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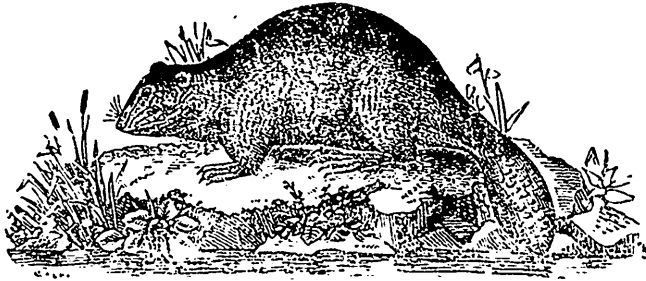
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Simpson, or even for Seattle, -one thousand miles distant on the ocean, - to sell his skins. An Indian whom I know, went in his canoe last year to Seattle and there sold his bear skins, some forty odd, and returned with \$1,400 in cash. Of the Indian character I will speak further on.

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.

The annual pack now is about 700,000 cases -nearly \$3,000,000 in value. Nearly the half of the output comes from the Karluk River on Kadiak island. This stream is not over fifty feet wide and not long, yet a dozen canneries draw their supply therefrom. Some years the run of salmon is much greater than usual. During the past season salmon were very plentiful. About the beginning of June they commence coming in from the ocean to ascend the streams for spawning. As the summer advances their number increases, up every river and stream, rivulet and rill, instinct drives them to fulfil their mission. Many succeed, but hundreds of thousands, nay millions, perish miserably at the mouths of torrential streams or cascades, attracted thither by the fresh water. They are pursued and attacked by the dog-fish, a species of shark, and one often sees salmon swimming about with pieces bitten out of their sides; and again towards fall thousands are found blind, hopelessly swimming about the mouth of their goal. It is a pitiful sight. Their race is run. High tide piles them on the beach to rot. For miles the air becomes offensive beyond endurance, and more than once was I obliged to change our proposed anchorage on account of the shoals of dead salmon. In south-eastern Alaska all salmon are packed by Chinese who are imported for the season from Portland or San Francisco.

Next to the salmon the codfish stands foremost in quantity as well as in commercial importance. However, as the demand is limited, the development of the cod-fisheries is very limited, the annual catch being only about \$40,000. The fish next in importance is the halibut, which is found in great numbers in favoured localities in south-eastern Alaska. It and the salmon form the great staple for consumption by the natives.

There is very little halibut exported. We caught, one day, with two hooks and in less than an hour, over half a ton of halibut. It is a delicious article of food and its most toothsome part is the dorsal fin.

To the Indians the Oolachan or candle fish is of considerable importance. It is a small fish and very oily, in fact so oily, that when dry it will burn like a taper or candle, hence the name candle-fish. The oil obtained from it is used by the coast Indians as an article of trade with the interior Indians, who are very fond of it.

Numerous whales may always be seen sporting and spouting in Frederick Sound, but are unmolested by natives and whites.

The Killer Whale (*Orca ater*) is frequently seen too, and it is a sight to see a huge whale when pursued rise vertically out of the water forty feet and then strike with terrific force, splashing the water with volcanic effect.

Immense shoals of herrings visit some of the bays. However, there is only one establishment—Killisnoo—where herring are caught for commercial purposes. All the herring caught there are converted into oil, and the residue is pressed, roasted and ground and sent to the sugar plantations on the Sandwich Islands as a fertilizer. At Killisnoo, the wharf, the walks and the factory are ever wet and saturated with fish oil, and the newcomer is very apt to perform some involuntary acrobatic feats. The Indians are very fond of herring spawn. To obtain it small branches of evergreen are placed in the sea at low tide, and with the rising tide the branches become thickly covered with roe. The twigs then look as if they had been sugared. The Indians eat it right from the branches.

Next in importance to the fisheries is the mining industry. However, when one examines the cold facts about mining in Alaska, the result is not very cheering. Leaving out the Treadwell mine, on Douglas island, near Juneau, it is safe to say that more value in labour has been expended in obtaining gold than all the gold that has been sent out of Alaska, be it from placer or quartz mining, is worth.

The Treadwell mine yields a very low grade ore, but it is very easily mined or quarried, being an open mine, and there is almost an inexhaustible quantity of ore there. The company has a 240 stamp mill for

crushing the ore, and chlorination works for extracting by chemical process the finely disseminated ore. The fumes from the chlorination works have killed the surrounding forest over a large area.

The annual output from this mine is about \$800,000, of which a little over half is profit.

On several mines back of Juncau, in the Silver Bow Basin, several hundred thousand dollars have been expended in extensive hydraulic mining, but so far the net results have not been very remunerative. Prospectors' holes, and small tunnels, are quite numerous along the coast. Each in turn had its day of showing the "best indications" and then dropped out of sight.

Mining, or rather prospecting, is undoubtedly an alluring vocation. The prospector lives and starves on hope, striking it rich some day; yet, how very small is the probability of his success and how great the sacrifice he makes.

The discovery of rich gold and silver mines or diggings is not an unmixed good. The value of these mineral finds, although sometimes very rich, is generally ephemeral. The result is an abnormal prosperity of one or more towns or cities whose birth is due to the gold or silver discovery. Railroads are built, business, bustle and activity are rampant in the mining region. After a few short years, the scene changes, mines or diggings are exhausted, there is a stampede out of the district almost as vehement as there was into it. Real estate, houses, blocks, everything immovable becomes unsaleable. Many of the people of the mining region have been ruined through its shortlived prosperity. A glaring example of these conditions is the state of Nevada, which some years ago was struck by a rich mineral wave, on the crest of which Nevada was enabled to ride into full sisterhood in the Union. To-day it lies prostrate, and her whole population, spread over an area of 110,000 square miles, is less than that of the city of Ottawa. In the same relation I might mention the Fraser River and Cariboo gold diggings in the sixties. Where are to-day the signs of prosperity of those golden footsteps of years gone by? What I wish to impress is, that a country that is solely or mainly dependent on gold or silver production is a factor in unstable equilibrium. Gold and silver mining is not conducive to the permanent

settlement of a country. The great gainers by such mining regions are the outside centres of supply, whose creation is not due to the discovery of minerals, and whose permanence is dependent on other sources of business.

A far more valuable mineral than gold or silver, is coal. Although coal has been found at several points in Alaska, yet up to the present it has not been mined for commercial purposes. That country has the greatest stability whose principal resources are food, hence the ultimate and inevitable success of Manitoba and the North-west.

To sum up, the mineral resources of Alaska thus far developed are gold mines, and of these the Treadwell mine produces nearly the whole annual yield.

We now come to the last of the natural resources of Alaska, viz : timber. The public is apt to associate with the word Alaska a cold, barren, rocky country. But such is not the case, especially not in south-eastern Alaska, where, on account of the mild temperature and copious rains, a luxuriant vegetation is seen on the strip bordering the sea. Heavy carpets and festoons of beautiful mosses, luxuriant ferns and dense undergrowth, characterize the coast region. The whole area is densely wooded. The timber line is found at an elevation of about 2,500 feet. Spruce and hemlock are the predominant varieties of wood ; red and yellow cedar are also found, but in limited quantities. On deltas and sea level terminal moraines, the poplar and cottonwood are found. The alder flourishes on old moraines and on snow slides, and the crab apple is sparingly scattered through the forest.

Although the country is densely wooded, yet the timber fit for the mill is very limited, and hence no very great value attaches to it. For some, not very apparent, reason, the United States government prohibits the manufacture of lumber in Alaska for export, even into the United States. There are a number of small saw-mills in the country, which supply the limited demand for building purposes and for the shooks used by the canneries for salmon cases or boxes. The spruce grows to a very respectable size. I have measured some logs over five feet in diameter ; however, the average is under three feet. Soil there is not much, and it is astonishing on how little the trees grow. How-

ever, the nourishment is apparently not equal to the demand, for after the trees have attained a certain height the tops die, and looking over the forest from the sea it presents the appearance of hop poles.

The lumbering is all done on the immediate coast, and the logs rolled or skidded into the sea, and then boomed and drawn by tugs to the mill.

The population of Alaska by the last census, that of 1890, gives a total of 32,000, of whom 4,300 are whites, 23,500 Indians and 2,400 Mongolians and others. There are less than 500 white women in the whole country, at which fact I think a philanthropist would rejoice.

The natives of south-eastern Alaska, with whom we are immediately concerned, belong nearly all to the great Thlinket tribe.

Everywhere in nature science is gathering facts. Facts are correlated, and cause and effect studied. Under the term cause is included the term environment. Environment plays a great part in both the animal and vegetable kingdoms. It is the key that has unlocked many of the secrets of nature, and in skilful hands will further shed light on nature's work. Thus has environment exerted its influence on the Indians in moulding their habits, customs and character, and also, to some extent, their physical traits. The island home of the Haidas in the broad expanse of the Pacific has developed them into the highest type of Indians on the coast. The Thlinket have, in general, thick, coarse, straight, black hair, large fiery eyes, a small, flat, broad nose, and large cheek-bones. As much of their lives is spent in canoes, it has impaired their powers of locomotion, and misshaped their legs, rendering them decidedly awkward on shore. Their teeth are white, but in old age become worn down by eating dried salmon on which sand and grit have gathered in the process of drying. Many of the females, in their youth, are quite rosy and comely. In complexion both sexes are surprisingly light coloured, which is not due to any admixture with whites, although admixture is not uncommon. It is recorded that formerly they bathed frequently, both in summer and winter, and thereby hardened their physique; furthermore that the children were daily bathed in the ocean; this undoubtedly resulted in the survival of the fittest. From my observations, however, I think that

this habit has gone out of vogue, judging from the faces of many of the children and grown up people as well.

The greatest curse to the Indian has been alcohol, and against this temptation he seems absolutely unable to struggle. Small-pox has ravaged the coast terribly. Rheumatism and pulmonary diseases are their worst ills, while venereal diseases are extremely destructive.

Year by year it is becoming more difficult to study the Indian, as with the increase of travel and commerce, and consequent contact with whites, he is steadily losing his native characteristics and adopting instead our customs and habits. They are reserved and taciturn and show an utter indifference, in fact contempt, towards the whites when by chance they meet on a common camping ground. This latter characteristic is different from that of our North-West Indians, who are also taciturn, but very inquisitive to see what is to be seen. They are not as fond of display and parade as formerly; however, on the 4th of July, a day they anxiously look forward to, many of them are clothed with all the fineries, not Indian, but the best to be had in the stores. Last 4th of July I happened to be at Juncau, where hundreds of Indians had gathered to attend and take part in the festivities. To one accustomed to seeing concourses of Indians in the Northwest it was a sight to study. Many of the young Indian women were dressed in silk, or satin, or velvet; in white, red, blue, yellow or black: the hair "banged" and crowned by a nobby hat; the face powdered à la mode; the feet encased in buttoned kid boots, and perfume and jewelry galore. The older ones content themselves with wool or cotton fabrics; only one squaw did I see with the time-honoured blanket. The young men were similarly well dressed, wearing nice store clothes, silk-trimmed spring overcoats and watches, and smoking cigars. The whole illustrated what has been abundantly proved, and that is, that commerce is the great civilizer of native races.

Dancing and singing were formerly a part of their ceremonies of welcome, trade and war; but now the dancing is that of Americans and confined generally to festive gatherings. At the dance or ball given on the above day in the Juneau Opera House, the race with which some of the Indian ladies waltzed was very marked. By nature the Indian

is rather indolent, but his ambition for wealth and its inherent mark of distinction makes him enterprising. They have considerable business judgment, and it is a rare occurrence that a white man gets the better of a bargain with an Indian of south-eastern Alaska. When first visited by the early voyagers, these Indians, like all others on the coast, were bold, arrant thieves: to-day, however, this accusation cannot be made against them. They have great respect for the aged; between the sexes the rights of the women are regarded, and they live on terms of equality. They have considerable artistic taste in the use of colours, are advanced in the arts of carving in wood, slate and metal, and have fair abilities in drawing and designing. In the latter I found a marked characteristic, and that is, the absence, or scarcity at least, of curves in their designs, they being nearly all angular and rectangular.

The totem poles one finds in the villages throughout south-eastern Alaska are relics of the past. They are carved tree trunks, upwards of thirty feet high, with grotesque figures which, in a measure, represent a genealogical tree. A totem is simply an organization of consanguineal kindred into a recognized group or band. The organization is based on mother-right, (such as rank, wealth, property etc.) received from the mother. The most prominent totems met with are the wolf, raven, eagle, bear and whale.

The practice of mutilation is older than recorded history. Man never has been satisfied with either his structure or appearance, and has constantly endeavored to improve upon both. However, at present little mutilation is done. Occasionally one meets a woman with a pierced under lip, a projecting plug being inserted into the hole; and also women with tattooed arms and hands. The most hideous practice still in vogue among the women is that of painting the face black, leaving a large circle around the eyes unpainted, thereby making the face most repulsive. The paint consists of fish-oil and charcoal, and acts as a preventive against mosquitoes. Another use is for improving the complexion, and for this purpose it is efficient. I recollect seeing a squaw going off with a blackened face for some weeks on a hunting tour with her husband; after they returned, she washed herself and emerged like a butterfly from the chrysalis, clean, fair and bright.

The canoe is to the North-west coast what the camel is to the desert. It is to the Indian of this region, what the horse is to the Arab. It is the apple of his eye and the object of his solicitous attention and affection. The canoes are hewn out of one solid cedar trunk, and are now seldom made over 30 feet long, although formerly they were made over twice that length and carried several tons. Every year finds the Indians more and more abandoning their old form of one-room houses, earth floor and central fireplace, and adopting our manner of building. In short, the Indian is day by day becoming more of a white man. He is still fond of dogs, ad infinitum one might say, especially when one hears the apparently preconcerted simultaneous howl of the colony. Their food, they mostly find on the tide flats, where the Indian table, too, is set twice a day. The advance of civilization has not robbed the Alaskan Indian of his means of sustenance, as the disappearance of the buffalo has our North-west Indian. Commerce and civilization can never rob the Alaskan Indian of his food. Sepulture as now practiced is mostly by inhumation-at-length. They also buy cheap paper-covered trunks into which the corpse is packed and placed in a small enclosure or house, over which float streamers or flags to ward off the evil spirits. Cremation and aerial deposition are not practiced now. The shamans, or medicine-men, witch-craft, and slavery received their quietus after the United States came into possession of Alaska. Similar it is with the potlach, or grand party as we would call it, which served as in modern society to a great extent to give a social standing. The Indian often gives potlaches beyond his legitimate means; he probably anticipated the white man. At the ceremony of an Indian house-warming at Wrangell it cost the host \$5,000 in blankets and other presents.

In conclusion I will speak briefly of the Survey being made in Alaska by our Government.

The definition, by treaty in 1825, of the boundary line of Alaska was the outcome of, and a side issue in the protest of Great Britain against the unwarranted assumption by Russia of exclusive jurisdiction in Behring Sea. The British position was at the time tersely stated by the significant words—"We negotiate about territory to cover the remonstrance upon principle."

The treaty made the boundary in south-eastern Alaska run along the summit of the mountains situated parallel to the coast, but in no case to extend farther inland than ten marine leagues. Although at the time of the treaty, Vancouver's and other charts existed, showing accurately the shore line and islands, yet of the true topography of the country itself little was known : in fact, our survey is the first attempt to determine the topography on which by the terms of the treaty the position of the boundary line depends ; hence it will be seen and understood that the joint survey now being made is not to define the boundary line, but to get the topography of the country adjacent to the coast, so that, thereafter, intelligent discussion can take place and ultimate delimitation on the ground be effected.

The system of photo-topography, which was developed by the Surveyor-General, Captain Deville, and so successfully applied in our Rocky Mountains, was adopted by the Canadian Boundary Commission for its work in Alaska, where, on account of the intensely mountainous character of the country it was especially applicable. It may be mentioned with pride that the officers of the United States government who were in the field with us, acknowledged our method far superior to theirs, in fact said that our method was the only practicable one in such a tumultuous region.

Armed with a specially constructed camera and small transit instrument, the surveyor with his assistants climbs the mountain peaks and there makes angular measurements, and takes photographs of the surrounding country within a radius of at least ten miles. It is scarcely necessary to say that his work is intensely laborious, and often dangerous to life ; breaking his way through jungles of dense undergrowth in the primeval forest, fighting that poisonous shrub, the devil's club ; crawling up and around precipices, crossing treacherous glaciers with yawning crevasses and chasms ; standing with wet clothes on a pinnacle in a howling wind and at times in a snow storm : such are a few of the trials and tribulations of the photo-topographer ; but he is happy as long as he gets good views ! However, when, time and again, he has to ascend thousands of feet the same mountain only to find himself enveloped in a fog or clouds at the summit, then !—well, he climbs again.

The alpenstock is an indispensable adjunct for climbing. Inexperienced men invariably consider a gun or rifle very desirable in climbing, "to shoot a bear, don't you know." Suffice it to say, no bears were shot while mountain climbing. The picture presented to one, on one of the summits, is well described by a recent writer thus :

"What a scene of desolation
I saw from the mountain peak,
Crag, snowfields, glaciation
Unutterable to speak."

Scarcely a vestige of verdure is in sight, arctic are the surroundings. What grand upheavals of nature come under the topographer's gaze ! Dozens, nay, hundreds of ice-bound and mountain-hemmed lakes come under his view and tell of receding glaciers. He traces from the névé and melting glacier, rills to creeks, creeks to streams, and streams to rivers, until they enter whence they came, the ocean.

Camping along the Ottawa is considered sport and healthy outdoor exercise ; in Alaska with the incessant rains, it is considerably the reverse. Clothes, boots, provisions, everything gets mouldy in camp. The precipitous nature of the shores makes good camping ground very scarce, and an undue regard for the high or spring tides caused some rude awakenings at night, to find oneself unceremoniously a dweller in the Pacific or living in Venice. Nearly all the ascents were made directly from the sea-shore.

The highest mountain climbed was within a few feet of 7,000 feet above the sea. The experienced climber covers about a thousand feet an hour. The descent, when over snow fields, is sometimes made at a dangerous velocity, by squatting down and tobogganing, using the alpenstock for steering. This method is rather risky, for an unseen precipice may some day be the cause of an untimely end to the topographer's career.

Several hot springs were encountered on the work. I took the temperature of a sulphurous one near the coast, and found it to register 164° F., a temperature sufficient to boil eggs. Hot springs and glaciers,—a peculiar combination !

On account of the continued saturated condition¹ of the atmosphere

great care must be exercised with photographic plates, for which reason they are kept in tin boxes, water and air-tight.

During the past season about seven hundred photo-topographic plates were obtained, covering an area of nearly five thousand square miles ; besides nearly a hundred 8×10 plates, making a collection of photographs showing glaciers, glaciation, and glacial action of the greatest interest and value.

I will dwell for a moment upon climate, with special reference to an ice age or glacial period. The absolute amount of heat received annually from the sun is not known, nor the fluctuations in the emanations from the sun, nor his rate of cooling ; all of which affect both the meteorological and climatic conditions upon the earth. However, certain it is, that astronomical conditions, periodic in their function, must produce some effect on climate. Climate, and its offspring, meteorology, are complex subjects. They are the effects or phenomena of various causes interlinked and interwoven to such a degree that up to the present time their true history has not been written. We know that summer and winter are due to the obliquity of the axis of the earth to the plane of its orbit. By summer we understand the time from the vernal to the autumnal equinox, and winter from the autumnal to the vernal. The proportion of heat received in summer is to that received in winter as 63 is to 37 ; and this is practically constant for all time ; for the obliquity changes but very little.

If there were no other changes in the relative position of the earth towards the sun, there would be no change of climate further than that indicated above ; but, as a matter of fact, the earth, revolving in an elliptic orbit around the sun, does not preserve the same orbit through all times, that is, the eccentricity changes. Furthermore the line of equinoxes passes around the ecliptic, and this, combined with the change of eccentricity of the earth's orbit, produces a change in the climate by changing the lengths of summer and winter.

For instance, at present our summers are seven days longer than our winters, there being 186 days between the vernal and autumnal equinoxes, and 179 between the autumnal and the vernal. The time required for the line of equinoxes to make a complete revolution is, in

round numbers, 21,000 years ; so that in 10,500 years (one half of that time) the conditions will be reversed ; that is, we shall have a winter of 186 days, and a summer of 179 days. Then we shall have for winter the 37 per cent. of the annual heat spread over 186 days, whereas now it is spread over only 179 ; and there must be, in consequence, a lowering of temperature, which, when counted from absolute zero or the temperature of intersellar space, must be quite an appreciable quantity, and one not to be neglected. The maximum difference there can be between winter and summer is about 25 days, and this occurs when the orbit of the earth has its greatest eccentricity, and the line of the equinoxes is perpendicular to the major axis of the earth's orbit we have then the maximum astronomic cause for glaciation.

Another important point which must be taken into consideration is this, that the total amount of heat received upon a hemisphere at any time, and in any geologic age, is practically constant, or nearly so.

Now, as the total annual heat is constant, and the ratio of heat received in summer and winter is also constant, but the lengths of winter and summer vary, therefore the average amount of daily heat received in winter and summer during different years varies. This gives us a clue for one of the causes for an ice age.

The condition favourable for glaciation is, naturally, one where the winter is longer than the summer, and whenever that condition obtains in one hemisphere of course the reverse obtains in the opposite one. We can safely say, therefore, that 10,500 years ago the northern hemisphere, if not glaciated, was at all events, disposed towards glaciation, and very likely, in part, was glaciated. From astronomic reasoning, there would be a succession of periods tending towards glaciation, the effect of which other causes may mitigate, or even obliterate, or on the other hand, intensify.

The distribution of land and water, atmospheric and oceanic currents, of course, exert a powerful influence on the conditions brought about through astronomic causes. The preponderance of land in the northern hemisphere may possibly be due to the fact that during the critical time of crust-forming that hemisphere had its winters for thousands of years in aphelion.

It is not my intention to go further into the question of ice ages, but I simply wish to show that the question of ice ages or glacial epochs is one which properly falls also within the sphere of mathematicians and astronomers, and is not one wholly belonging to the realm of the geologist.

(Mr. Klotz then showed, with the aid of a lime-light, 28 typical views of Alaska, taken in connection with the Boundary Survey. Numerous dead and living glaciers were thrown on the screen, showing lateral, median and terminal moraines; also the erosive and grinding action of glaciers. The principal features of each view were lucidly explained.)

The largest glacier in Europe is the Aletsch, which measures about fourteen miles from its *nevé* to its foot. The celebrated Mer de Glace, which descends from Mont Blanc to the valley of Chamounix, is about eight miles long below the *nevé*-field. On our survey the *nevé* of the Foster Glacier was found to extend into the interior thirty miles, and this is by no means the largest one. The glaciers of the Alps are mostly confined to the northern side of the mountains and none of them descend below 4,000 feet.

A feature of a once glaciated area, is the numerous lakes that are left after the recession of the glaciers; partly in basins that have been scooped out, and partly in basins that have been formed by damming of the valley by moraines. Those of the latter kind become relatively soon drained by the erosion of the barrier. In Tyrol, during the past century, no less than one hundred and eighteen lakes have disappeared, as found by comparison of maps covering that period.

Knowing the origin, then, of many lakes in northern latitudes we are not surprised at the innumerable lakes that dot Canada from Halifax to the Mackenzie.

Norway presents a similar picture.

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- "The Seal Islands of Alaska," H. W. Elliott.
 "The Coast Indians of Southern Alaska and Northern British Columbia," by
 A. P. Niblack.
 Eleventh Census, 1890, U.S.

Abstract of Meteorological Observations

	MONTHS.				
	Jan.	Feb.	March.	April.	May.
Average height of barometer at 32 and reduced to sea-level	29.997	30.147	30.067	30.047	29.863
Highest barometer	30.650	30.951	30.611	30.615	30.299
Lowest barometer	29.086	29.300	29.519	29.244	29.267
Monthly and annual ranges	1.564	1.651	1.092	1.371	1.032
Average temperature of the air (Fahr.)	3.61	9.82	23.19	36.47	53.33
Difference from average	-7.21	-2.58	+0.29	-1.13	-2.17
Highest temperature	40.2	38.8	45.0	65.2	87.5
Lowest temperature	26.2	-23.1	-5.2	9.0	33.8
Monthly range	66.4	61.9	50.2	56.2	53.7
Average maximum temperature	11.50	19.21	31.99	46.16	64.53
" minimum temperature	-5.45	-1.52	13.84	27.49	43.91
" daily range	16.95	20.73	18.15	18.67	20.62
Average pressure of vapour	0.050	0.065	0.112	0.178	0.301
Average humidity of the air	83	83	82	79	73
" temperature of the dew point	3.0	9.0	20.8	31.6	45.2
Amount of rain in inches	R.	0.52	1.04	2.38	4.69
Difference from average	-0.59	-0.02	+0.17	+0.87	+2.37
Number of days of rain	1	2	8	15	17
Amount of snow in inches	30.0	26.0	2.5	5.9	...
Difference from average	+7.8	+2.8	-12.2	+0.7	*
Number of days of snow	13	12	6	5	.....
Percentage of sky clouded	65	59	51	56	58
Average velocity of wind	5.95	7.32	9.81	9.70	8.20
Auroras	0	2	1	1	0

at Ottawa for the Year 1893.

MONTHS.							YEAR.
June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	
29.985	29.922	29.993	30.020	30.066	30.033	30.120	30.022
30.217	30.219	30.268	30.364	30.608	30.733	30.956	30.956
29.616	29.589	29.483	29.534	28.957	29.491	29.357	28.957
0.601	0.630	0.785	0.830	1.651	1.242	1.599	1.999
68.05	66.67	65.94	53.56	48.03	32.68	11.53	39.41
+ 1.85	- 2.63	- 0.66	- 4.44	- 3.38	0.69	- 4.56	- 1.71
91.5	88.3	94.8	76.3	72.9	54.2	37.0	94.8
49.5	49.0	45.5	34.9	21.5	7.5	- 25.2	26.2
42.0	39.3	49.3	41.4	51.4	46.7	62.2	121.0
78.79	78.50	77.83	62.92	58.75	38.58	21.46	.....
58.05	56.74	55.95	44.44	38.68	24.85	0.45	.....
20.74	21.76	21.88	18.48	20.07	13.73	21.01	19.40
0.545	0.486	0.504	0.338	0.272	0.161	0.080	0.258
78	73	78	80	76	82	85	79
61.4	58.2	59.2	48.2	42.5	29.1	11.0	.....
4.40	5.67	8.04	3.24	1.18	1.43	0.51	33.10
+ 1.74	+ 2.54	+ 4.80	+ 0.58	- 1.25	- 0.18	- 0.21	- 10.82
13	14	15	15	9	10	5	124
.....	.....	.....	.....	.....	5.0	44.0	113.4
.....	.....	.....	.....	- 1.0	- 4.6	+ 20.4	+ 13.9
.....	.....	.....	.....	1	11	19	67
49	52	52	55	55	65	67	57
5.40	6.11	5.06	5.69	7.75	7.42	8.24	7.22
0	0	2	3	3	0	1	13

Frequency of the Different Winds at 7 a. m., 2 and 9 p. m. Daily.

	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.
January.....	1	4	21	1	1	1	28	10	20
February.....	5	5	14	3	5	5	26	7	14
March.....	10	2	17	1	10	24	19	6	4
April.....	10	4	17	2	9	9	21	9	9
May.....	5	1	22	3	12	15	16	8	11
June.....	8	12	6	7	20	9	16	1	11
July.....	4	1	4	3	12	8	33	16	12
August.....	15	7	10	2	11	7	17	17	7
September.....	9	5	6	4	13	11	21	12	9
October.....	3	4	20	3	20	17	9	11	6
November.....	6	4	17	6	9	18	19	6	11
December.....	4	7	21	1	5	17	18	10	10
Year.....	74	50	175	30	127	141	243	113	130

Coldest day of Year, 11th January. Mean temperature - 17. 80.

First rain of year, 29th January.

First thunder storm, 8th April.

Last snow of season, 15th April, 5 inches fell.

Last frost of season, 29th April.

Warmest day of year, 15th June. Temperature 76 48.

Heaviest rain storm of year, 28th-29th August, 3.92 inches fell.

First frost, 4th September.

First entry of temperature below 32, 17th October, (28° 9.)

First snow 29th October, not measureable.

First entry of temperature below zero, 2nd December (- 2.)

Heaviest snow storm of year, 15th 16th December, 16 inches fell.

EXCURSION No. 1.

The date for the first Excursion has not yet been decided upon. It will probably be to one of the picturesque and favorite localities north of the Ottawa River. Due notice will be given by the Secretary when arrangements have been concluded.



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

131958

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