fur or package of skins must be delivered at a certain station in order to secure the issuance of such supplies as the trader thought good for them. They had handled no money and had never been allowed to buy freely of what they wanted. Now dealers from the states came to the natives with cash in hand, offering prices which allowed them to purchase liberally of the most tempting wares. The native had never been given an opportunity to exercise discretion, and bewildered by the first onslaught of fierce competition he squandered large sums for useless articles without the least appreciation of the value of either goods or money.

A few years of this reign of extravagance sufficed to temporarily exhaust the resources of both buyers and sellers and a reaction set in, which left the native in a condition to long for his former state of irresponsibility and blind reliance upon the "company" as a last resort in every ill. In the meantime a few far-seeing individuals had secured possession of the Russian company's central stations to the westward of Sitka, establishing there, as competition subsided, a system of dealing with the natives based upon the Russian principle in so far as they supplied their hunters on credit and assisted them in distress, provided they sold their furs to them alone. From this association sprang the Alaska Commercial Company, which established itself upon a permanent basis, safe from all competition, when it obtained the lease of the Pribilof islands in 1870.

During the first decade subsequent to the granting of the lease the commerce of Alaska was almost wholly in the hands of the Alaska Commercial Company, whose stations dotted the coast and interior, with the exception of the Alexander archipelago, which had then sunk back into utter insignificance. The local trade of Sitka, stimulated by the presence of a ship of war and the transient traffic of Wrangell with the Stikine mines, made up the whole of it. In the central and western portion of the territory a single Anglo-Californian corporation began to operate in opposition to the Alaska Commercial Company during the last years of the decade. At the same time the whale ships began to collect furs and ivory on the coasts of the Arctic and of Bering sea and to reap some benefit from the intercontinental traffic between Eskimo and Chukche. From its beginning to within a few years past contraband wares, breech-loading arms and ammunition and rum, entered largely into this trade, which then brought large profits to the dealer and utter ruin to the native.

The decade from 1881 to 1890 has witnessed a wonderful development of Alaskan commerce in consequence of the discovery of valuable gold mines in the Southeastern district and on the tributaries of the Upper Yukon and

of the extension of the salmon canning industry from its small nucleus at Sitka and Klawak to between 30 and 40 factories, furnishing more than one-half of the world's demand for salmon, while their capacity and sources of supply are sufficient to permit of quadrupling the present production. There is scarcely one of these fishing stations without its store, doing a certain amount of trade and increasing by so much Alaska's internal commerce, while the wants of the fishermen and employés help to swell the volume of importations from other parts of the United States. A few surface diggings on the Yukon river have caused a greater development of commerce on our greatest northern river in less than 10 years than was brought about by half a century of fur trade, and the future holds out the promise of still further growth should the salmon of the Yukon river ever be made available for the market.

In the year 1880 the shipments of furs and fish from Alaska were made by less than half a dozen firms; the special schedules for the fur trade collected for the Eleventh Census show 33 shippers, representing more than three times that number of trading stations.

FURS OBTAINED FROM ALASKA IN 1889 AND 1890, EXCLUSIVE OF FUR-SEAL SKINS FROM PRIBILOF ISLANDS.

NUMBER OF SCHEDULE.	BEAR.			Beaver.	Ermine.	FOX.			Fur seal.	Land otter.	Lynx.	Marten.	Mink.	Musk-rat.	Rein-deer.	Sea otter.	Wolf.	Wol-verine.
	Black.	Brown.	Polar.			Black or silver.	Cross.	Red.										
Total	3,842	1,146	22	7,575	1,461	1,112	1,807	21,083	23.078	3,262	1,631	27,561	70,559	18,146	6	3,724	216	834
1	109	161	.....	1,012	.....	47	73	35	1,320	228	196	290	1,316	.....	.....	21	12	51
2	877	169	.....	1,921	630	373	496	9,832	3,103	1,033	468	12,032	27,415	8,969	4	1,635	15	17
3	60	84	.....	12	630	191	206	208	14,172	238	8	44	113	32	2	517	1	6
4	a300	50	.....	200	.....	30	120	.....	.....	115	.....	250	4,000	.....	.....	1	75	180
5	817	85	.....	1,909	.....	182	290	9,624	2,715	795	460	11,988	27,302	8,937	.....	1,118	14	11
6	65	.....	.....	35	.....	.....	.....	.....	38	16	.....	.....	1,600	.....	.....	1	.....	.....
7	a30	3	.....	1	.....	.....	.....	.....	.....	12	.....	6	395	.....	.....	.....	.....	.....
8	47	62	.....	245	.....	20	56	106	14	36	61	267	265	.....	.....	38	5	63
9	.....	28	.....	14	.....	.....	.....	.....	.....	34	.....	.....	123	.....	.....	.....	.....	.....
10	42	11	.....	33	.....	.....	.....	.....	.....	38	.....	122	720	.....	.....	.....	1	.....
11	a2	.....	.....	2	.....	.....	.....	.....	2	10	.....	6	100	.....	.....	.....	2	.....
12	21	15	.....	.....	160	3	21	26	612	64	2	56	840	65	.....	15	2	3
13	195	223	.....	833	.....	71	176	340	12	98	169	1,273	1,188	.....	.....	45	25	176
14	a20	.....	.....	100	.....	.....	.....	.....	.....	50	.....	.....	800	.....	.....	.....	.....	.....
15	70	.....	.....	30	.....	.....	.....	.....	11	57	.....	20	662	.....	.....	.....	11	3
16	a1	18	.....	.....	.....	.....	.....	.....	.....	4	.....	10	40	.....	.....	.....	.....	.....
17	a39	.....	.....	10	.....	.....	.....	.....	.....	4	.....	1	24	.....	.....	.....	.....	1
18	497	37	.....	249	.....	2	.....	.....	.....	137	.....	172	2,120	.....	.....	.....	13	124
19	7	10	.....	2	.....	.....	10	8	65	44	.....	.....	92	.....	.....	.....	1	44
20	a6	5	.....	15	.....	.....	10	26	4	5	6	12	12	.....	.....	.....	2	25
21	21	27	.....	197	.....	12	55	5	38	9	35	140	29	.....	.....	5	5	13
22	484	45	.....	95	.....	.....	7	.....	.....	59	.....	68	1,042	.....	.....	1	7	7
23	90	43	.....	230	.....	6	60	220	35	46	110	190	.....	.....	.....	.....	12	60
24	(a)	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	90	.....	.....	.....	.....	.....	.....
25	30	25	.....	400	.....	49	48	115	.....	18	45	500	150	.....	.....	.....	13	50
26	a4	2	22	.....	.....	.....	2	68	.....	.....	65	.....	110	.....	.....	14	.....	.....
27	1	.....	.....	.....	.....	3	11	6	337	9	.....	.....	.....	.....	.....	.....	.....	.....
28	(a)	8	.....	.....	41	26	53	58	.....	29	.....	.....	.....	.....	.....	9	.....	.....
29	.....	14	.....	.....	.....	67	66	135	500	67	.....	.....	.....	.....	.....	100	.....	.....
30	7	11	.....	30	.....	4	16	36	.....	7	6	24	101	143	.....	4	.....	.....
31	.....	.....	.....	.....	.....	.....	.....	120	60	.....	.....	.....	.....	.....	.....	60	.....	.....
32	.....	10	.....	.....	.....	21	21	100	40	.....	.....	.....	.....	.....	.....	50	.....	.....
33	.....	.....	.....	.....	.....	3	10	15	.....	.....	.....	.....	.....	.....	.....	90	.....	.....

a For a year only.

FURS OBTAINED FROM ALASKA IN 1889 AND 1890, EXCLUSIVE OF FUR-SEAL SKINS FROM PRIBILOF ISLANDS—Continued.

NUMBER OF SCHEDULE.	Deerskins.	Hair seal.	Sea-otter cubs.	Mountain sheep.	White fox.
Total	21,459	6,944	218	75	524
2			109		
5			109		
7	2,500	150			
9	1,719	257			
10	960	90		22	
11	600	100			
12	7,230	2,000			
13	3,753	2,986			
14	1,000	400			
15	1,657				
16	300	170			
17	110	86		10	
18	1,630	705		43	
26					524

KINDS OF FUR.	Number.	Value.
Grand total	216,285	$1,500,653.50
Total	187,065	1,454,957.75
Black bear	3,842	124,470.00
Brown bear	1,146	20,628.00
Polar bear	22	660.00
Beaver	7,575	90,900.00
Ermine	1,461	730.50
Black or silver fox	1,112	83,400.00
Cross fox	1,807	10,842.00
Red fox	21,083	42,166.00
Fur seal	23,078	415,404.00
Land otter	3,262	29,358.00
Lynx	1,631	9,786.00
Marten	27,561	137,805.00
Mink	70,559	52,919.25
Muskrat	18,146	9,073.00
Reindeer	6	12.00
Sea otter	3,724	409,640.00
Wolf	216	2,160.00
Wolverine	834	5,004.00
Total	29,220	45,695.75
Deerskins	21,459	26,823.75
Hair seal	6,944	13,888.00
Sea-otter cubs	218	1,090.00
Mountain sheep	75	750.00
White fox	524	3,144.00

The fact that the commerce of Alaska is chiefly in the hands of periodical visitors and nonresidents makes the collection of satisfactory and exact data very difficult. Much of the business is conducted beyond the limits of observation and frequently through concealed channels, and throughout the territory the investigator (especially if he be a government official) finds himself confronted by a general unwillingness to furnish information. Under such circumstances, aggravated by the vast distances between trade centers, the general inaccessibility of the country, and the absence of comfortable or even safe means of transportation, not only the greatest persistence and diligence but also much tact and management were required to obtain the figures for the tables accompanying this chapter. It can not be claimed that they contain all of Alaska's commerce, but they furnish all the information thus far made accessible, and they do not go beyond established facts.

The number of stores of general merchandise and trading stations, operating either throughout the year or during the fishing season, is 126, distributed in the various districts as follows:

First district—Tongass, 1; Metlakahtla, 1; Loring, 1; Klawak, 1; Tongass narrows, 1; Chican, 1; Cape Fox, 1; Wrangell, 6; Juneau, 11; Sumdum, 1; Burroughs bay, 1; Labouchere, 1; Douglas city, 6; Killisnoo, 1; Chilkat, 3; Berners bay, 1; Pyramid harbor, 1; Huna, 1; Fish bay, 1; Sitka, 6; Yess bay, 1; Yakutat, 1—total, 49.

Second district—Cape Martin, 1; Nuchek, 1; Odiak, 2; Chenega, 1; Tatitlak, 1; English bay, 1; Treadwell, 1; Kenai, 1; Kinik, 1; Toyonok, 1; Iliamna, 1; Douglas, 1; Katmai, 1; Wrangell bay, 1; Karluk, 5; Afognak, 2; Kadiak, 3; Eagle harbor, 1; Kaguyak, 1; Alitak, 2—total, 29.

Third district—Pirate cove, 1; Unga, 2; Simeonof, 1; Belkovsky, 2; Sannak, 3; Morzhovoi, 1; Thin point, 1; Borka, 1; Unalaska, 1; Chernovsky, 1; Umnak, 1; Atka, 1; Attu, 1; St. Paul, 1; St. George, 1; Dutch harbor, 1—total, 20.

Fourth district—Ugashik, 2; Pakwik, 2; Nushagak, 5; Togiak, 1—total, 10.

Fifth district—Lomavigamiut, 1; Bethel, 1; Mumtrekhlagamiut, 1; Kolmakovsky, 1, Dununuk, 1—total, 5.

Sixth district—Nuklukayet, 1; Anvik, 1; Nowikaket, 1; Andreafsky, 1; Kotlik, 1; St. Michael, 1; Unalaklik, 1—total, 7.

Seventh district—Golofnin bay, 1; Port Clarence, 2; Prince of Wales, 1; Point Hope, 1; Point Barrow, 1—total, 6.

The supply station for the Yukon mines is located on British soil, though the goods and supplies are brought from the United States.

The commerce of Alaska is now carried on almost wholly with the cities of San Francisco, California, and Portland, Oregon, and to a limited extent (about 6 per centum of its total volume) with Puget sound ports. Some heavy freight, chiefly machinery, comes directly from Chicago and St. Paul by the Northern Pacific railway, and the only foreign importations entering the territory through legitimate channels are fresh meats and provisions from Victoria and coal from Nanaimo and Departure bay, British Columbia.

The peculiar topography of southeastern Alaska, with its innumerable unsurveyed and intricate channels and secluded bays and coves, together with its indefinite boundary line, present the greatest inducement and facilities for contraband trade in such articles as the British Columbia trade centers can supply. Smuggling operations will be carried on here as long as there is a demand for dutiable goods; to suppress the traffic a large fleet of swift revenue cutters would be required. Thus far, however, contraband trade is confined chiefly to the secret importations of liquors and the exchange of Alaskan furs for British goods between native tribes inhabiting the coast.

Another branch of commerce existing only in the southeastern district is the trade of "curios" and skins, carried on by the natives with the tourists visiting that section every summer. The governor of Alaska, in his report for the year ending June 30, 1891, estimates the volume of this trade as $25,000, but in view of the fact that the tourists number about 5,000, the majority of whom are well-to-do and anxious to secure mementos of their trip to the far northwest, the estimate is considered too low. This branch of the trade embraces also the lower grade of skins which traders refuse to buy, but which are easily disposed of to the eager tourist at twice their market price.

This branch of trade, though of some importance now, can not be considered a permanent element of Alaskan commerce. All carvings in wood or stone, originally manufactured for their own use by the natives, have long since been sold, and what is offered to visitors now is the result of patient labor of the preceding winter season. The articles and utensils are made more gaudy and grotesque each year to catch the tourist's eye; as ethnological specimens they are no longer of the slightest value. The people of several villages devote themselves exclusively to the manufacture of curios, and several individuals make a specialty of producing specimens of any degree of antiquity desired. As the excursions to Alaska are expensive and not likely to be repeated by the same parties, many years will probably elapse before the general public will become aware of the imposition, and in the meantime the curio trade will flourish.

Of the 49 stores and stations of the first district, the majority are supplied by the steamers of the Pacific Coast Steamship Company, making regular trips and carrying the mail. The Klawak canning establishment is supplied by a chartered sailing vessel, which also takes away the canned salmon and furs. The Killisnoo Oil and Guano Company have made a beginning of shipping their product by large sailing vessels, and occasionally a schooner is chartered to take freight to Wrangell. The subordinate stations are supplied by small craft owned in the district.

A very important branch of business in southeastern Alaska is the excursionist or tourist traffic conducted by the Pacific Coast Steamship Company, whose headquarters are at San Francisco. This firm reported the following sales of excursion tickets since the inauguration of the enterprise in 1884:

YEARS.	PASSENGERS.	
	Wholes.	Halves.
Total	25,048	418
1884	1,650	126
1885	1,871	62
1886	2,753	8
1887	3,889	50
1888	4,446	59
1889	5,432	52
1890	5,007	61

When we consider that the average price of these excursion tickets is $100, footing up over $2,500,000 in the seven years, and that from $50 to $100 each is expended in addition by more than half the tourists for "curios", furs, etc., the magnitude of this interest becomes apparent.

With the employment of swift and safe steamers these excursions could probably be extended to other sections of Alaska, the magnificent scenery of which has thus far been admired only by a mere handful of explorers prospectors, traders, and fishermen.

In the second district the 29 stations and trading stores are supplied by steamers and sailing craft owned or chartered either by the Alaska Commercial Company, the North American Commercial Company, or by the various salmon canning firms.

The trade within the district has been and is still to a considerable extent being conducted on the old Russian credit system. Especially was this the case during the years of fierce competition between the Alaska Commercial Company and its former rival, the Western Fur and Trading Company, which extended into the last decade. In those days the indebtedness of the semicivilized natives of the western islands and seaboard increased until it exceeded $100,000, or over $500 for every hunter or head of a family among them. At the same time the scattered white hunters were lavishly supplied with "outfits", comfortable houses, and native hunting parties, all on long credit, in order to secure their trade and custom. In the year 1883 the less powerful firm succumbed, selling its stock of furs and goods on hand, throwing into the bargain buildings, wharves, and some of the smaller local shipping. Then only it became possible for the Alaska Commercial Company to inaugurate a system of more economical management and to make a beginning of collecting the heavy liabilities incurred by native and white hunters alike.

Persistent efforts and strict vigilance have succeeded in reducing materially this formidable indebtedness, which by the insufficiently informed general public was made a reproach to the firm, while in reality it was but a legacy left by the Russian trading firm which formerly controlled Alaska.

The continuous cropping up of private competition at various points of the district frequently hampered the Alaska Commercial Company in their struggle to re-establish their enterprise upon a business basis. Their trade was shared to a greater degree from year to year by newcomers, who had no capital invested in the country, and who refused to share in the burden of assisting the improvident natives in seasons of scarcity, and finally, with the inauguration of the salmon industry and the establishment of numerous trading stations, which as mere adjuncts of the canneries were under but little expense, the struggle became hopeless. Consequently there is but little order and system in the internal trade of this central section of Alaska to-day; it is "everybody for himself", and it has become next to impossible to calculate with any degree of certainty the amount of trade to be done at any given point.

Until recently Kadiak settlement (or St. Paul harbor) was the center and distributing point of this district, from which all outlying stations were supplied, and for this reason a United States customhouse was established there, in charge of a deputy collector of customs, at which all vessels bringing cargoes and passengers from other coastwise districts were obliged to enter and clear. In those days it was possible to obtain correct returns of the volume of trade and navigation, but since the rapid development of the salmon industry the Treasury Department has adopted the custom of issuing special permits to vessels bound to western and central Alaska, relieving them of the obligation to enter or clear at the nearest customhouse, and thus it has become impracticable to collect satisfactory statistics of a traffic which is no longer kept distinct as to destination at the shipping ports of California, Oregon, and Washington.

In this district, also, the presence of quite a fleet of American and foreign sailing craft has led to illegal traffic, especially at the points of rendezvous designated annually by the firms engaged in this industry for the purpose of refitting their vessels, and to transfer the so-called "spring catch" of seal skins to some British steamer for transmission to Victoria, British Columbia. During the first few years of pelagic sealing, Humboldt harbor or Sand point, on Popof island, was the meeting point, much to the advantage of the trading station maintained there by a San Francisco firm in connection with its cod-fishing enterprise. In order to prevent this open violation of our treasury regulations a customhouse was erected at Sand point and a deputy collector appointed for the station, with the result that in 1891 the exchange of cargoes between a British steamer and a fleet of schooners under sail and steam, and mostly flying the British flag, took place in the harbor of Alitak, on Kadiak island. Still later the attempt to accomplish the illegal transfer in the harbor of Nuchek, in Prince William sound, resulted in the seizure of the Victoria steamer Coquitlan.

The fur trade with the natives on Prince William sound, the easternmost section of this district, has become quite insignificant with the almost total disappearance of the sea otter from these waters. Small as is its volume, the trade is shared by the Alaska Commercial Company, 2 salmon canning establishments, and several private traders. The land furs brought to the coast by the Atna or Copper river Indians form quite an important element of this trade.

On the shores of Cook inlet all trade formerly centered at the station of Kenai or Fort St. Nicholas, which, under Russian rule, drained a vast region of its furs. It is but little more than a quarter of a century since 10,000 beaver skins, brought from the interior beyond the coast range of mountains, were shipped from this point in a

single year. When the trade of this region fell into the hands of the Alaska Commercial Company, Kenai still remained the chief station, with subordinate stores at English bay, Iliamna, Toyonok, and Kinik, and at each of these points rival stations were maintained during the years of competition with the Western Fur and Trading Company. Now the post of Kenai or St. Nicholas, after an existence of a full century, is shorn of its glory. The store has fallen into the hands of the Northern Packing Company, and the trade of Cook inlet is divided between fishing firms and private traders and coal prospectors, with profits cut down to the lowest notch by fierce competition, and the number of furs secured decreasing from year to year. The post of Alexandrovsk, on English bay, is now the only station on the inlet controlled directly by the Alaska Commercial Company.

On Kadiak island the field of trade with the natives and other inhabitants is fully occupied or rather overcrowded by 3 commercial firms, closely pressed by the encroachment of fishing companies. At the main settlement, on St. Paul harbor, 3 well-stocked stores are struggling for their share in the profits, each having subordinate stations in outlying villages. The volume of trade with the natives depends almost wholly upon the number of sea otters secured by them, and as these animals are becoming more scarce from year to year the future prospects of their trade can not be said to be very encouraging, and the wages earned by natives who are fortunate enough to obtain employment in the canneries now furnish the principal barrier between them and threatening pauperism.

In the third district the trade with natives has been divided between several firms even from the earlier years of American occupation. On the islands of the Shumagin group and upon the lonely rocks of the Chernobura reef the first white sea-otter hunters made a lodgment, and at the same time the cod-fishing firms of San Francisco extended their operations, establishing stations and striving to gather in as many sea-otter skins as could be diverted from their regular course, which should have landed them in the magazines of the Alaska Commercial Company. When the Treasury Department at Washington exercised full control over Alaska a rule was made permitting only natives of the territory to kill fur-bearing animals on land or sea. It was found advisable, however, to exempt from the observance of this rule such white men as were lawfully married to native women and permanently settled in the country. These men carried on their business chiefly in this district and made their winter homes on Unga island, forming a basis for a local traffic, which during the flush times of sea-otter hunting was quite profitable in itself; they purchased small schooners and scoured the more distant and inaccessible hunting grounds which the natives could not reach unaided in their canoes. A number of cod fishermen also joined this colony, which still exists, though in circumstances somewhat reduced by the growing scarcity of sea otters. For the past few years the local trade of Unga has been somewhat stimulated by the opening of 2 mines of gold-bearing quartz near Delarof bay, and as 1 of them promises to be a permanent and paying institution, the 3 firms now trading in this vicinity may hope for prosperity in the future, based upon the finny treasures of the deep and auriferous ledges of the rocky isles.

The island of Sannak and adjoining reefs, formerly looked upon as a strict reserve from which the most abundant harvest of sea otters was gathered by native hunters controlled by the Alaska Commercial Company, have long since been invaded by the fishing firms and private hunters, many of the latter making their homes at the village of Belkovsky, on the mainland adjoining. The trade of this region, which is quite important, has been shared by several San Francisco firms, which of late years furnished their hunting and trading vessels with steam launches to secure their share of immediate gain from the more rapid destruction of the sea otter. The few salmon canneries in this section of the district have not thus far become factors in the local traffic.

The central seaport and distributing and receiving point for this district, as well as for the 3 others bordering upon Bering sea, is the port of Unalaska, on the island of the same name. This sheltered harbor has been the site of a customhouse since the district of Alaska was organized, and, though the village has not increased in population, its volume of shipping is growing constantly, and it now stands foremost in importance among Alaskan ports. During the period of competition in the fur trade, previously referred to, which ended in 1883, the headquarters of 2 wealthy firms were located here, and the native inhabitants divided their allegiance and patronage in accordance with the inducements held out by the rival firms.

Situated as it is, almost in the direct route from San Francisco to the Arctic, Unalaska was soon utilized by the whaling ships as a port of call and a place to refit, to receive and send mail and to ship their earlier catch of whalebone. Government ships of the navy and revenue marine also make use of this harbor to coal and refit and to collect and forward their mail. During the last 2 seasons, owing to the presence of the English and American protective fleet in Bering sea, scarcely a day has passed in Unalaska harbor without several arrivals or departures under steam or sail. Both squadrons relied upon this port to replenish their bunkers, and a prominent object in the outer harbor was a huge British steamship bearing the sign in large letters of "Her Majesty's Coal Store".

Heretofore the only wharf accessible to large ships in Unalaska was the property of the Alaska Commercial Company, which firm derived a moderate revenue from wharfage and water charges, but in 1891 the present lessees of the Fur Seal islands, the North American Commercial Company, began the construction of a wharf and coal depot at an anchorage within the bay known as Dutch harbor (Holland harbor of the Russians), which is now completed.

The Alaska Commercial Company's office at Unalaska includes in its operations the supplying of goods to the continental trading districts of Nushagak, the Kuskokwim, and the Yukon, as well as the subordinate stations on the Shumagin and Aleutian islands, and altogether the volume of trade and traffic transacted at this point assumes dimensions entirely out of proportion with its modest appearance and insignificant population. We must remember, however, that the principals who invest their money here, and who gain or lose by their vast and manifold operations, reside in California, and that but an infinitesimal fraction of the money earned here falls into the hands of residents of this rugged little seaport of the far northwest.

In the flush times of hunting, now gone by, the returning natives received and speedily squandered large sums of money, but now, after the "outfit" is paid for, a portion of the old indebtedness liquidated, and the Russian church remembered, there remains but little cash in the hunter's hand, and he is glad enough to make both ends meet, after a fashion, with the help of wages earned during his absence by the women and girls handling cargoes and laboriously trucking coal out of ships and ballast into them. When the season is over the company's agent, the representative of capital, returns to California and its luxuries and enjoyments, while the native laborers, unused to habits of thrift, huddle together in their squalid huts, with every prospect of suffering want before the approach of tardy spring, unless the company kindly helps them out.

The trade with the natives of the Seal islands, amounting in normal seasons to $30,000 or $35,000, is of course in the hands of the lessees, who conduct it directly from San Francisco.

In the fourth or Nushagak district the number of trading stations is small, and would be still smaller were it not for the spasmodic traffic indulged in by the fishing companies located on Bristol bay. The bulk of the fur trade of this section has been from the beginning of American occupation and still is to a great extent in the hands of a single man, an independent agent of the Alaska Commercial Company, who, possessed of more than usual energy and ability, succeeded in extending his operations into adjoining districts, and though no sea otters frequent the waters of Bristol bay, he managed to inspire the Eskimo denizens of the Togiak river and lake system with sufficient energy to undertake a tedious annual migration eastward to the distant shores of Cook inlet, whence they return with from 50 to 100 of the precious skins.

In former times walrus ivory was an important article of trade in this district, and the huge pinnipeds were hunted by the natives on the sand dunes of Hagemeister island and the north side of Alaska peninsula, but now the animals have been well-nigh exterminated.

Some trading in furs and ivory is carried on in connection with the 4 large salmon canneries on the Nushagak river. The fish product of this section, varying from 100,000 to 120,000 cases per annum, far exceeds in value the catch of furs, which consists chiefly of marten, foxes, land otter, and black and brown bear.

On the Kuskokwim river also the fur trade has, since our purchase of the country, been nearly always in the hands of a single individual, a Finnish sailor of gigantic stature, who purchases his goods of the Alaska Commercial Company and sells his furs to them. The supply ships visit this district but once a year, in June, taking away at the same time the furs collected during the preceding year. A considerable part of the fur trade in this region is carried on by first purchasing oil and blubber of the poverty-stricken coast tribes who have no furs, and then exchanging these articles with the inhabitants of the upper river for marten, otter, fox, and bear skins. This method of trade necessitates the employment of a number of native agents, who, in their skin canoes, first scour the river, the lake shores, and inland water ways for oil in bladders, and then search the scattered settlements in the mountain recesses for skins. Trading is a congenial occupation with all these natives, and as a rule they make energetic and reliable agents. In another chapter the annual visit of one of these Eskimo traders to the island of Nunivak has been described, and his modus operandi may be considered as typical of his class. They are all illiterate and ignorant, but they manage to keep their accounts with much exactness by means of notched sticks and pictorial memoranda. The natural products of three-fourths of this region are confined to oil, seal hides and thongs, and walrus ivory. No marketable furs are found in the lowlands, and altogether this section, though thickly populated, is one of the poorest in Alaska.

Of the 7 trading stations in the Yukon district, 5 are located upon the river banks. St. Michael, the shipping point and basis of supplies, situated upon an island in Norton sound, was established in 1835 by Lieut. Michael Tebenkof, of the Russian navy, and named after his patron saint.

Though some distance to the north of the entrance to the Yukon river, St. Michael has always been the controlling center and basis of supplies for the great river of the far northwest. From here the hardy Muscovite pioneers pushed their advance slowly and laboriously with clumsy boats, in skin-covered "bidars", and trudging over the frozen snow plains with their dog teams until they met the forerunners of the Hudson Bay Company on their way down the river, which English geographers of that time pictured as emptying into the Arctic.

As long as the Russians were in possession of this region all furs secured in the Kuskokwim valley were transported over the Yukon portage to St. Michael and thence shipped to Sitka, together with those obtained by barter from the natives of the shores and islands of Bering strait. The first American traders to engage in the Yukon trade were members of the Western Union Telegraph Expedition, and foremost among these pioneers were Ketchum and Clark; the former now dead, the latter still active in the Nushagak district. Later came Mercier, a brother of the Canadian ex-minister, and a host of other French Canadians, together with three prospectors,

McQueston, Mayo (Americans), and Harper (an Englishman), who still control the trade and much of the mining industry of the upper Yukon and its tributaries from Fort Selkirk westward.

The basis of supplies for the whole district was early taken by the Alaska Commercial Company, who at first utilized a small stern-wheel steamer placed upon the river by the telegraph company, and later built other vessels for the purpose of towing loaded barges up the river. Later the firms who entered into competition with the company in other districts made a lodgment near St. Michael, and another steamer was placed upon the river.

In the year 1883 this opposition collapsed, but shortly after the bar diggings of Forty Mile creek and other parts of the upper Yukon were discovered, which caused a sudden revival of trade, chiefly in miners' supplies, and induced the traders mentioned above to acquire small steamboats of their own.

The fur trade of the Yukon has decreased in volume during the last 10 years from 75,000 skins of all kinds, including many mink, to about 20,000 per annum, but this falling off is not altogether due to exhaustion of the supply. A large number of the best hunters of the Athapascan tribes now find employment with the miners at good wages, and this relieves them of the necessity of hunting in the winter as arduously as they were obliged to formerly. On the other hand, a considerable proportion of the skins secured on the Yukon and its northern tributaries is now diverted over the various portage routes to Kotzebue sound and the Arctic coast through the hands of Eskimo traders, who finally dispose of them to the whalers and to a limited extent to their Chukche neighbors beyond the strait of Bering.

The flourishing missionary establishments of the Roman Catholic and the Episcopalian churches also serve to increase traffic upon the great river during the brief season of navigation. Both the Roman Catholic and the Russian Orthodox missions now possess steamers for carrying their freight up from St. Michael and to transport their missionaries over their extensive field of labor.

The post of St. Michael, though insignificant in dimensions and of most desolate surroundings, springs into life and activity once a year. With the first breath of spring, at the end of May, the up-river people shake off their winter's lethargy and prepare for their annual meeting with their fellows from the outside world. The steamers which had been hauled up at various points on the river bank in the autumn are repaired and launched once more upon the muddy waters as soon as the ice has ceased to float down the rapid current, crashing and grinding, cake against cake, or pressing against the forest border of the channel, cutting and barking the trees, and down in the treeless wastes of the lower river undermining the soft clay banks and changing the face of the landscape.

Traders, missionaries, miners, and natives crowd every craft and enjoy the hospitality freely offered them on their seaward progress at posts and missions. By the end of June all these Yukon pilgrims have reached their goal, St. Michael, and while they are waiting for the arrival of the ocean steamer accounts are regulated and engagements entered into for the transactions and enterprises of the coming season. The natives assembled here on these occasions represent all the tribes of the Yukon and many of those of the Arctic and the Bering sea coasts. Most of these bring trade with them, furs or ivory and whalebone, and though all strive to hold their wares from the white man until the steamer arrives with the new stock of goods, quite an exchange of commodities goes on in the meantime among themselves.

With the arrival of the steamer, which is sometimes delayed for weeks, causing much inconvenience to the commissary department of so large an assemblage, business activity rises at once to fever heat. Miners in ragged garments showing the wear and tear of subarctic travel, Indians of the interior in beaded suits of tanned moose skin, and Eskimo in furs, all lend a hand and labor cheerfully, getting the cargo ashore and reloading it on the river boats. The black-robed missionary relaxes from his habitual dignity, and can be seen trundling barrels and bales and trucking boxes and miscellaneous packages over the plank walks of the crowded station. The light of day lasts all through the brief Arctic summer night and the turmoil is kept up almost without cessation, until at last the steamer's whistle warns those who do not wish to spend another winter in these desolate regions that they must depart. A few lucky individuals, who have bags of gold dust in the purser's safe, seek their comfortable staterooms, while the rank and file of prospectors cheerfully accept such accommodations as steerage or deck afford, bringing out of the country no more and probably much less than they brought into it over the toilsome road from Chilkat to the Yukon diggings.

The trade of the upper Yukon is of great volume, but it is carried on under peculiar conditions. The supplies are purchased in the United States, chiefly in California, and carried thence to St. Michael. From here the river steamers, carrying the stars and stripes, ascend the river, dropping freight at intermediate stations, but the principal business is transacted at the point of junction between the Yukon river and Forty Mile creek, some 30 miles beyond our boundary. The purchasers here are miners who toil in the upper ravines of Forty Mile creek, which lie within the limits of Alaska. Prices are necessarily high, for during every winter the trader is called upon to feed numbers of unsuccessful miners and to assist them in leaving the country in the spring. Under such circumstances it is well that the lines of demarcation are temporarily ignored by both the Dominion and United States governments and no difficulties are placed in the way of carrying the necessary supplies across the border.

THE VALUE OF ALASKA.

Executive Document No. 36 of the House of Representatives, second session, Forty-first Congress, contains the report of a special agent of the Treasury Department on the subject of Alaska. From it are quoted the following passages, found on page 10:

COST AND VALUE OF ALASKA.

The price paid for the territory, $7,200,000, is but a small item of its cost to the United States. Provided the public debt be paid within 25 years, annual interest on the purchase money, at the rate of 6 per cent, would in that period amount to $23,701,792.14, which added to the principal would make the total cost of the territory $30,901,792.14. To this sum there must be added the expense of the military and naval establishments, say $500,000 per annum, or $12,500,000 in 25 years, which is a much smaller estimate than can be predicted on the expenditure of the last 2 years, resulting in a grand total cost on the above basis of $43,401,792.14.

In return for this expenditure we may hope to derive from the seal fisheries, if properly conducted, from $75,000 to $100,000, and from customs $5,000 to $10,000 per annum, a sum insufficient to support the revenue department, including the present expensive cutter service attached to the district; nor can we look for any material increase of revenue for many years, except in the event of extraordinary circumstances, such as the discovery of so large deposits of minerals as would produce an influx of population.

WHAT SHALL WE DO WITH ALASKA?

As a financial measure it might not be the worst policy to abandon the territory for the present, or until some possible change for the better shall have taken place, but for political reasons this course may not be advisable.

Notwithstanding the above calculations and predictions the management of the Seal islands alone paid into the United States treasury between $6,000,000 and $7,000,000 in rental and royalties within 20 years, independent of the "extraordinary circumstances" referred to by this special agent. It is safe to assert that, since the system of leasing the Pribilof islands was inaugurated, within a few weeks of the date of the report quoted here and up to the expiration of the first term of 20 years, the revenues covered into our treasury from Alaska have always exceeded the expenditure, while as a factor in the internal commerce of the United States, and especially of our Pacific coast, Alaska has assumed a position of considerable importance.

The statements appended here recording the shipments of goods and supplies to Alaska from the ports of San Francisco, California, Portland, Oregon, and Puget sound cities enable us to form some idea of the importance of this trade to growing states like California, Oregon, and Washington, but a better understanding of the advantages derived by the country at large from the purchase of Alaska can be obtained by perusing the subjoined statement of products of the territory since it came into our possession. The statement embraces only the principal articles of export, and can be relied upon as being conservative and within the actual limits of Alaska's products:

VALUE OF PRODUCTS OF ALASKA FROM 1868 TO 1890.

Furs	$48,518,929
Canned salmon	9,008,497
Salted salmon	603,548
Codfish	1,246,650
Ivory	147,047
Gold and silver	4,631,840
Total	64,156,511
Products of the whaling industry:	
Whale oil	2,853,351
Whalebone	8,204,067
Total	11,057,418
Aggregate	75,213,929

This valuable addition to the nation's resources would more than compensate us even for an expenditure such as the special agent quoted above figured out so ingeniously by means of compound interest at 6 per cent on a cash payment.

The decline of the fur-seal industry, owing to the reckless encroachments of irresponsible and foreign sealers, has prevented the further collection of revenue in excess of expenditures since the year 1890. But even if this valuable factor in Alaska's resources be wiped out of existence, our vast northwestern territory will have amply paid for itself and be well worth preserving and fostering, not "for political reasons only", as the official prophet of 1870 suggested, but for good, sound, commercial reasons, which must impress themselves upon the minds of all unprejudiced investigators.

FOREIGN TRADE.

YEARS.	Imports.	Domestic exports.
Total	$165,644	$212,741
1881	10,966	69,183
1882	8,484	38,520
1883	14,945	28,393
1884	4,420	8,438
1885	8,944	24,468
1886	14,252	8,022
1887	18,036	7,336
1888	28,211	23,499
1889	32,809	200
1890	24,577	4,682

SHIPMENTS FROM PORTLAND, OREGON, TO ALASKA.

Provisions and groceries	$174,798.21
Dry goods and clothing	192,059.00
Hardware, rubber, paint, and crockery	44,653.34
Furniture	1,673.56
Drugs	2,333.00
Sundries	15,858.68
Total	431,375.79

SHIPMENTS OF ALASKAN PRODUCTS BY THE ALASKA COMMERCIAL COMPANY FOR THE YEARS 1880 TO 1889.

YEARS.	Assorted furs. (Packages.)	Seal skins. (Number.)	Walrus tusks. (Number.)	Salmon. (Barrels.)	Blubber oil. (Barrels.)	Whalebone. (Packages.)
Total	6,131	994,943	4,492	7,445	179	33
1880	670	100,011	1,151	1,014	.....	.....
1881	578	100,706	795	1,051	.....	.....
1882	454	101,032	857	567	166	.....
1883	724	76,651	925	2,288½	.....	4
1884	722	102,517	321	20½	.....	22
1885	657	101,484	.....	859	.....	1
1886	739	103,050	140	927	.....	3
1887	528	104,715	223	106	.....	2
1888	444	101,760	60	503	.....	.....
1889	615	103,017	20	109	13	1

SHIPMENTS OF ALASKAN PRODUCTS FROM PRINCE OF WALES ISLAND (R. A. WILSON), 1883 TO 1886.

YEARS.	FUR.		SALMON.		LUMBER.
	Packages.	Skins.	Cases.	Barrels.	Feet.
Total	116	28	28,695	680	1,670,000
1883	48	26	7,734	482	400,000
1884	26	.....	5,193	196	870,000
1885	10	.....	7,922	.....	400,000
1886	32	2	7,846	2	.....

COAL SHIPMENTS FROM NANAIMO, BRITISH COLUMBIA, TO ALASKA IN 1890.

DATES.	Vessel.	Total.	Ship's use.	Cargo.	DATES.	Vessel.	Total.	Ship's use.	Cargo.
		Tons.	*Tons.*	*Tons.*			*Tons.*	*Tons.*	*Tons.*
Total		11,178	4,140	7,038	June 24	Bertha	698		698
					July 10	City of Topeka	257		257
January 10	City of Topeka	504	200	304	July 12	Chilkat	45	45	
January 15	George W. Elder	420	300	120	July 16	Arago	857		857
February 13	Santa Cruz	203		203	August 2	Mischief	64		64
February 24	George W. Elder	500	300	200	August 2	George W. Elder	107		107
March 12	City of Topeka	450	200	250	August 9	City of Topeka	355	200	155
March 26	George W. Elder	353	300	53	August 23	George W. Elder	230		230
April 10	City of Topeka	302	200	102	September 8	City of Topeka	465	200	265
April 22	Cosmopolis	75	75		September 22	Mexico	352	352	
April 25	George W. Elder	701	300	401	September 23	do	400		400
April 28	Polar Bear	25	25		October 7	City of Topeka	501	250	251
May 10	City of Topeka	353	200	153	October 25	Mexico	187	187	
May 25	George W. Elder	415	300	115	October 26	do	276		276
June 9	City of Topeka	325	200	125	November 8	City of Topeka	306	306	
June 17	Jeanie	1,184		1,184	December 7	do	70		70
June 24	George W. Elder	198		198					

WATER WAYS AND TRANSPORTATION.

The water ways of Alaska form one of the most important features in a country of so vast an extent, inaccessible in nearly all parts of it except by water. In discussing this subject we begin with the southeastern district of Alaska, between the southern boundary and the Mount St. Elias alpine region. Here we find a system of deep navigable salt-water channels, with a depth varying from 50 to 250 fathoms, sheltered from the winds and sea alike by a network of islands. The principal channels coming under this head are Dixon sound, the water of which washes the southern extremity of this section of Alaska; Clarence strait, which separates the Prince of Wales archipelago from the islands of Revilla Gigedo, Kupreanof, Zarembo, and Etolin; Christian sound, between Baranof island and the Kuiu archipelago; Prince Frederick sound, extending westward from Cape Fanshaw, between Admiralty island and the islands of Baranof and Chichagof; Stevens passage, between the mainland and Admiralty island; Lynn channel, which penetrates the mainland for a distance of 100 miles to the northward of Admiralty island; Peril strait, separating Baranof and Chichagof islands, and Cross sound, between Chichagof island and the mainland to the north. In addition to this there are hundreds of minor channels, all alike navigable for any class of steamships. During the Russian occupancy of Alaska small steamers were plying the waters, trading with the natives, and at the same time serving to intimidate the latter and keep them in subjection. During the last years of Russian rule 2 steamers of large dimensions, the Constantine and the Alexander, could frequently be seen puffing up and down its sheltered channels on their way to and from Californian ports. Since our acquisition of the former Russian possessions steam communication between Puget sound, Portland, or San Francisco and this section of Alaska has been kept up almost without interruption through the sheltered channels described above and the equally intricate archipelago lining the intervening coast of British Columbia.

The only river of any magnitude emptying into the waters of this section of Alaska is the Stikine river, on the upper course of which an extensive mining camp has been located, which, however, has of late years fallen almost exclusively into the hands of Chinese miners. This river is navigable for a distance of something over 200 miles for stern-wheel steamers, a line of which had been run for a period of 12 or 15 years, passing from Victoria northward and through our possessions to the mouth of the Stikine, touching in transit at Wrangell customhouse, where there is a bonded warehouse. For 2 seasons, 10 years ago, an American steamer was employed in this trade in an unsuccessful attempt at opposition.

Almost from the earliest time of our occupancy of Alaska the mail service has been in existence between some point on Puget sound and Sitka and intervening points. The first mail contract by this line was awarded to the famous expressman, Benjamin Holliday, of Oregon, who, together with his San Francisco partner, P. B. Cornwall, put on the old steamer California, and for many years this small steamer furnished the only opportunity for transporting freight or passengers to and from southeastern Alaska. Finally the mail contract, and with it the freight and passenger business of this section was transferred to the firm of Goodall, Nelson & Perkins, now the Pacific Coast Steamship Company, who, as the country began to fill up with prospecting miners and traders, gradually increased their facilities, until during the last few years a bimonthly and sometimes a weekly service was inaugurated. In addition to this regular line 3 or 4 steamers belonging to private parties ply occasionally to and from southeastern Alaska, and a few sailing craft carry up mining or canning supplies, generally returning with cargoes of fish.

The business of organizing excursions to southeastern Alaska was inaugurated by the Pacific Coast Steamship Company, and for this purpose they greatly increased the number of steamers during the summer months. The

magnificent scenery, presenting to the tourist alternate views of high mountains, glaciers, and winding channels, proves very attractive to the thousands of visitors annually crowding the steamers of this line.

The contract under which the Pacific Coast Steamship Company carries the United States mail provides for a monthly service. During the winter this company runs 2 vessels, carrying freight and passengers from San Francisco, Portland, and Puget sound points to southeastern Alaska. In summer this service is increased to weekly trips, owing to the rush of excursionists going to Alaska from May to September, which is called the excursion season.

The steamers also carry such passengers and freight as they can get between ports at which they call in southeastern Alaska, the principal ones being Loring, Killisnoo, Wrangell, Juneau, and Sitka. This is virtually the only regular line of steamers plying between Alaska and other ports, and it is confined to the southeastern district only. The only freight rates which are in general use between this section of Alaska and the ports of San Francisco, California; Portland, Oregon; Port Townsend, Seattle, and Tacoma, Washington, are those used by the Pacific Coast Steamship Company, and are as follows: From San Francisco to Juneau, Sitka, Douglas island, Killisnoo, Chilkat, and Pyramid harbor: flour, $12 per ton; groceries and general merchandise or canned goods, $14 per ton; coal, $12 per ton; lumber, $14 per ton; dry goods, $14 per ton.

Rates from Portland to these points are $2 less than from San Francisco; rates from Port Townsend are $4 less than from San Francisco, and from Seattle and Tacoma are $1 less than from Port Townsend. Passenger rates are charged upon the basis of $70 for a single cabin passage from San Francisco to Juneau or Sitka, or $50 from Tacoma, with a slight increase in local rates between intermediate points. A reduction of nearly 10 per cent is made in favor of excursionists with return tickets. The tonnage engaged in this traffic is owned in California. In addition to this regular line, small schooners and sloops are plying between the settlements of the Alexander archipelago, and occasionally to Yakutat bay. The small cargoes which these vessels carry are taken at rates varying from $6 to $10 per ton.

The next large water way in a western direction is the Copper river, a stream of considerable depth and width, but which will not permit of anything beyond canoe or boat navigation, owing to the peculiar formation of its lower course, which is beset with shoals, glaciers, and landslides, choking up the channel.

The waters of Prince William sound, though nearly always smooth and well protected by surrounding islands, and open throughout the year, are only navigated by a few hunting schooners of very small tonnage and 2 or 3 small steamers belonging to the salmon-canning establishments in the eastern part of the south.

The waters of Cook inlet are closed to navigation on account of ice from December to the end of April. 3 rivers empty into this vast estuary, navigable only as far as tidewater extends, the Kassilof, the Kenai or Kakno, and the Kinik. On the 2 former streams 3 salmon-canning establishments have been located, each of them having steamers and small sailing craft, which ply both rivers and inlet, carrying fish and supplies. During the summer season quite a fleet of trading and hunting schooners frequents the coast of Cook inlet, many of them convoying large numbers of native hunters in their skin canoes. In the large group of islands comprising Kadiak, Afognak, and Shuyak not a single navigable river exists, though this is the very center of the most prolific salmon-fishing district in Alaska. The harbor of Kadiak, provided with a customhouse, is the distributing point for the fur trade and shipping of all this region. As the commerce between Alaska and other ports of the Pacific coast is considered coastwise, entries and clearances are the exception rather than the rule, and consequently no definite statistics of its magnitude can be obtained. We know, however, that the tonnage of the San Francisco salmon fleet alone foots up over 20,000 tons.

Access to all central and western Alaska is had only by private lines, the principal one being that operated by the Alaska Commercial Company in connection with their numerous trading and fishing stations. They carry passengers on their steamers and sailing vessels to nearly all points in western Alaska as far as St. Michael. As it is not a regular line, there are no regular charges for passengers or freight, but the latter vary from $6 to $10 and $12 per ton. Passenger rates on the steamers are apparently charged on the basis of $100 per single cabin passenger from San Francisco to Unalaska or Unga, $85 between Kadiak and San Francisco, and $150 from San Francisco to St. Michael.

In the Kadiak district also there is a large number of small craft, trading and hunting schooners, varying in tonnage from 5 to 50 tons, nearly all of them carrying any small cargoes of freight which may offer at uncertain and arbitrary rates, and the same rule applies to passenger rates on such craft. Between the Kadiak group and the Shumagin islands there is a stretch of 250 miles of open sea, with small peaks of the main Alaskan range looming up all along the northwest, which is, however, freely traversed during the summer season by the above-mentioned small craft. The waters around the Shumagin group of islands and the deep indentations of the Alaska peninsula opposite are crowded with the sails of traders, sea-otter hunters, and cod fishers, this being the central shipping and distributing point of the cod-fishing industry of Alaska, and freights between the points and San Francisco are carried on fishing schooners at the average rate of $10 per ton, and a few passengers are accommodated at the rate of $40 or $50 between the Shumagin islands and San Francisco. The 3 canneries on Chignik bay to the northward and Thin point to the southward have each 1 or 2 steamers and several sailing vessels employed

in collecting and shipping fish. Here, as well as at Kadiak and all along the Aleutian islands, the water remains open all the year round; but the winter season is distinguished by a succession of the severest gales. Throughout the summer the steamers and sailing vessels of the Alaska Commercial Company and other traders, as well as sealing hunters, can be seen around this long chain of islands, which, like most of the Alaskan archipelagoes, abounds in sheltered harbors.

In the easternmost indentation of the coast of Bering sea is Bristol bay, one branch of which is formed by the mouth of the Nushagak river, a stream which is believed to be navigable by light-draft stern-wheel steamers for a distance of 250 miles, but no attempt in this direction has yet been made. At the mouth of the Nushagak 4 large canning establishments have been located, all of them employing both steam and sailing vessels in collecting and carrying the fish. As this estuary is closed by ice during the winter, all the shipping returns to San Francisco in the autumn. The mouth of the second largest river in Alaska, the Kuskokwim, is so thoroughly beset with shoals and shifting sands that navigation will always remain dangerous in the extreme. The supply vessels of the Alaska Commercial Company ascend the river to a point about 100 miles from its mouth, where the opposite shore is visible only in the clearest weather.

From the mouth of the Kuskokwim around Cape Rumiantzof to the numerous mouths of the Yukon river the coast is exceedingly dangerous and almost unsurveyed. Shoals make off from the coast to such an extent that an approaching vessel can find soundings of 3 fathoms before the low land is sighted.

We now come to the great interior artery of Alaska, the Yukon river, which, rising in foreign territory, traverses the width of the continental portion of Alaska between the 141st and 164th degrees of longitude, describing in its passage a line of over 1,200 miles in length. The Yukon is now known to be navigable for stern-wheel steamers of 250 tons for a distance of 1,600 miles, to Fort Selkirk, at the mouth of Pelly river, in the dominion of Canada. Only at 3 points rapids exist in the Yukon, but even there the current is easily stemmed by the powerful boats now used on the river. The steamer Arctic, belonging to the Alaska Commercial Company, is said to average from 7 to 8 miles an hour, going up stream, between Norton sound and the head of navigation.

The first attempt to use steam craft on the waters of the Yukon was made under the auspices of the Western Union Telegraph Company at the time of their vast and costly experiment in the years 1866–1867. The telegraph company's small steamer, which was carried up to the Yukon on the deck of a bark, continued to run for many years after the transfer of the country to the United States, having been purchased by traders. Another steamer, but little larger, was launched on the river about the year 1878, and a third in 1880, none of these exceeding 30 tons in capacity. Subsequently other small steamers were launched upon the river by prospecting and exploring parties, which were afterwards purchased by the resident traders. One small boat of this kind, which had been used by Lieutenant Stoney, of the United States navy, in his exploration of the Kowak or Putnam river, has since been purchased by the missionary in charge of the Russian mission of Ikogmiut, to be used in his extensive journeys over the waters of the Yukon and its tributaries.

It was not until the discovery of the bar and surface diggings on the Upper Yukon that regular freight and passenger traffic began to develop on the river, a traffic which has remained in the hands of the Alaska Commercial Company to the present day. The freight carried annually between the port of St. Michael and the trading and mining camps all along the river as far as Forts Independence and Selkirk foots up to between 2,000 and 3,000 tons, inclusive of that carried up by the Alaska Commercial Company to their stations. The freight rate charged to all others is $50 per ton, and the passenger fare $150 between terminal points, with intermediate rates in proportion.

Navigation on the Yukon and most of its large tributaries is open during the months of June, July, and August, and half of September. Occasionally a severe winter causes the ice to keep the mouth of the river closed until the 1st of July. The most serious obstacle in the way of further development of navigation of this mighty river is the uncertainty as to the location of a deep channel between its mouth and the sea. That there must be such a channel is evidenced by the schools of white whale and grampus found far up the river, but thus far no one has succeeded in finding a channel between the deltoid mouth of this river and the waters of Bering sea through which seagoing vessels can pass. All the steamers mentioned above are of a draft between 2 and 4 feet only. The possibilities of the development of navigation on this, one of the foremost rivers of the country, are almost incalculable should this one obstacle be removed. Perhaps some of our venturesome salmon fishermen, in search of the piscatorial wealth of the Yukon, will solve the problem in course of time.

The 4 or 5 large rivers which during the last few years have been discovered and explored in that part of Alaska lying beyond Bering sea and emptying into the Arctic ocean are not reported to be susceptible of anything beyond boat navigation, but they form a system of very extensive internal water ways of great importance for the internal intercourse of the native tribes.

The freight movement on the Yukon river is reported for the last 3 years as follows, approximately for each year: From St. Michael to the head of navigation, 200 tons; to Nuklukayet, 30 tons; to the various missions, 200 tons; a total of 430 tons, at the rate of $50 per ton. Navigation is open during July, August, and September.

The accompanying table embraces the shipping employed in fishing and trade of Alaska in the year 1890, showing an aggregate volume of nearly 35,000 tons. A large proportion of these steamers and sailing vessels made repeated trips during the season, the whole list representing a high degree of commercial activity far beyond that to be naturally expected of a region so remote and comparatively unknown as Alaska.

TONNAGE OF SHIPPING EMPLOYED IN ALASKAN TRADE IN 1890.

STEAMERS.

	TONS.
Geo. W. Elder	1,225
City of Topeka	747
Santa Cruz	360
Karluk	220
St. Paul	607
Cosmopolis	267
Bertha	450
Gertie Story	50
Dora	136
Ella Rohlffs	36
Francis Cutting	60
Jeanie	863
Alaska	23
Polar Bear	29
Thistle	65
Arago	620
Puritan	14
Chinook	10
Kate and Ann	30
Queen	1,672
Arctic	21
Aleut	19
Mexico	1,340
Chilkat	56
R. P. Elmore	42
Salmo	35
Afognak	37
Pacific	37
Signal	392
Hattie Gage	56
Yaguina	253
Elsie	37
Haytian Republic	779
Olga	7
Novelty	75
Jennie	52
Jessie Freeman	510
Total	11,232

SAILING VESSELS.

SUMMARY.

Ships	3,668
Barks	13,311
Barkentines	562
Brigs	189
Schooners	6,035
Total	23,765

SHIPS.

Merom	1,158
Gatherer	1,436
Oneida	1,074
Total	3,668

BARKS.

Portland	469
Highland Light	1,265
J. D. Peters	1,030
Coryphene	771
Nicholas Thayer	555
Annie Johnson	947
J. A. Borland	670
W. W. Case	555
Newsboy	559
Electra	939
C. C. Funk	512
Henry Morse	1,313
Wanderer	303
Hunter	355
F. A. Barstow	301
W. H. Myers	269

BARKS—continued.

Reindeer	357
Eliza	269
Bounding Billow	239
S. H. Franks	310
Hope	758
Corea	565
Total	13,311

BARKENTINES.

Tam O'Shanta	562

BRIGS.

Percy Edwards	189

SCHOONERS.

Czar	137
C. H. Wright	82
Dashing Wave	141
Alice Kimball	102
Antelope	118
Mayflower	86
Beulah	339
Kodiak	97
Matthew Turner	71
Pearl	83
H. C. Wright	276
Amethyst	70
Premier	296
Robert Searles	570

SCHOONERS—continued.

Queen	264
Frances Alice	125
Louis	820
H. N. Kimball	183
Sadie F. Caller	393
Undaunted	65
Glen	121
Bessie Rutter	30
C. T. Hill	133
Hera	369
St. Paul	46
Dare	246
Viking	140
Olga	44
Seventy-six	37
Ed. E. Webster	138
F. F. Feeney	11
Norwest	8
Spencer F. Baird	7
Three Brothers	19
Olga	21
Flying Dutchman	7
James H. Lewis	37
Lydia	31
Trapper	19
San Diego	38
Unga	20
C. N. Smart	8
Alexandria	8
Nellie Martin	16
H. Blume	66
Mary H. Thomas	97
Total	6,035

CHAPTER XVII.

HISTORICAL REVIEW OF THE DECADE FROM 1880 TO 1890.

The interval between the Tenth and Eleventh Censuses was one of the most important periods in the history of our detached territory in the far northwest. In the course of this period Alaska emerged from a mere customs district into a preliminary phase of local organization.

The same period has witnessed the marvelous development of Alaska's mines and fisheries. In 1880 both these industries were insignificant in volume and completely overshadowed by the fur trade, then practically controlled by a single firm; but by 1890 the mines and salmon canneries had shipped products to the value of $15,000,000, or more than twice the purchase price of Alaska.

The struggle on the part of the residents of southeastern Alaska for recognition by the United States government grew in earnestness with the discovery of promising mines in the autumn of 1880. Even previous to these discoveries the collector of customs, having been called to Washington, was commissioned to advocate the claims of Alaska to some form of civil government and the discontinuance of the altogether inadequate control of the naval and customs service through their representative at Sitka. These first efforts met with no success, but in July, 1881, encouraged by the constant influx of prospectors, miners, and traders, a few of the most prominent residents called a convention at Juneau (then known as Harrisburg) for the purpose of choosing a delegate to lay the demands of the Alaskans before Congress. Among the reports of House committees of the Forty-seventh Congress (H. R. No. 560, first session) is a concise statement of the origin and results of this first political convention held in Alaska, as follows:

[Reports of committees, Forty-seventh Congress, first session, H. R. No. 560.]

(1) Call for convention.—The original call was by notice inviting the citizens of Harris mining district to meet in Horsford's building, Harrisburg, at 9.30 a. m., July 4, 1881, "for the purpose of taking some action toward the procurement of recognition and representation of this territory by the United States government in the next Congress of the United States".

The notice was signed by H. M. Steele and 29 other residents.

The meeting was largely attended, and was organized with W. M. Bennett, chairman, and T. A. Wilson, secretary.

Resolutions were adopted inviting the other settlements to assemble in primary conventions and select delegates to a general convention to be held at Harrisburg on the arrival of the mail steamer in August. The number of these delegates was apportioned by reference to and report from a committee. The 5 delegates apportioned to Harrisburg were elected by ballot, and provision was made for notice to the other settlements.

(2) Responses.—The towns of Wrangell and Sitka held meetings on the 30th of July and 4th of August, respectively, passed resolutions heartily indorsing the call, and elected delegates. Delegates were also chosen by the settlements at Klawak and Killisnoo.

(3) The convention.—The convention assembled August 16 in Harrisburg. A temporary organization was effected and a committee on credentials appointed, which reported 15 delegates present out of the 18 provided for in the call. Permanent organization was then made and the memorial adopted. An election was also ordered "for a person to represent the territory of Alaska, or that portion of it for which we ask a government, in the Forty-seventh Congress of the United States, and to present the memorial adopted".

CERTIFICATE OF ELECTION.

The board of canvassers appointed met September 13, 1881, and the returns being all in from the voting places provided, they certify that there were 294 votes cast at the same, of which 236 were for Mottrom D. Ball, 57 for M. P. Berry, and 1 for Jack Welch. They further certify that a poll was opened at Chican (a retired settlement), "although no provision for the same was made by the said convention," at which 10 votes were cast for the said Mottrom D. Ball, and they declare said Mottrom D. Ball duly elected delegate. Their certificate is certified as acknowledged and affirmed September 13, 1881, before W. J. Burwell, deputy collector of customs, under his hand and the customs seal. (There are no officials in the territory authorized to administer oaths except the customs officers.)

The memorial of the citizens of Alaska, drawn up by this convention, and asking for the admission of Mottrom D. Ball to the floor of the House as a delegate, was submitted by unanimous consent by Mr. Horace F. Page, of California, on the 21st of December, 1881, and referred to the Committee on Elections.

President Arthur, in his annual message, had recommended the establishment of civil government in Alaska, and several bills were introduced with that object in view, but action on the various measures was delayed and hampered by the efforts on the part of Mr. Ball's friends to have him recognized as delegate previous to any organization of the territory. Under such circumstances nothing was accomplished in behalf of Alaska beyond calling for voluminous reports from naval and treasury officials and employés of the United States Signal Service, many of which were ordered printed.

Action on the admission of Mr. Ball finally went over to the second session of that Congress, and terminated in a refusal of the House to seat him as delegate and the payment of his expenses during the contest.

In the month of October, 1882, a misunderstanding between the Hutznahu tribe and a whaling firm located at Killisnoo resulted in an appeal of the whites for protection and the subsequent shelling of the Hutznahu village by the revenue cutter Corwin, Captain M. A. Healy, and a naval detachment under Captain Merriman, of the United States steamer Adams. This affair attracted much attention, and gave a stimulus to the movement in favor of establishing civil government in Alaska. Much precious time was consumed, however, in demanding and discussing reports on the incident from the heads of the Navy and Treasury departments, and nothing was done during the second session of the Forty-seventh Congress beyond the introduction of various bills providing for a territorial organization.

On the 18th of December, 1883, a bill providing for the organization of Alaska as a civil district was introduced in the Senate by Mr. Benjamin Harrison, of Indiana. A number of other measures were before both Houses of Congress at the time, but the whole movement in favor of Alaska was speedily reduced to a thorough discussion of the Harrison bill, which provided for a governor; a district court, with a judge, a clerk, and a district attorney; a United States marshal; 4 United States commissioners, and 4 deputy marshals, the governor and court to reside at Sitka and the commissioners and deputies at Sitka, Juneau, and Unalaska. An effort made by Senator Miller, of California, to provide for a commissioner and a deputy marshal at Kadiak, was also defeated. A clause of this act which provides for schools at the expense of the general government, not only for the Indians but for the whites, met with much opposition. Among the chief objectors to this clause were Messrs. John J. Ingalls, of Kansas; Charles W. Jones, of Florida, and Preston B. Plumb, of Kansas. The latter, during a debate on January 21, 1884, expressed himself as follows:

> If this section is literally carried out, there will be a great many schools in a great many places in Alaska where schools would not be considered necessary in any other portion of the habitable globe.

And again, on the following day:

> Mr. President, we have not done that with any other part of our people. We are opening a door which it will take a great many hundred thousand dollars to close.

After some discussion on the subject of regulating the liquor traffic, the bill passed the Senate on the 25th of January, 1884. The House of Representatives took up the measure on February 6, and, substituting it for the numerous other bills on the same subject then before it, passed it, after extended debate, on the 13th of May. The approval of President Arthur on the 16th of the same month gave to Alaska its political status as a civil district of the United States, after the failure of 25 other bills introduced in Congress previous to 1883.

The first governor appointed under the organic act was John H. Kinkead, of Nevada, who was one of the pioneer traders of Sitka and had subsequently served a term as governor of the state of Nevada. The first district judge was Ward McAllister, a young lawyer of California. The administration which superseded the naval authority previously existing found itself hampered by lack of all means for exercising its functions. An example of the embarrassing state of affairs then existing is shown in a correspondence between the judge and the commander of the naval force at Sitka, in December, 1884, which was printed in House of Representatives Executive Document No. 227, second session, Forty-eighth Congress:

SITKA, ALASKA, December 2, 1884.

DEAR SIR: I have committed one Michael Travers to jail, in default of $1,000 bail, for trial at the May term of the district court, he being charged with the offense of selling malt liquors to Indians. Under the circumstances, and considering the peculiar condition of affairs now existing in this territory, the want of funds to provide for the maintenance of prisoners, and, in fact, the neglect of the government to provide for the civil government in any way, I am obliged to request you to allow the said Travers to be confined in your prison, and to ask you also to feed him while so confined, as you have so kindly done in other urgent cases.

Should you see proper to comply with this request, I will be very much obliged, as otherwise I will be under the necessity of discharging the prisoner.

I have the honor to remain, your obedient servant,

WARD MCALLISTER,
United States District Judge for Alaska.

Captain H. E. NICHOLS,
Commanding United States Man-of-war Pinta.

UNITED STATES STEAMER PINTA (FOURTH RATE),
SITKA, ALASKA, December 3, 1884.

SIR: I have to acknowledge the receipt of your communication of the 2d instant regarding the issue by the navy of a ration to one Michael Travers, who in default of bail has been bound over for trial at May, 1885, term of the district court, and requesting from me the issue of the ration for his benefit until that time.

In reply, I would say that, while I consider myself under every obligation to assist the civil authorities of Alaska in the execution of the laws for the district government, yet I can not under any circumstances place myself in the position assumed by you.

It is possible, and indeed probable, that you do not understand that I am personally responsible through my purse for every order I give to the paymaster for the issue of rations, clothing, or money in any irregular manner. This action which you desire is most irregular. You may quote as a precedent the case of the Indian now in prison awaiting trial for murder. To me it is no precedent, for up to the time of my arrival here there was no government beyond that exercised by the common sense of the senior naval officer.

At the urgent personal request of Governor Kinkead I consented to allow the Indian's ration to go on until your arrival, when it was supposed in the natural and proper state of affairs his trial would take place, this being, as I understand, a regular session of the district court, or if even a special session the facts are the same.

Referring to your letter, I quote, "and in fact the neglect of the government to provide for the civil government in any way", I would respectfully suggest that it is rather late in the day to bring that up; you should have found that out immediately upon your arrival here, and it is possible that some means might have been taken to tide over the difficulty.

You inform me that, unless I am willing to feed the said Michael Travers, you will be under the necessity of discharging him. I must distinctly state that I decline in every particular to be the pivot on which the success of this new civil government of Alaska shall swing. The fact of the commitment of Travers depends upon the law and the evidence, and not upon the fact whether I will feed him or not. The officer of the civil government who has charge of the prisoner is responsible for that part of it.

In conclusion, I would say to you as district judge that if you do not feel that you can execute the laws of this new district, because an all-wise government has not seen fit to provide you with such means as you deem necessary, that you allow the business to revert to its former very peaceful state, or else, in consultation with such government officers as are officially here to aid and assist in carrying out the laws, make such arrangements as will afford temporary relief.

Until some further and distinct understanding is arrived at I must, after December 5, proximo, decline to issue rations to the Indian prisoner, and in no case can I issue a ration to Michael Travers.

I am, sir, very respectfully,

H. E. NICHOLS,
Lieutenant Commander, United States Navy,
Commanding United States Steamer Pinta, and Senior Officer Present.

Hon. WARD MCALLISTER,
United States District Judge, Sitka, Alaska.

Toward the end of the Forty-eighth Congress numerous communications were received from the departments of the Interior, Treasury, and Justice pointing out the urgent necessity of providing means for carrying on the primitive form of government established in Alaska by the "organic act".

The governor, J. H. Kinkead, in a special report, urged that all the old Russian buildings transferred by the treaty to the United States government be repaired sufficiently to permit of their use as quarters, offices, court rooms, and jails. The estimate of the cost of such repairs and of the most necessary contingent expenses for carrying on the government footed up nearly $50,000. No definite action was had on the subject at that time. The session was about to close without any legislation in behalf of Alaska beyond permission to print various reports of explorers and of officers of the navy, the revenue marine, and the signal service, when on the last day, the 3d of March, 1885, Senator Manderson, of Nebraska, introduced a resolution providing for a special committee of the Senate to visit Alaska during the recess to investigate the working and the needs of the new government and to frame an act containing such additional legislation as should be found necessary. The resolution was passed, and the committee, with Mr. Manderson as chairman, visited Sitka and southeastern Alaska during the summer of 1885.

During this recess new officers for the district of Alaska were appointed by President Cleveland, and they were confirmed during the first days of the Forty-ninth Congress. A. P. Swineford, of Michigan, was made governor; Lafayette Dawson, of Oregon, district judge; M. D. Ball, of Virginia, district attorney, and B. Atkins, United States marshal.

In the course of the same summer an incident occurred which directed public attention to the comparative helplessness of the civil authorities in the newly organized district. The laborers employed in the various mining enterprises about Juneau and Douglas island, affected by the anti-Chinese agitation then fomented on the Pacific coast, objected to the employment of Chinese in the works of the Treadwell Mining Company. Meetings were called and incendiary speeches made, which finally resulted in the expulsion by force of all the Chinamen from Douglas island. They were placed on board of 2 small sailing vessels, which the mob had seized, and started upon their way to Wrangell and Puget sound.

The company's manager appealed to the governor, who in his turn, finding it impossible to secure a sufficient posse of deputy marshals, requested the commander of the naval force at Sitka to assist in suppressing disorder and in protecting the mining company and its employés against violence.

The correspondence on this subject, as published in the House executive documents of the Forty-ninth Congress, indicates the continued want of co-operation between the representatives of civil and military authority, which had hampered the administration of Alaska from the beginning.

The most serious difficulties in the enforcement of law grew out of the sale of intoxicating liquors in the territory. The laws are very strict regarding the importation and sale of ardent spirits in Alaska. The labyrinthine network of water courses, the enormous spaces to be guarded, the appetites of the natives, the greed of avaricious white men, and the remoteness of the responsible administration, favor or stimulate a traffic in alcoholic liquors which has added serious tragedies to the recent history of southeastern Alaska and threatens the extermination of the natives.

During the ownership of Alaska by the United States it was not practicable for individuals to obtain title to land until the passage of an act entitled "An act to repeal timber culture laws, and for other purposes", approved March 3, 1891. Certain sections of this act applicable to Alaska are as follows:

SEC. 12. That any citizen of the United States 21 years of age, and any association of such citizens, and any corporation incorporated under the laws of the United States, or of any state or territory of the United States now authorized by law to hold lands in the territories now or hereafter in possession of and occupying public lands in Alaska for the purpose of trade or manufactures, may purchase not exceeding 160 acres, to be taken as near as practicable in square form, of such land at $2.50 per acre: Provided, That in case more than 1 person, association, or corporation shall claim the same tract of land, the person, association, or corporation having the prior claim by reason of possession and continued occupation shall be entitled to purchase the same; but the entry of no person, association, or corporation shall include improvements made by or in possession of another prior to the passage of this act.

SEC. 13. That it shall be the duty of any person, association, or corporation entitled to purchase land under this act to make an application to the United States marshal, ex officio surveyor general of Alaska, for an estimate of the cost of making a survey of the lands occupied by such person, association, or corporation, and the cost of the clerical work necessary to be done in the office of the said United States marshal, ex officio surveyor general; and on the receipt of such estimates from the United States marshal, ex officio surveyor general, the said person, association, or corporation shall deposit the amount in a United States depository, as is required by section numbered 2401, Revised Statutes, relating to deposits for surveys.

That on the receipt by the United States marshal, ex officio surveyor general, of the said certificates of deposit, he shall employ a competent person to make such survey, under such rules and regulations as may be adopted by the Secretary of the Interior, who shall make his return of his field notes and maps to the office of the said United States marshal, ex officio surveyor general; and the said United States marshal, ex officio surveyor general, shall cause the said field notes and plats of such survey to be examined, and if correct approve the same, and shall transmit certified copies of such maps and plats to the office of the Commissioner of the General Land Office.

That when the said field notes and plats of said survey shall have been approved by the said Commissioner of the General Land Office he shall notify such person, association, or corporation, who shall then, within 6 months after such notice, pay to the said United States marshal, ex officio surveyor general, for such land, and patent shall issue for the same.

SEC. 14. That none of the provisions of the last 2 preceding sections of this act shall be so construed as to warrant sale of any lands belonging to the United States which shall contain coal or the precious metals, or any town site, or which shall be occupied by the United States for public purposes, or which shall be reserved for such purposes, or to which the natives of Alaska have prior rights by virtue of actual occupation, or which shall be selected by the United States Commissioner of Fish and Fisheries on the islands of Kadiak and Afognak for the purpose of establishing fish culture stations. And all tracts of land, not exceeding 640 acres in any 1 tract now occupied as missionary stations in said district of Alaska, are hereby excepted from the operation of the last 3 preceding sections of this act. No portion of the islands of the Pribilof group or the seal islands of Alaska shall be subject to sale under this act; and the United States reserves, and there shall be reserved in all patents issued under the provisions of the last 2 preceding sections, the right of the United States to regulate the taking of salmon and to do all things necessary to protect and prevent the destruction of salmon in all the waters of the lands granted frequented by salmon.

SEC. 15. That until otherwise provided by law the body of lands known as Annette islands, situated in Alexander archipelago, in southeastern Alaska, on the north side of Dixon's entrance, be, and the same is hereby, set apart as a reservation for the use of the Metlakahtla Indians and those people known as Metlakahtlans who have recently emigrated from British Columbia to Alaska, and such other Alaskan natives as may join them, to be held and used by them in common, under such rules and regulations and subject to such restrictions as may be prescribed from time to time by the Secretary of the Interior.

The principal officers in Alaska, appointed by President Harrison, are Lyman E. Knapp, governor; John S. Bugbee, judge of the United States district court; Orville T. Porter, marshal; Robert C. Rogers, William R. Hoyt, James Sheakley, and Louis H. Turpley, United States commissioners.

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