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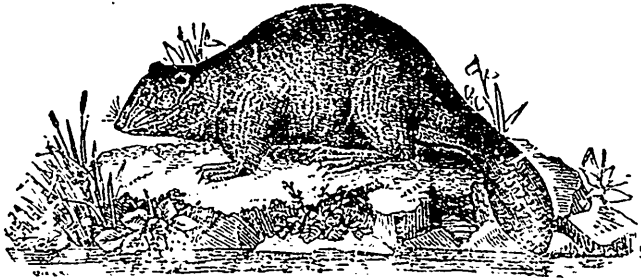
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April, 1894.

THE
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VOLUME VIII. No. 1.



THE BEAVER (*Castor Canadensis*, Kuhl).

CONTENTS.

	PAGE
Title page	1
List of Officers	2
List of Members	3
Alaska; by O. J. Klotz	6

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ALASKA.

By OTTO J. KLOTZ, D.T.S.

(Of the Alaska Boundary Survey)

(Read before the Ottawa Literary and Scientific Society, February 15, 1894.)

It was not many years after the discovery of the eastern coast of America that the South Sea or Pacific Ocean was seen by Balboa from the heights of Darien. Balboa was the first European to place foot on the western coast of America.

Sir Francis Drake, the celebrated English admiral, was the first to explore the western coast northward, as far as latitude 48° , *i.e.*, north of the mouth of the Columbia River.

Having landed, he named the country New Albion, and took possession of it in the name of Queen Elizabeth; this was in 1578. The object of his exploration was to find a passage to the north Atlantic.

For the next 150 years no discoveries of importance were made on the west coast of North America.

Hitherto all discoveries in America, both on the east and west coasts, had been made by expeditions crossing the Atlantic westward, but in 1741 Vitus Bering, the intrepid Russian explorer, discovered the continent in latitude 58° , by sailing eastward from Kamtchatka. That part of the continent where Bering landed is now known as Alaska,—the subject of our discourse.

The principal motive of all the expeditions up to this time was not for the increase of geographical knowledge, but for material wealth; legitimately obtained we call it commerce, otherwise conquest.

The Spanish, after Columbus, set out to discover and obtain the silver of Mexico and Peru; and Sir Francis Drake, to discover the Spanish galleons—and he found them. The Russians were after fur, and geography was benefitted by the discovery of the Aleutian and Kurile Islands, the north-west coast and Bering Strait.

The next explorer of note on this part of the continent was the celebrated navigator, James Cook. a navigator the merits of Captain

Cook are of the highest order. He made many discoveries in the South Sea, and added greatly to Britain's possessions. In 1778, after leaving the Sandwich Islands, which he discovered, he reached the west coast of the continent, which he followed northward in the hope of finding a passage to the Atlantic. He penetrated as far as the bay now known as Cook's Inlet in Alaska, but of course failed in the object of his search. At Bering Strait he was repelled by the impenetrable wall of ice. Returning to the Sandwich Islands to winter there, he met a sad death at the hands of the natives.

We now come to the last and most important explorer, from a geographical point of view, that laboured along the north-west coast of the continent,—George Vancouver.

As an accurate geographer I place Vancouver above anyone previous or subsequent to his time, considering the extent of coast and shore-line covered, and the time taken for executing the same. It is now a hundred years since Vancouver made his survey; look at the most recent charts extending from California to Cook's Inlet—1,500 miles in latitude—and thousands of miles of coast-line, and what do we find new—minor details—the groundwork is as prominent to-day as a century ago. To one familiar with Vancouver's work and the intricate British Columbian and Alaskan coast, the former must ever be an object of the highest admiration.

Vancouver was with Captain Cook when the latter visited the American continent. After Cook's death Vancouver was given the command of an expedition to the north-west coast of America, the object being to take over from the Spaniards their territory in that region, and to explore the coast from 30° north latitude to Cook's Inlet with a view to the discovery of an eastward passage to the Great Lakes in the British dominions.

Vancouver was then only 33 years of age. He spent the seasons of 1792, 1793 and 1794 in surveying the coast, wintering in the Sandwich Islands. He died when he was but forty, and before he had quite finished the narrative of his work. His zeal led him to take an active share in all operations, and the hardships he thus suffered tended, no doubt, to shorten his life. He was a man of great tact, humanity, generosity, and uprightness of character.

The man who finally established the Russian Empire on the North American continent was the iron-willed Baranov, and the extension of the Muscovite's dominions was due to the value of the fur trade,—sea otters and seals.

In 1797, the various trading companies of Eastern Siberia and the American colonies were consolidated with the Russian-American Company, which, in 1799, obtained a charter from the Imperial Government, granting it exclusive rights in the new Russian possessions. This charter marks an epoch in the history of Alaska, which from that time until the transfer of the country to the United States became identical with that of the Russian American Company.

In 1811, the Russians established themselves on the coast of California, the object being to prosecute agriculture and thereby make California the source of supply for provisions, but in this respect the enterprise proved a failure; for the Siberians and Aleuts, who were placed there, were but very indifferent farmers. Between the Stikine and Bodega Bay in California the Russians never had an establishment.

In 1774-75 the Spanish navigators, Perez and Quadra, made some explorations on the west coast, and later Captains Meares, Portlock and Dixon.

We will now turn our attention to the physical features of the country. The word Alaska, or Aliaska, was first applied to the narrow peninsula of the north-western most part of the North American continent, and extending into the Pacific to where the chain of the Aleutian islands begins. Now, the word Alaska is used to designate the vast territory lying between the Arctic and the Pacific and west of the 141st meridian, together with a narrow strip along the coast extending southward to Portland Canal, and including the adjacent and Aleutian islands. The coast of Alaska, washed by the Pacific, sweeps northward and westward from Dixon Entrance in a mighty curve, measuring over 1,200 miles, to the western extremity of the Alaskan peninsula; and from here again the Aleutian chain of islands stretches, far towards the coast of Asia, in another long curve of nearly 1,000 miles. The most southerly part of the latter curve is in latitude $51^{\circ} 30'$, that is, about the latitude of London, England. The most northerly part of Alaska is at Point

Barrow in the Arctic Ocean. The area of land comprised within the limits of Alaska has been estimated at 531,000 square miles, one-sixth of the total area of the United States.

The south-eastern part of Alaska, the narrow strip already mentioned, and which at the present time most interests us on account of its undefined boundary, is shielded from the open sea by a vast archipelago of islands, large and small, 1,100 in round numbers, most of these being mountainous throughout, and all covered with a dense growth of spruce, hemlock and cedar.

The islands vary in size from 125 miles in length to mere definitions. Beside the channels, straits, bays, inlets and canals found here, the fiords of Norway and scheres of Finland sink into insignificance.

As we proceed northwesterly along the coast, the mountains increase in height culminating in the lofty St. Elias on or near the international boundary. His foot is laved by the Pacific, while his snowy head is wrapped in clouds. Mont Blanc, the giant of European mountains, would need a pedestal 3,000 feet high to bring it to the height of our international landmark.

The highly mountainous character of the coast line continues to the extremity of the Alaskan peninsula.

On rounding the peninsula and following the shore line, a total change of the aspect of the coast can be observed. Low, sandy reaches and slightly elevated moorland cover the wide interval between the mountains and the shores of Bering Sea. Similar it is along the Arctic Ocean with occasional rocky spurs and steep cliffs.

The great highway of the interior of Alaska is the Yukon, one of the large rivers of the world. In some parts of its course, through the tundra regions, it is several miles in width. Its vast unsurveyed deltoid mouth makes navigation, with anything but light-draught vessels, impossible.

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, being over 26,000 miles, while that of the rest of the United States, from Maine to California, is only about 7,000 miles.

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 Straits. The main current strikes the Queen Charlotte Islands, where it divides, one branch going south along the coast of British Columbia, while the other turns northward towards 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 effects. Thus the oceanic and atmospheric currents combine in mitigating the coast climate of Alaska, and the process is greatly aided by the configuration of the extreme north-western shores of the continent, 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 coming from the interior.

The force of these influences as mitigating the coast climate of Alaska becomes evident, when it is stated that the mean winter temperature of Sitka is nine degrees higher than that of Halifax, although Halifax is nearly 900 miles further south than Sitka.

It is obvious that with the presence of these warm, moist, currents, precipitation must be great, and so it is. The greatest rainfall on the continent of America is found on its north-west coast. The maximum recorded annual precipitation is 134 inches, or a little over eleven feet. Here in Ottawa we have about three feet, and think ourselves fairly well supplied at that.

It is not alone the excessive rain that makes the coast of Alaska somewhat undesirable as a place of abode, but the rain that does not come down, the mist and fog. The number of days in a year on which

rain has fallen at Sitka has reached as high as 26.4. No wonder that some of those who have been in Alaska believe that at man's creation a web-foot was forgotten.

Across the mountains in the interior, both of Alaska and British Columbia, the precipitation is very much less, and the range of temperature very much greater.

On account of the mild climate the snowfall on the coast is not great,—less than we have here.

Among other meteorological phenomena to be noted is the wind. In most localities and regions it is a simple matter to tell in which direction the wind is blowing, but not so on the Alaskan coast. It is something like trying to tell which way water is running in an eddy or whirlpool. Out in the broad ocean the wind has undoubtedly a constant direction, for the time being, but when it approaches the coast, passing through long narrow channels, over mountains, down mountains, around some headland or promontory, buffeted from side to side, its direction is difficult to determine, for in a trice it changes. 'The severest winds in the summer are the 'south-easters.'

Based upon theory and confirmed by experience, the barometer is, par excellence, the instrument for foretelling the weather, but we must draw the line at Alaska. Everywhere else we pin our faith to the barometer, but here the barometer is impotent ; it does nothing to aid, and everything to confuse and distress the sailor and surveyor.

The safest prediction to make is, that it will rain to-morrow, and nine times out of ten you'll be about right.

How one does enjoy a day when the sun shines ! The joy is emphasized by the privation.

It is said that the greatest volcanic region in the world lies in the north-west part of the United States, occupying a large tract in Idaho, Washington, Oregon and California. The last eruption in this region is said to have been that of Mount Baker near the British Columbia boundary in 1870. However, Alaska has still several active volcanoes, but none on the mainland, they are in the eastern Aleutian islands.

One of the most notable features of the Alaskan coast is the glaciers. Whenever the annual snowfall on mountains is greatly in excess of

evaporation and of degelation, glaciers must necessarily be formed. Before the glacier is born, we have immense snow-fields or nevés. Through accumulation the snow becomes compressed, and this process continues until ice is formed. Ordinarily speaking, ice is a solid, but in reality it is not ; in fact, an absolute solid is unknown upon the earth. The behaviour of the ice is like that of a semi-plastic body. When by motion the limit of elasticity in ice is reached and fracture occurs, regelation in a great measure preserves the continuity of the mass. Under the action of gravity and lying on the mountain sides or in depressions, the ice mass flows, and in the same sense as water flows, only of course very much slower. In a river we find the greatest current near the middle, so it is with a glacier. As different rivers have different velocities, depending upon the degree of slope, similarly do we find the rate of flow in glaciers to differ widely, and for like reasons.

Of the living glaciers of south-eastern Alaska, the Muir is the largest and offers probably the best opportunity for measuring the rate of flow. This glacier has an ice front of nearly two miles discharging into the ocean. Its vertical ice-wall at the sea is over 200 feet in height, and its area, including the nevé and its ramifications, is approximately one thousand square miles, or greater than the whole of the renowned Swiss glaciers combined.

By the pursuit of the study of astronomy one is led to contemplate the utter material insignificance of man and his terrestrial domicile in the grand macrocosm,—and when one stands on this vast glacier, hears its thundering echoes as it rends and breaks in its seaward journey, as it grinds and scrapes the underlying rocks, as it changes mountains into moraines, which in time become land,—then again is he impressed with the insignificance of man's powers when arrayed against the forces of nature ;—then is a new leaf of nature opened to his view, to read its significant characters.

Measurements have been made of the recession of the Muir glacier. From them it appears that within the last few years, its average rate of recession has been nearly a thousand feet per year. The flow or forward motion of the glacier is scarcely appreciable at the sides, but in the centre it is at the rate of about 2,500 feet per year. Prof. Wright

found it, in the summer at central points and near the front, even as high as 65 feet per day. I have stated that the vertical ice wall where the glacier discharges into the sea, is 200 feet above the water, but this in no means the total thickness of the glacier there. Soundings in the immediate front of the glacier have shown a depth of over seven hundred feet, and, as this is not enough to float a mass of ice rising as high above the water as the Muir glacier, we are forced to conclude that the ice front has a thickness of over nine hundred feet.

A wall of ice nine hundred feet high and nearly two miles long, breasting the element from which it sprang! We are struck with awe. But stop! Let us read more of history—written in characters more indelible than those of man. About fifteen miles south of the present front of the glacier, is Willoughby Island of pure rock, and over a thousand feet high, without the slightest vegetation, and showing a strongly striated surface due to glacial action. That this island was covered by this glacier within recent times is obvious to anyone who has visited the bay and noted the surrounding circumstances.

We have the record of Vancouver too, who, a century ago, passed the mouth of the bay, and reported it one mass of ice.

Hence, had we measured the thickness of the ice only a century ago, where the present ice front is, we should have found it at least 4,000 feet thick instead of 900 as at present. What stupendous change! and all almost within the space of a life. This evidence goes to show that the Muir glacier was at one time, and not long ago, much larger than it now is; but there is evidence too, that it has been much smaller, for on the west side we find a buried forest. Standing trees in situ are found there, which undoubtedly are incontrovertible evidence of a former and greater diminution of the glacier than the present shows.

To give another illustration of the rapid recession of the glaciers at present and during the past, I will quote Sir George Simpson, Governor of the Hudson's Bay Company, who, in 1841, paid a visit to Alaska. When going up Frederick Sound and Stephen's Passage he says:—
 "The valleys were lined with glaciers down to the water's edge, and the pieces that had broken off during the season filled the canals and straits with fields and masses of ice, through which the vessel could scarcely force her way.

The land on either side displayed to us mountains rising abruptly from the sea, and bearing a glacier in their every ravine. Earlier in the season, these glaciers would have been concealed by the snow, but now they showed a surface of green ice."

The district referred to by Simpson, I frequently visited during the past season, and along Simpson's route there is now not a single glacier reaching tide water. Many of the glaciers of which he speaks have entirely disappeared, and others show their terminals 2,000 feet and upwards from the sea. These are vast changes to occur in a lifetime. There are, however, still four living or tide-water glaciers outside of the great Muir glacier, which discharge ice and small bergs into the sea. Glacier ice differs vastly from Arctic sea ice. The colour of the former on a face of fresh cleavage is transparent blue of transcendent beauty, impossible to describe. It is very hard and not brittle, and in the sea slowly wastes away. It is dangerous for a vessel to run into glacier ice. Sea water ice is, on the other hand, brittle, and readily crumbles under compact, and is subject to very rapid decomposition. To illustrate the latter, Prof. Elliott mentions that on the 27th of May, 1873, the ice fields still surrounded the island of St. Paul in an unbroken mass, as they had done for the preceding five months. The following morning nearly the whole mass had disappeared. As he says, "the decomposition of the ice had taken place so secretly that its final relegation to its original form was fairly accomplished almost instantly and simultaneously, and without warning to human eye; the alternate layering of salt, in ocean water ice, accounts for this peculiar vanishing of sea floes."

That the discharge of glaciers must to some extent affect the temperature of the neighbouring sea, is obvious. During the past season I took a series of temperature readings of the sea as well as of the atmosphere. The mean temperature of the sea along the coast was found to be about 49° F., while the coldest part was found in Endicott Arm, into which the Dawe's glacier discharges,—there the water registered 36° F., a temperature of water in which a misfortune with a boat or canoe would be equivalent to certain death. A marked difference is found even at the same place. The difference is produced

by the tides. When the tide is flooding we have the broad waters of the Pacific rolling towards the coast ; but at ebb tide the cold glacier waters from the shore run out and on the top, being lighter, and hence we find a diminution in temperature of about seven degrees F. From the observations it would appear that the mean summer temperature of the ocean outside of the immediate coast of south-eastern Alaska is about 54° F., which is that of the atmosphere too.

The resources of Alaska are—in order of value,—furs, fish, minerals and timber.

Among furs the seal fur stands vastly pre-eminent.

Our first knowledge of the seal dates back some two hundred years, when in 1684 William Dampier, the privateer, in his voyage round the world, visited the island of Juan Fernandez, of Robinson Crusoe fame, in the South Pacific, and there saw thousands upon thousands of the fur seal.

It appears, however, that a hundred years elapsed ere the fur became a prized article of commerce. Amongst other places in the South Sea in which formerly the fur seal abounded, may be mentioned Masafuera, the South Shetland, Falkland and Georgian islands.

Greed, improvidence and indiscriminate slaughter of old and young, male and female, in a comparatively few years brought about the inevitable, almost annihilation of the seal herds in the South Pacific. In two short years, 1821 and 1822, 320,000 seals were taken from the South Shetland islands alone. They killed all and spared none. The Falkland islands were the rendezvous of a large sealing fleet for a period of nearly thirty years,—1800 to 1826 inclusive, and during this period the whole Antarctic sealing ground was ravaged by the fur-sealers.

While British and American sealers were scouring the South Seas, the seal industry began to gain an importance in quite another quarter of the globe—the Pribilof islands in Alaska. Let us dwell for a moment on the history of the discovery of these valuable islands. The Russians, in their search for fur and new fields, reached the shores of Kamtchatka at the close of the seventeenth century, and there, for the first time, beheld the beautiful and costly fur of the sea-otter. The animal bearing this pelage then abounded on the coast, but by the

middle of the eighteenth century had been almost extirpated therefrom. However, the discovery of Bering island and the Aleutian chain furnished fresh fields for the capture of this valuable animal. But alas, the ravages of man were greater than nature's production, and towards the latter part of the last century the sea-otter gatherers found their occupation almost gone, and hence were obliged to turn their attention in another direction. Up to this time the fur seal, although noted, had not been much valued. Now, however, the Russians became interested in this animal. It had long been noticed by them as well as by the natives that the seal proceeded north through the chain of the Aleutian islands in the early summer and south again in the fall. Where they spent the summer and where they bred, was a profound mystery. It was only after eighteen years of unremitting search by hardy navigators that the El Dorado, the fog-bound Pribilof islands, was found, and by the man after whom the islands are named. This was in 1786. The difficulty of finding this place does not now seem strange, when we understand the currents, the winds and fogs of these waters. The Pribilof islands,—St. George and St. Paul,—lie in the heart of Bering Sea, and are among the most insignificant landmarks known in that ocean, and being almost incessantly surrounded by fog, afforded the fur seal the happiest shelter and isolation. During the year immediately succeeding the discovery of the islands, over 500,000 fur-seals were killed by the Russian hunters. It was obvious that such indiscriminate slaughtering could not continue indefinitely, and government control became necessary. As already stated, the outcome was the formation of the Russian-American Company in 1797, which held absolute sway in Alaska, practically until the cession of the territory to the United States in 1867.

The impetus to the seal-fur trade was given by the Chinese, who were the principal customers of the Russians. Kiachta, a town in the interior and on the Chinese frontier, was the great centre of trade between China and Russia, and thither the furs made a two-thousand-mile overland journey to be exchanged for teas and silks, principally the former. The Chinese prized this fur very highly and they were the first to discover the art of dyeing it.

Three years after the cession of Alaska, the Alaska Commercial Company obtained a twenty-year lease of the Pribilof islands, the consideration being an annual rental of \$55,000 and besides a revenue tax of two dollars on every skin taken. The maximum number of seal skins allowed to be shipped was 100,000 per annum. As the original cost or purchase price of Alaska was \$7,200,000, it is seen that the United States had almost from the beginning an income from these two small islands alone of nearly four per cent. on their investment for the whole territory.

A few words about the seal itself. Professor Elliott, of the Smithsonian Institution, spent several years on the dismal Pribilof islands for the express purpose of thoroughly studying seal life in all its phases, and to him most of our accurate knowledge of seal life is due. As already stated the first seal-fur of commerce came from the South Sea, hence the name South Sea seal still obtains, although by far the greater number of skins now come from the Alaskan or North Pacific waters. Whether ever the Alaskan seals migrated from the South Sea, thereby crossing the equator is not known, neither was it certainly known where these animals spent the winter months till this was discovered in the course of the investigations of the British Bering Sea Commission in 1891, when it was ascertained that the greater part of this season was passed in the waters adjacent to British Columbia and Southern Alaska. Prof. Elliott says, "there are few, if any, creatures in the animal kingdom that can be said to exhibit a higher order of instinct, approaching even our intelligence" than the fur seal.

A male in its prime, say six or seven years old, will measure $6\frac{1}{2}$ to $7\frac{1}{4}$ feet from the tip of its nose to the end of its abbreviated, abortive tail, and will weigh at least 400 pounds. The female on the other hand is very much smaller, being from 4 to $4\frac{1}{2}$ feet long, and is only about one-sixth of the weight of the male, but is much more shapely in its proportions. The adult males are the first to arrive in the spring, between the 1st and 5th of May, on the seal grounds or rookeries on the Pribilof Islands. It may be remarked also here that after the adult males land, they never leave the island nor partake of any food whatsoever until they leave some months later in the fall to spend the winter

in more southern waters. When they arrive in spring, they are rolling in fat, and when they leave in the fall they are a bundle of skin and bones. As soon as they arrive on the breeding grounds, each one, according to his physical persuasive power, pre-empta a certain area, and remains there, awaiting the arrival of his spouses. for the seal is polygamous. Many of these adult males or bulls exhibit wonderful strength and desperate courage. Prof. Elliott marked one veteran, "who had fought forty or fifty desperate battles and fought off his assailants, who coveted his position, every time. When the fighting season was over, the veteran was covered with scars and frightfully gashed ; raw, festering and bloody, one eye gouged out, but lording it bravely over his harem of fifteen or twenty females, who were all huddled together on the same spot of his first location and around him." Between the 12th and 14th of June the first of the cow seals arrive at the islands. The arrival of the cows is co-incident with the ending of the period of gestation, for one or two days after arrival the pup is born. The young are nourished by the mother, who frequently goes out to the sea to feed and bathe. The pups do not essay to swim, which they must first learn, like any boy, until they are a month or more old. The head and eyes of the female are exceedingly beautiful ; the large, lustrous, blue-black eyes are humid and soft, with tenderest expression. The covering to the body of the fur-seal is composed of two coats, one having a short, crisp, glistening over-hair ; and the other a close, soft, elastic pelage or fur, which gives the distinctive value to the pelt. When the skin reaches the furrier the hair has been removed and the pelage dyed.

Two-thirds of all the males which are born, and they are equal in number to the females, are never permitted by the remaining third, strongest by natural selection, to land upon the breeding ground, but this great band of "bachelor" seals, as they are aptly termed, is obliged to live apart entirely, sometimes miles away from the rookeries. In this admirably perfect method of nature are these seals, which can be properly killed without injury to the rookeries, selected and held aside, so that they can be taken without disturbing in the slightest degree the entire quiet of the breeding grounds where the stock is perpetuated. Such was, according to Prof. Elliott, the state of the rookeries in 1872-74, but

when he revisited the islands in 1890 he found that a great change had occurred. The "bachelors" no longer lay out in areas distinct from the breeding grounds, but in reduced numbers sought the protection afforded by the vicinity of the breeding grounds, so that it was no longer possible to drive the non-breeding seals without disturbance to the breeding rookeries. This great change he attributes to over-driving and over-killing of seals upon the islands and to the operations of pelagic sealers, acting concurrently. The relative importance of these causes of undoubted decline in numbers, on the Pribilof islands at least, have been earnestly discussed in connection with the Bering Sea arbitration.

When driven inland for a short distance by the natives, the seals find themselves upon the killing grounds.

Care must be taken not to urge them above half a mile an hour for overheating of the seal is very detrimental to the fur. The fur is thickest and finest in texture during the third and fourth year of life. Having arrived at the slaughtering grounds, and after the seals have cooled off, the killing begins. A hundred to a hundred and fifty are separated from the herd and on a given signal the natives, armed with oaken bludgeons five to six feet long, rapidly club and kill the unfortunate animals. They are then immediately bled and skinned. The whole work is performed in a remarkably short time. The average time taken to skin a seal is only four minutes, while the best men can do it even in a minute and a half. The skins are taken from the field to the salt house, where salt is profusely spread on the flesh-side, and they are piled up in the "kenches" or bins. After two or three weeks they become pickled and ready for shipment. Most of the skins go to London, England, for dressing and dyeing. The number of seals, male, female and young, annually visiting these islands has, from careful estimates, been found to exceed four millions.

By the middle of September the rookeries are all broken up; by the end of October, or the beginning of November all the fur-seals of mature age have left the islands. During August they shed their coats.

As practically only prime skins are taken at the islands, the great variation in seal-skin sacques is due mostly to the quality of work whereby the fur was treated and prepared for wear. A properly dyed skin,

one that has been conscientiously and laboriously finished,—for it is a labour requiring great patience and skill, will not rub off nor “crock” the whitest linen when moistened; and it will wear the weather for six or seven seasons without showing the least bit of dimness or raggedness. The unhairing, in which the over-hair is deftly combed out and off from the skin, is done by heating the skin to a certain point so that the roots of the fur are not loosened, while those of the coarser hirsute growth are. If this is not done with perfect uniformity, the fur will never lie smooth, no matter how skilfully dyed: it will always have a rumpled, ruffled look. In dyeing, the liquid dye is put on with a brush and the skins hung up and dried. The dry dye is then removed, and so on until eight to twelve coats have been applied to produce a good colour. The skins are then washed clean, the fur dried, while the pelt is moist.

The fur-seal is a voracious eater. Its food is fish to the practical exclusion of all other diet. Cod, herring and salmon must lay tribute to its insatiable appetite, and the great North Pacific, 5,000 miles across, between Japan and the Strait of Fuca is its fishing pond. A low estimate of the annual consumption of fish by seals visiting the Pribilof islands, gives the enormous quantity of six million tons. As Prof. Elliott says: “The fishing of man, both aboriginal and civilized, in the past, present, and prospective, has never been, is not, nor will it be, more than a drop in the bucket contrasted with the piscatorial labour of these ichthyophagi in those waters adjacent to their birth.”

The most valuable of all furs is that of the sea-otter, which, however, is becoming year by year scarcer. Its haunts formerly extended along the whole coast of Alaska and further south, but the animal is now seldom met with. A prime skin is worth upwards of \$300.

Of land furs may be mentioned the land-otter, the brown and black bears, the beaver, the red, the black, the silver and the Arctic fox, and the mink and martin. The red fox is the most widely distributed fur bearing animal in Alaska. In south-eastern Alaska the principal fur obtained is the black bear. For hunting, the Indians are provided with rifles, and they have generally a very exalted idea of the value of their game. It is not an uncommon thing for an Indian, after not receiving the price demanded at Juneau, to start off with his canoe for Port



SUMMARY

— of —

Canadian Mining Regulations.

NOTICE.

THE following is a summary of the Regulations with respect to the manner of recording claims for *Mineral Lands*, other than *Coal Lands*, and the conditions governing the purchase of the same.

Any person may explore vacant *Dominion Lands* not appropriated or reserved by Government for other purposes, and may search therein, either by surface or subterranean prospecting, for mineral deposits, with a view to obtaining a mining location for the same, but no mining location shall be granted until actual discovery has been made of the vein, lode or deposit of mineral or metal within the limits of the location of claim.

A location for mining, except for *Iron*, shall not be more than 1500 feet in length, nor more than 600 feet in breadth. A location for mining *Iron*, shall not exceed 160 acres in area.

On discovering a mineral deposit any person may obtain a mining location, upon marking out his location on the ground, in accordance with the regulations in that behalf, and filing with the Agent of *Dominion Lands* for the district, within sixty days from discovery, an affidavit in form prescribed by Mining Regulations, and paying at the same time an office fee of five dollars, which will entitle the person so recording his claim to enter into possession of the location applied for.

At any time before the expiration of five years from the date of recording his claim, the claimant may, upon filing proof with the *Local Agent* that he has expended \$500.00 in actual mining operations on the claim, by paying to the *Local Agent* therefor \$5 per acre cash and a further sum of \$50 to cover the cost of survey, obtain a patent for said claim as provided in the said Mining Regulations.

Copies of the Regulations may be obtained upon application to the Department of the Interior.

A. M. BURGESS,

Deputy of the Minister of the Interior.

DEPARTMENT OF THE INTERIOR,
Ottawa, Canada, December 1892.

1911

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