REPORT

OF THE

MINISTER OF LANDS

FOR THE PROVINCE OF

BRITISH COLUMBIA

FOR THE

YEAR ENDING 31st DECEMBER,

1911.

THE GOVERNMENT OF
THE PROVINCE OF BRITISH COLUMBIA.

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1912.

REPORT

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MINISTER OF LANDS,

1911.

VICTORIA, B.C., February 16th, 1912.

To His Honour THOMAS W. PATERSON,
Lieutenant-Governor of the Province of British Columbia:

MAY IT PLEASE YOUR HONOUR:

Herewith I beg respectfully to submit the Annual Report of my Department for the year ending December 31st, 1911.

WM. R. ROSS,
Minister of Lands.

DEPARTMENT OF LANDS.

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VICTORIA, B.C., 16th February, 1912.

Hon. W. R. Ross,
Minister of Lands, Victoria, B.C.

SIR,—I have the honour to submit herewith the several reports of the different branches of the Department of Lands for the year 1911.

A reference to the report of the Surveyor-General will show that during the year there was added to the surveys of the Province some 3,225,000 acres of land, of which area close upon 1,000,000 acres were surveyed by this Department, 1,350,000 being surveys of land-purchase applications, while surveys of pre-emptions, timber licences, and leases under the "Coal-mines Act" and "Land Act" make up the balance.

All of the surveys carried on by the Department were made within reserved areas contiguous to the lines of railways under construction and projected, and upon the completion of such surveys the lands were apportioned for three services—for pre-emption, for University endowment, and for sale.

This made it possible, by a system of blocking out the land, to secure University lands without hampering in any manner the settler seeking to acquire lands under the pre-emption provisions of the "Land Act," in that no such selections for University or sale purposes were made in localities selected for settlement by pre-emption, with the result that the advantages of co-operation were preserved for settlers in the lessening of the cost of road-construction per head and the securing of other community advantages by centralization of settlement.

As a further aid to the pre-emptor of Crown lands in the northern portion of the Province, the Department published a series of maps on which were indicated the surveyed lands reserved for pre-emption entry. These maps were compiled from the departmental surveys of the previous year, and were issued for free circulation. As they were available early in the summer and were obtainable from all of the Lands Offices in the north, they doubtless contributed to the marked increase in the number of pre-emption records issued in the section of the Province covered by them. It is the intention to re-issue these maps during the current year, increasing the information furnished in the same by the addition of the surveys made during the past season, and it is hoped to have the same ready for the first land movement in the spring.

The creation of reserves throughout the northern portion of the Province and the addition of the same so as to include the whole of the Districts of Cariboo, Lillooet, New Westminster, the Kamloops Division of Yale District, as well as other portions of Yale and portions of Kootenay, had a marked effect upon land-sales, the acreage disposed of in this manner falling from 2,000,000 acres in 1910 to some 900,000 acres during 1911, and a continued decrease under this head can be expected for the ensuing year.

It is anticipated, however, that much of the revenue that has been forfeited by the reservation of unsurveyed lands from sale will be made up by the sale of as much of the surveyed lands as may be open for sale.

A very marked departure was made during the year in the determining of the procedure with respect to the sale of these lands, which aims at the discontinuance of private sales of Crown lands. During the year, whenever surveyed lands were taken out of the reserve for sale purposes, it was provided for the sale of the same by auction only. This will mean getting away from the sale of Crown lands at the minimum prices fixed by the "Land Act," and should result in securing very substantial advances over maximum prices, especially in favoured localities.

While some criticism has been heard respecting the practice of reserving and continuing to reserve unsurveyed lands pending survey, it must be admitted that it renders it possible to protect settlement in the northern portion of the Province along the lines of railway-construction, where settlement is more likely to be attended with easier success than would be the case in isolated sections.

This system pursued during the ensuing year, coupled with comprehensive surveys, should result in an almost unbroken line of surveys traversing the Province from its eastern boundary to the Coast, and following the lines of the Grand Trunk Pacific and Canadian Northern Pacific, and should render available to the pre-emptor at least 1,500,000 acres of land.

As will be seen from the statement accompanying this report, there has been a considerable growth in the number of pre-emption records issued; but with the promise of railway facilities one year nearer, there should be an even greater increase this year, and even more favourable increase in connection with the pre-emption holdings, and a very marked advance in the number of certificates of improvements issued. This number increased from 439 for the year 1910 to 624 for the past year. These figures are interesting in that they disclose the *bona fides* of the pre-emptor rather than the issuance of the certificate of pre-emption record.

One result, however, of the reserves against sale of the surveyed lands remaining open to pre-emption has been to give a fixed value to the two years' residence necessary to procure land under pre-emption, and complaint has been made that an attempt is being made to capitalize this value by persons who are not *bona fide* in their intentions as pre-emptors.

To meet this situation, authority is being sought to secure the services of Inspectors of pre-emptions, who will examine into and report on the compliance of pre-emptors as to residence and improvement requirements under the "Land Act."

A somewhat notable feature of the year's record has been the remarkable stimulus given to coal-prospecting, which has ranged from the Peace River section in the east to the Queen Charlotte Islands in the west, and to the Naas River in the north. For the year the number of licences issued totalled 2,223, which amounts in acreage close upon 1,500,000 acres, the development of which will doubtless contribute greatly in providing a market for the farmers of the northern lands and tonnage for the railway which will traverse them.

The increase in the volume of general business is indicated in the statistics of the Department which accompany this report.

The number of Crown grants issued increased from 1,572 in 1910 to 2,566 during the past year, and the total acreage of land conveyed by Crown grant increased from 300,000 acres in 1910 to 524,000 acres during the past year. This branch of the departmental work has been steadily brought up to date, and no delay now attends the issuance of Crown grants when application is made in proper form.

I have the honour to be,
Sir,
Your obedient servant,

ROBT. A. RENWICK,
Deputy Minister of Lands.

RETURN SHOWING LAND TRANSACTIONS FROM ALL AGENCIES FOR YEAR ENDING 31ST DECEMBER, 1911.

	RECORDS ISSUED BY THE VARIOUS AGENCIES.																					TOTALS.	
										YALE.					KOOTENAY.								
	Victoria.	Alberni.	Nanaimo.	Atlin.	Telegraph Creek.	Hazelton.	Prince Rupert.	Barkerville.	Clinton.	Kamloops.	Ashcroft.	Nicola.	Vernon.	Fairview.	Nelson.	Revelstoke.	Slocan.	Cranbrook.	Golden.	New Westminster.	Fort George.	1911.	1910.
Pre-emption records	152	247	12	....	3	359	337	123	104	178	19	77	149	169	52	2	10	39	31	70	250	2,383	2,049
Certificates of improvem't.	38	34	5	...	1	92	56	14	40	38	7	33	106	60	26	1	3	24	16	14	16	624	439
" purchase	1,285	302	14	....	....	980	676	431	597	89	166	184	145	140	171	27	82	94	244	449	1,063	7,141	9,031
Crown grants	.....	....	....	...	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.....	2,566	1,572
Total acreage deeded	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.....	524,325.99	300,587.79
Letters received	.....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.....	41,940	37,188
Timber-cutting licences	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.....	15,195	12,195
" hand-loggers	.....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.....	143	....
Coal-prospecting licences	.....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.....	2,223	145
Sundry leases	.....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.....	121	92

SURVEYOR-GENERAL'S REPORT.

———o———

LANDS DEPARTMENT,
VICTORIA, B.C., February 5th, 1912.

The Honourable W. R. Ross,
Minister of Lands, Victoria, B.C.

SIR,—I have the honour to submit a report on the operations of the Land Surveys Branch of this Department for the year 1911.

It was formerly the custom for the Surveyor-General to submit an annual report on the work of the Department, and to incorporate in it extracts from reports on the characteristics of the districts in which surveys had been carried out by surveyors employed in making surveys of Crown lands. More recently, a tabulated statement of the area surveyed, etc., was incorporated in the general report of this Department, but for the past few years even this has been omitted. It is proposed in the future to revert to the former custom, and to publish reports on the unsettled portions of the Province by surveyors, as the information obtainable by them is considered to be of interest to the general public, who otherwise would have no access to it. It is found, however, that reports which have been received so far this year refer exclusively to survey matters, and for this reason they are omitted. The reports of Messrs. W. S. Drewry and Sidney Williams, Inspectors of Surveys, are however, attached.

RESIGNATION OF THE SURVEYOR-GENERAL.

In May of last year Mr. E. B. McKay resigned the position of Surveyor-General, which he held for six years, prior to which he had been Chief Draughtsman for fourteen years. His services are not yet lost to the Department, as since resigning he has remained on the staff and has put his extensive knowledge of the affairs of the Department at the disposal of his successor. He has expressed a wish to retire during the present year, and the public service will then suffer the loss of a conscientious and faithful servant who has for twenty-one years occupied a position in which he has won the respect and esteem of all with whom he came in contact.

As his successor reporting for the first time on the affairs of this branch of the Department, it is necessary to state that, on assuming office, it was found that the work of the Department was in arrears, and that an attempt has since been made to bring it up to date. But it is also necessary, in fairness to my predecessor and to the former members of the staff, to point out that results have been obtained only by increasing the number of employees from fifteen to forty-one, and to draw attention to the statistics that follow as to the unprecedented increase in the volume of work sent in to this office in the last two years. Such a phenomenal increase could not be foreseen and was practically impossible to provide for under the ordinary precedents governing a branch of the Civil Service.

ARREARS OF WORK.

On assuming office it was found that the volume of field-notes of surveys of pre-emptions, lands under application to purchase, mineral claims, etc., which had been sent into this office was so great that the plotting and gazetting of these surveys had gradually fallen behind to such an extent that on June 1st they were not being dealt with for seven months after their receipt; and, further, that the entire attention of the staff had been devoted to dealing with field-notes of surveys to the entire exclusion of other work, such as the plotting of tie-lines necessary for the compilation of connected plans of surveyed lands for which the public were clamouring.

INCREASE IN STAFF.

The staff has been gradually increased by selecting from numerous applicants, after preliminary trial, those who showed themselves competent to do the work. All appointments have been temporary, and none have been made under the "Civil Service Act." In addition

to draughtsmen and clerks so selected, the services of several surveyors' apprentices have been secured for the winter months. These apprentices have had several years' experience in actual surveying, and have proved very efficient in examining and checking survey returns; however, they will take the final examinations for their certificates as surveyors in April next, but it is hoped that their places can be filled by other apprentices.

PROGRESS MADE IN LATTER HALF OF YEAR.

With the increased staff it has been possible to catch up with the arrears to such an extent that by January 1st, 1912, field-notes, if in order and requiring no amending, were being dealt with three weeks after their receipt. Maps for publication were being prepared, and a general revision of reference maps for office use and the convenience of the public was being undertaken.

OFFICE-ROOM.

The room occupied by the Surveys Branch on May 1st was the same as that originally assigned to it on the completion of the Parliament Buildings in 1897, and in order to accommodate the present staff it has been necessary to alter partitions and to take in adjacent corridors. Every available foot of space is now fully occupied, and before the volume of work handled can be increased more space must be provided.

NATURE OF OFFICE-WORK.

Before going into detail in regard to the work dealt with by this office, some explanation of the nature of the work involved in dealing with surveyors' field-notes would appear to be necessary, and as this is exceptionally great owing to the method of dealing with Crown lands, some reference to systems of survey is called for.

The system of survey adopted in the United States, and in the other Provinces of the Dominion, differs materially from that of this Province. The experience gained in the gradual settlement of the continent from the Atlantic westward has evolved systems varying in detail, but all being essentially a survey of public lands into townships and sections in advance of disposal to settlers or purchasers.

British Columbia, being settled originally from the Pacific seaboard, has adopted a system peculiar to itself. The early settlement centred at the south end of Vancouver Island, in the valley of the Fraser River, and at the Cariboo Mines—400 miles inland—while pioneers, with a view to raising foodstuffs to feed the miners, took up isolated homesteads wherever they considered the conditions suitable. The mountainous character of the Province and the consequent expense of connecting surveys has led to the continuance of the practice of Crown-granting isolated blocks of land whose geographic position was not definitely known; however, this is now being modified by the extensive surveys carried out each year under the direction of this Department.

When a district is surveyed by this Department, all pre-emption records, applications to purchase land, etc., are assigned to lots or portions of lots, which are surveyed on a regular system, and the amount of work to be done in this office is comparatively small; however, where an isolated pre-emption or purchase has to be dealt with, it is otherwise. As an example:—

A settler has received a pre-emption record for a piece of land, and has it surveyed at his own expense by a qualified surveyor, who has forwarded field-notes to this office. Provided the description in the original record is clear, and the surveyed boundaries agree with it, and the pre-emption is so situated that there is no possibility of its conflicting with other pre-emptions or applications, the notes are checked and plotted on the official plan, as well as on the reference map, and a notice that the pre-emption is surveyed is published in the British Columbia Gazette. The local Government Agent is supplied with a copy of the official plan of the survey, and before the issuing of the Crown grant two more copies of the plan are prepared. If, however, the pre-emption being dealt with is in the vicinity of an old Crown grant, or an unsurveyed timber or coal licence, or an application of any kind which pre-dates it, this Department must be satisfied that there is no interference, and the correspondence with the surveyor, who is probably by this time working in another district, may drag along for a year or more. It would be impossible for a staff double the size of the present one to handle the work of this Department were any large proportion of the 7,000-odd surveys received complicated as above mentioned.

With the above explanations, the following statistics showing the growth of the volume of business will convey some idea of the amount of work involved in dealing with it:—

Year.	Number of Books received.	Number of Lots received.	Number of Lots gazetted.
1907	1,622	1,830	1,762
1908	1,862	2,161	2,145
1909	2,204	3,365	2,942
1910	2,893	5,098	3,072
1911	5,259	7,312	6,737

It is probable that in future the work of checking and plotting field-notes of land surveys can be kept sufficiently up to date to prevent any inconvenience to the public in the matter of obtaining Crown grants, except in cases where there are conflicting interests. The chief aim of this branch during the past six months has been to reach this point, and only during the last two months has serious attention been given to other matters.

REFERENCE MAPS.

The major portion of the Province where any surveys have been made is covered by reference maps—some sixty in number—drawn to a scale of either one or two miles to the inch. These are in reality sketch-maps prepared from the best information available. In the more settled districts they are fairly correct, but in the new districts very incomplete and frequently incorrect.

On these maps are shown all surveyed land and the approximate location of all applications, as well as such physical features of the country, as lakes and rivers, together with railway routes and main travelled roads.

These maps were originally intended for office use only, but the demand on the part of the public for maps of this kind has been such that it has been found necessary to erm t the sale of blue-prints.

The notes of practically every survey contain some information which permits of a correction being made on a reference map, so that the latter are becoming from year to year more and more accurate.

The correction of an old map is an unsatisfactory proceeding, as the relative value of the old and the new information cannot be fairly balanced. Further, t he continual correction of tracings rapidly destroys them and necessitates their being r etraced, and, unfortunately, owing to the fact that blue-prints must be supplied to the publi c, these plans are necessarily made on tracing-linen. For these reasons, the practice in co nnection with the preparation of these maps has been altered, and is now as follows: A skele ton original of a reference map is prepared on drawing-paper, and on this is shown on y the definite information obtained by survey. This original is traced from time to time, and to the tracing is added as correctly as possible all information which it is necessary to show. Blue-prints from these tracings are prepared for this office, supplied to Government Agents, and sold to the public.

During the past year five maps have been completed under the new system and five are in course of preparation, while under the old system three maps have been completed and fourteen have been retraced, with nothing but glaring errors corrected.

The pressure of work is such and the available space so limited that only three men have been engaged on this work. It is advisable that this number be increased, as it is practically impossible for three men to keep pace with the correcting of sixty maps if any time is devoted to the preparation of new originals.

These reference maps should form the groundwork from which every lithograph map ssued by this Department has been built up.

LITHOGRAPH MAPS.

The following maps have been published by this Department during the past year:—

Map of South-west Portion of British Columbia.
Map of Portion of West Coast of Vancouver Island.
Map of South-east Portion of Vancouver Island.
Map of British Columbia.
Map of British Columbia showing Land District Boundaries.
Map of British Columbia showing Land Reserves.
Map of Kootenay.
Map of Yale and Adjacent Districts.
Map of Northern Interior of British Columbia.
Pre-emptors Map No. 1.
" " 2.
" " 3.
" " 4.
"Rossland Sheet" Map.

In addition to the above, there is now in the hands of the publishers a new map of the southern and central portions of British Columbia, and approaching completion a new sheet map to be known as the "Nelson Sheet." In the above list of maps, with the exception of the pre-emptors maps and the "Rossland Sheet," all the maps are reissues of old maps with some minor corrections.

The four pre-emptors maps referred to cover the area surveyed in recent years by the Provincial Government in the vicinity of the proposed route of the Grand Trunk Pacific Railway. They were prepared in great haste and published in the months of June and July, and, judging by the demand, have met with the approval of the public.

The "Rossland Sheet" is the first of a series of sheet maps of sections of the Province which it is proposed to issue from time to time. A preliminary to the issue of such sheets is a replotting of the reference maps above referred to of the district to be represented.

The map of the Province which is in the hands of the publishers, while it will not show the extreme northerly portion, will show the routes of the Grand Trunk Pacific and Canadian Northern Railways, as well as other lines constructed in recent years, and those now under construction. It it intended that this map shall be published as a one-sheet map, and it is hoped that the scale will be sufficiently large to make the map one of great public utility.

SUPPLYING INFORMATION TO OTHER DEPARTMENTS, SURVEYORS, AND THE PUBLIC.

A feature in connection with this branch is that the Draughting Office is generally looked upon as being at the service of the other departments for the preparation of such plans and artistic designs as may be required. In the aggregate this becomes a matter of some consequence; usually one, or perhaps two, of the draughtsmen best fitted for mapping-work are employed on odd jobs for other departments.

The requests of surveyors for copies of original plans and field-notes are increasing continually, as are also the requests on the part of the public for information of this character.

Supplying all information asked for is given priority over all other work, the result being that in the busy season five or six men are engaged in copying. The amount of work accomplished is shown by the following figures: Since July 1st, 405 tracings and 343 copies of the field-notes of district lots, have been sent out. The revenue derived from this work, as well as from the sale of blue-prints, above referred to, has been, for the half-year $1,485.30; the charges made to the public for copying information being only nominal.

SURVEYS.

It was found on assuming office that the survey-work for the season had been alloted to particular surveyors, and that definite districts had been assigned to them. Some surveyors were already in the field; the majority, however, were awaiting final instructions. These instructions were prepared in great haste and no attempt was made to alter the practice of former years.

The surveying operations were confined largely to the vicinity of the proposed routes of the Grand Trunk Pacific and Canadian Northern Railways and the intervening country. The returns of these surveys are now being received by the Department, and it is estimated that the area surveyed will amount to 750,000 acres.

The following is a list of the surveyors to whom more or less extensive or important surveys were assigned, together with the districts in which their operations were carried on:—

J. H. Brownlee	Cariboo Road.
Green Bros. & Burden	Stewart River.
N. Humphrys	Peace River.
F. Tupper	"
G. B. Milligan	"
E. P. Colley	Ootsa Lake.
H. Fry	Nazco River.
A. W. Milligan	Burns Lake.
James Brady	East Kootenay District.
J. Hirsch	Kitimaat River.
N. F. Townsend	"
F. C. Swannell	Fraser Lake.
H. H. Browne	Rupert District.
C. de B. Green	Queen Charlotte Islands.
A. W. Harvey	Middle River.
J. F. Templeton	Cariboo District.
P. A. Landry	"
A. F. Cotton	Stewart River.
Gillespie & Green	Queen Charlotte Islands.
Sidney Williams	Quesnel Townsite.
Christie & Dawson	North Fork of the Thompson River.
F. Ritchie	Kitwangar River.
R. Smith	Canoe River.
T. H. Taylor	Horse Lake.
W. G. McElhanney	South Fork of Fraser River.
S. M. Johnson	Osoyoos Division of Yale District.
C. H. Ellacott	Fraser River.
K. C. C. Taylor	"
M. W. Hewett	Tete Jaune Cache.
R. H. Lee	Clearwater River.
H. Rhodes	Texada Island.
C. A. E. Shaw	Rock Creek Townsite.
A. O. Wheeler	Tete-a-Chuck Lake.
F. M. Kerby	Sutherland Creek.

In addition to these surveys, numerous minor surveys were ordered by this Department throughout the various portions of the Province. These consisted largely in the survey of groups of pre-emption claims and the running of tie-lines and connections between existing surveys, where such information was found to be required in the Draughting Office.

Two surveyors were sent to the north end of Graham Island; two to the Kitimaat Valley, where they completed the subdivision of the Government reserve; twelve were engaged on surveys along the line of the Grand Trunk Pacific, three of whom made the first surveys in the upper reaches of the South Fork of the Fraser River; three made surveys in the vicinity of Peace River, being the first extensive surveys made in that portion of the Province lying east of the Rocky Mountains; six were employed in Cariboo and Lillooet Districts; and three were employed along the route of the Canadian Northern Railway. The balance of the work was done in the older and more settled parts of the Province.

Inspection of Surveys.

Two Inspectors were appointed, who spent the latter half of the summer travelling through the country examining the work done by surveyors under contract, and reporting on work done at day rates for this Department, as well as on surveys made for private applicants. The employment of Inspectors of Surveys is an innovation in this Province,

although they are universally employed elsewhere. The Inspectors were Messrs. W. S. Drewry and Sidney Williams, whose reports are attached hereto.

The following table shows the survey-work done throughout the Province during the past three years, the figures being obtained from the field-notes forwarded to this office in each year. The acreages for 1911 are, to an extent, estimated, as some of the field-notes have not been finally dealt with.

	Pre-emptions. (Acres.)	Purchases. (Acres.)	Mineral Claims. (Acres.)	Timber Limits. (Acres.)	Coal Licences. (Acres.)	Leases. (Acres.)	B.C. Govt. Surveys. (Acres.)	Totals. (Acres.)
1909...	71,316	145,325	10,744	426,121	8,310	15,239	512,373	1,189,428
1910 ..	79,273	455,356	12,499	509,201	43,363	5,864	302,536	1,407,912
1911...	89,485	1,352,809	21,325	686,909	120,938	6,500	948,644	3,226,610

CONCLUSION.

This report deals more fully with the work of the office than with surveys.

The reorganization of this branch of the Department has not extended to surveying operations in the field, the practice of former years having been adhered to. It is hoped, however, that legislation will be passed this session which will permit of regulating surveying practice more closely than has been done in the past.

With your permission, it is proposed this year, while continuing land surveys along the routes of railways under construction, to devote considerable attention to laying down a skeleton survey through some of the more settled districts, and the tying-in of existing surveys.

I have the honour to be, Sir,
Your obedient servant,

G. H. DAWSON,
Surveyor-General.

INSPECTION OF SURVEYS.

VICTORIA, B.C., February 5th, 1912.

G. H. Dawson, Esq.,
Surveyor-General, Victoria, B.C.

SIR,—I have the honour to submit the following report of my inspection of surveys during the months of August, September, and October, 1911.

I left Victoria on August 2nd and travelled to Quesnel, where I met my party, and after completing some survey-work you instructed me to do at that place, I left with three assistants for the Nechaco and other points on August 12th.

The first camp I visited was Mr. A. F. Cotton's, on the north side of the Nechaco, near Milne's Landing. Mr. Cotton was engaged in Government contract work. I checked up several miles of his work with both chain and transit, and directed him with regard to his future movements and also as to the numbering of his lots.

I next proceeded with my spring wagon and two saddle-horses over the new road between Milne's Landing and Fort St. James, on Stewart Lake. This road, which is about thirty-five miles in length, was not quite completed, but I managed to get my wagon and outfit through to the fort. This road, I might say, will be an excellent one and will be very largely used in the future.

At Fort St. James I visited Mr. W. Laidlaw's camp, an assistant to Mr. A. W. Harvey. I inspected his work at Pinchi Lake, after which I proceeded up Tachi River to Trembleur Lake and Middle River. Here I visited Mr. A. W. Harvey's camp, and spent about a week going carefully over a portion of his work at various points on Middle River.

I next visited Mr. F. C. Swannell's camp, on Trembleur Lake, which was temporarily in charge of Mr. A. P. Bishop, B.C.L.S. I did not make an inspection of the timber surveys upon which Mr. Bishop was engaged, but looked over his plans, and was able to assist him upon many points upon which he was in doubt.

After leaving Trembleur Lake I returned to Stewart Lake, and after fulfilling your instructions regarding Lots 601 to 9, on the south side of the lake, I returned to Fort St. James on September 22nd.

I next proceeded down Stewart River, sending my horses and wagon back to Milne's Landing, on Stewart River. I inspected Mr. F. P. Burden's surveys, and on the south side of the Nechaco, at mouth of Stewart River, a group of surveys recently made by Mr. F. C. Swannell, after which I continued up the Nechaco to Miln's Landing, from which place I sent the two Indians, with the canoe I had hired, back to Fort St. James.

From Milne's Landing I went to Fort Fraser, and made the surveys in Township 15, Range 5, Coast District, as directed by you.

I left Fort Fraser on October 12th and proceeded to C. H. Ellacott's camp, south of Blackwater River; after examining his work at this point I returned to Quesnel, where I arrived October 19th.

Here I paid off two of my men and proceeded with my assistant to the Nasco River. I reached Mr. H. Fry's surveys on October 27th, and I remained here three days. I then left for Ashcroft, reaching that point on November 3rd and Victoria on November 5th.

SUMMARY OF WORK INSPECTED.

Of the eight surveyors making surveys for the Provincial Government in the district assigned to me, I was able to inspect portion of the work of six—namely, Messrs. Green Bros. & Burden, H. Fry, F. C. Swannell, A. W. Harvey, A. F. Cotton, and C. H. Ellacott. Of the remaining two, Mr. A. P. Colley, at Ootsa Lake, I could not reach, and Mr. A. W. Milligan, so far as I could ascertain, was not in the district at all.

I made careful instrumental surveys as follows:—

Mr. A. F. Cotton, Nechaco and Stewart Rivers	7	miles.
Mr. A. W. Harvey, Pinchi	5	"
" Middle River	3	"
" "	6	"
Green & Burden, Stewart River	6	"
F. C. Swannell, Nechaco River	7	"
C. H. Ellacott, Blackwater River	6	"
H. Fry, Nasco River	8	"
Total	48	"

I also chained or examined about twenty miles of additional line.

My method was usually to camp at some convenient point on the work and select a block of sections round which I could make a complete instrumental survey, closing on my starting-point and getting my own closing errors. This method rather localized my operations, but it had the advantage of proving my own work, so that in the event of discrepancy there could be no question of an error existing. I would then sometimes send my two assistants to chain other lines, and I could go over lines in the other directions myself.

The distance travelled from Quesnel to visit the various camps was approximately 1,000 miles, consisting of:—

By boat or canoe	250	miles.
By horses	750	"

QUALITY OF WORK.

I found the work generally carefully done, the principal fault being the setting of the posts, which were poorly set in the ground in almost all instances. I have already addressed a letter to you on this subject, and trust that with special attention paid to this matter, and also by taking mere frequent observations for azimuth—a matter which also requires special attention—the surveys of the future will reach a standard of perfection which will be highly satisfactory.

I have, etc.,

SIDNEY WILLIAMS.

COLUMBIA VALLEY, EAST KOOTENAY.

VICTORIA, B.C., December 14th, 1911.

G. H. Dawson, Esq.,
Surveyor-General, Victoria, B.C.

ITINERARY.

SIR,—In accordance with your instructions, the Columbia Valley, in East Kootenay, was visited in July.

After looking over the country from Golden to Windermere, supplementary instructions were issued to Jas. Brady, B.C.L.S., for the prosecution of survey-work which, it was hoped, would result in solving the tangle of apparently conflicting applications and records; thus allowing the making of a correct map of the area, existing maps appearing to be as very seriously in error as to make administration extremely difficult.

Having spent a few days in the formation and outfitting of a small party, a journey through the Lillooet and Cariboo Districts was commenced, supplies being purchased at Clinton.

While the party was moving to Bridge Creek, Quesnel was quickly reached by motor-car and steamer.

In company with J. H. Brownlee, B.C.L.S., the country from Quesnel to Soda Creek along the Cariboo Road was inspected, and Mr. Brownlee's operations looked into, in order to advise you, as far as possible, in the matter of surveying and mapping that portion of the country where urgent need exists.

Returning to Bridge Creek, inspection of the work of Mr. J. H. Taylor, B.C.L.S., was undertaken along the Canim Lake and Buffalo Lake Roads.

Mr. Taylor was verbally instructed to connect his surveys with the traverse made by Mr. Neville Smith, B.C.L.S., along the road from 100-Mile House to Canim Lake.

A trip was also made to the east end of Canim Lake, a beautiful sheet of water about twenty miles long, for the purpose of examining the country with a view to the conducting of future surveys.

Going north on the Cariboo Road, it was learned that country both north and south of Lac la Hache had been subdivided; but no inspection was made here, as it was proposed to do this work on the return journey in the fall, which intention was frustrated by the snow and extreme severity of the weather, stated to be unusual so early in the winter.

The old road from Lac la Hache to Harper's Camp is much the most direct route to the Horsefly country; but it being reported impassable owing to fallen timber and bad bridges, the Cariboo Road was followed to 150-Mile House, from which point the Horsefly Road was travelled.

Surveys being made under Mr. J. F. Templeton, B.C.L.S., were encountered about sixteen miles east, and camp was established at Beaux Veux Lake, from which inspection operations were conducted. Surveys by Mr. C. H. Ellacott and Messrs. Morkill and Boulton were also examined in this locality.

Having completed work in the Horsefly section, the road followed on entering was retraced to a point some three miles east of 150-Mile House, whence an old road was travelled to 153-Mile House, about five miles south of the point commonly known as "Mountain House," owing to being near the divide between San Jose and Deep Creek Valleys.

It appeared that repair of this road, which could be very cheaply carried out, would afford much the easiest route into the Horsefly country from the 150-Mile House, as it is practically level from the Cariboo Road, avoiding the tremendous hill encountered on the Horsefly Road.

Proceeding to Kersley, where disputes as to survey matters had arisen, the work of Mr. C. H. Ellacott and Mr. John Davidson was inspected. As a result, instructions were issued to Mr. Davidson, who was on the ground, for the rectification of his surveys. Mr. Ellacott's surveys also require alteration.

Leaving Kersley, Fort George was reached by steamer in two days, and inspection-work begun at once. Such very serious discrepancies were found to exist that it was necessary to run and check some eighteen miles of traverse in order to secure the information asked for.

This work very fully occupied the time to the end of October, about which date steamer navigation on the Fraser closed for the season making return by road compulsory.

A survey team from Kersley was ordered to meet the party at Blackwater, and a team and wagon engaged at Fort George. By walking about half the distance, Quesnel was reached in three and one-half days' hard travel.

At Quesnel, a survey which had been made overlying existing surveys was inspected and the marks destroyed as instructed by you.

Proceeding to Kersley, the outfit left there was picked up, and travel continued to 150-Mile House, the temperature ranging from 4° to 32° below zero.

As there was considerable snow on the ground, with more falling, a sled was procured, and my assistant with one man sent into the Horsefly country for the purpose of remeasuring certain lines and ascertaining the possibility of inspecting further work in that locality. On the third day they returned, having been able to measure but one mile in open country, the lines in bush being impassable owing to the quantity of snow.

Since no better conditions as to snow could be relied upon, and the thermometer still ranged below zero, it was decided to return to Victoria.

There being a probability of the outfit being required at Ashcroft in the spring, the wagons were brought to that point and the camp outfit stored.

The horses were turned out on the range of the Basque Ranch, and the wagons, harness, etc., stored under cover.

Country Capable of Development.

That portion of British Columbia lying north of the Thompson River, bounded on the east by the North Thompson and Clearwater Rivers, and on the west by the Fraser River, as far north as Quesnel Lake and River, is a great plateau drained to the south through the Bonaparte Valley; to the east by the means of Bridge Creek and lesser valleys; to the west by Lac la Hache, San Jose, and several smaller depressions; and to the north by Horsefly River and various minor troughs embraced in the Quesnel basin.

Area.

The tract above bounded contains over 6,000,000 acres, and embraces portions of Lillooet and Cariboo Land Districts.

Cariboo is a magic word with "old-timers," and is known around the world in connection with one of the great gold rushes, the romance and history of which are yet eagerly listened to and imprinted on this Province. Although much has been written of golden Cariboo, but little of the physical character of the country seems to be known to the general public.

Possibilities.

Cariboo and Lillooet have produced above $50,000,000 in gold; but it is believed even that vast sum is but a portion of the value of the possible future agricultural products of their fertile valleys, rolling plateaus, and fir-crowned hills.

Soil and Products.

The area is of diversified soil and climate, the former ranging from rich alluvial silt to heavy clay and black loam; while the products vary from hay in the higher valleys and on the uplands to peaches, grapes, melons, tomatoes, etc., grown along the Fraser and in the lower valleys.

Precipitation.

The summer rainfall in that portion sloping to the Fraser River does not seem sufficient for successful agriculture, and irrigation is therefore resorted to. It is thought that conversion of some of the numerous ponds and lakes of the central plateau into storage-basins would permit the conservation of ample water.

But the higher eastern area of the great plateau is lacustrine; and, judging from the vegetation, the precipitation is great enough, so that but little, if any, aid will be required from irrigation.

Altitude and proximity to the high mountains along the North Thompson and Clearwater Rivers may account for the increased condensation of moisture.

Game.

The lakes teem with trout; geese, ducks, willow grouse, plover, etc., are plentiful; while considerable evidence of large game was observed.

PRODUCTS AT CERTAIN ALTITUDES.

Owing to the lack of convenient transportation facilities, the region as a whole has in the past been primarily a grazing and dairying country; but there are considerable areas suitable to mixed farming, since, except on the higher portions of the plateau, wheat, oats, and ordinary garden vegetables are successfully grown. Excellent sweet corn—"roasting ears," as described by the new settler from whom they were obtained—was grown on the plateau south of Kersley at an elevation of 2,100 feet above the sea. Some of the finest potatoes I have ever seen, grown at an elevation of about 2,500 feet, were purchased on the ranch of Mr. J. P. Murphy at 141-Mile House, in the San Jose Valley. Potatoes, carrots, onions, radishes, and lettuce of good growth and excellent quality were obtained at Canim Lake about 2,500 feet above the sea.

All the garden produce above mentioned was stated to have been grown without irrigation, as were some fine fields of oats on McNeill's ranch, south of Canim Lake.

PRESENT MARKET.

Beyond the growing of oats, hay, and potatoes to supply the local market, but little attempt at agriculture appears to have been made outside the lands contiguous to the Canadian Pacific Railway. Local prices of the products above mentioned vary, being apparently governed by the price at Ashcroft plus freight charges to the place of sale, carriage charges by wagon ranging from 1 to 5 cents per pound, according to distance.

CONDITIONS CHANGING.

As will be shown later, conditions are changing, because the building of railways will probably render the great markets of the Province accessible to the products of this area.

TRANSPORTATION ROUTES.

The Cariboo Road extends from Ashcroft, on the Canadian Pacific Railway, by way of the Bonaparte Valley, across the plateau to Lac la Hache almost due north, from which point it turns north-westerly to 150-Mile House. Thence its course is north and west to Soda Creek, on the Fraser River, which is followed to Quesnel; the road in some parts being close to the river and at others traversing the plateau from 300 to 500 feet above the stream.

The Canadian Northern Pacific Railway, now under construction, crossing the divide from Tete Jeune Cache, follows the North Thompson Valley to Kamloops.

It seems probable that another line of railway may be built by way of the Fraser Valley between Lillooet and Fort George.

The above-mentioned transportation routes would form an arterial system, which supplemented by a vein system of wagon-roads, in a few years should bring a steady stream of produce to the heart of commerce in the cities, whence the needs of the agricultural population would be supplied.

GRAZING LANDS AND TIMBER RESERVES.

While, as stated, there appear to be considerable areas suitable to mixed farming, a large percentage of the whole seems to be grazing country and timber reserves.

The grazing area is not confined to the open country, but embraces a large acreage covered with forests of fine fir, under cover of which grow bunch-grass, peavine, etc. Excellent summer pasturage therefore abounds, while hay meadows are fairly plentiful.

CONTROL OF HAY MEADOWS.

It is thought that control of the latter should remain in the hands of the Government, because they are the strategic points commanding the summer pasture, which must be supplemented in winter by hay cut upon the meadows.

GRAZING LEASES.

A leasing system for the grazing lands based as to quantity let to an individual upon the number of cattle owned, with a permit for the cutting of hay upon the meadows, might tend to prevent the closing of too large a tract of country by a strong individual or company for speculative purposes.

The leases would better be in blocks rather than in scattered quarter-sections, which might result in the fencing-in of thousands of acres under lease of a few hundreds.

ASSISTANCE TO DEVELOPMENT.

To assist in the administration of this potential country, and to permit its proper development, it is respectfully suggested that a skeleton survey of the areas should be undertaken by running the 121st meridian north from the boundary of the Railway Belt, and from this extending a system of blocks twelve miles square each (about 92,000 acres), thus permitting an examination or stock-taking of the country, while providing bases for the detail surveys required by settlement. Those portions suitable to agriculture might then be divided into lots.

MAPS.

In the meantime, extension of a block system would afford knowledge of important watersheds and catchment-basins which are now very wrongly placed upon the maps. It would also permit the ascertaining of the area of timber reserves, and the construction of reliable detail maps, such as have been published of the Railway Belt, to be placed in the hands of immigrant land-seekers.

The trails opened up in conducting the surveys would afford more easy access by Fire Wardens patrolling the forests, and to prospective settlers.

AID IN PLANNING ROADS.

The comprehensive prosecution of surveys as outlined above would no doubt greatly assist in future road-construction entailed by the building of railways and the settlement of the country, and which should be so planned as to most economically serve the different sections of the whole. The "good roads" movement, which includes the matter of grades, is not one of sentiment, but of cold business, because it is evident that if a farmer can haul two tons over a good road, where but one can be moved over a bad road by the same expenditure of power and time, the freight rate is cut in two without disadvantage, and probably with increase of comfort.

TRAVERSE OF CARIBOO ROAD.

As settlement naturally follows the routes of communication in its first advance, it would seem advisable to carefully traverse the Cariboo Road from the boundary of the Railway Belt, tracing up and connecting the old surveys, some of which are nearly obliterated. In very many cases fencing has not followed lot boundaries; so that much confusion has arisen as to what is vacant land of the Crown open to pre-emption.

DETERMINATION OF ELEVATION ABOVE SEA.

Should these survey be undertaken, it is respectfully suggested that surveyors might be furnished with aneroid barometers, and required to make a return of readings at all block or lot corners. To make this information valuable, barometers might be placed at the different Government offices and readings taken, so that variations in pressure, whether general or local, could be allowed for and approximate elevations throughout be ascertained with some accuracy.

ASCERTAINING TEMPERATURE.

Thermal records, while of great value if continuous, do not seem of much importance if only occassional readings are taken; but it is thought that if surveyors were furnished with both barometers and thermometers which could be read regularly at camp, some valuable data might be secured.

MEASURING PRECIPITATION.

The amount of rainfall during the summer months is of great moment to agriculturists. Its determination in an unsettled country is difficult; but probably by setting up rain-gauges of the "tipping" variety, which register the fall, along the routes usually followed by Fire Wardens during the summer months, and having them take occasional readings, much important information as to the amount of precipitation occurring during the intervals of their visits might be obtained at small expense.

LANDS NORTH OF QUESNEL.

Between Quesnel and Blackwater some excellent tracts of lands were observed; but the agricultural possibilities are not known, excepting immediately about Quesnel.

From Blackwater to Fort George some very fine-looking country was passed over, particularly between the first-named point and Punshow Lake; but as yet there appears to be no agricultural settlement.

METHOD BY WHICH DATA MIGHT BE ACQUIRED.

There are, however, certain road-houses where thermometers and rain-gauges might be placed and records secured, additional gauges being set up and looked after by Fire Wardens.

The soil is there; but, being at a considerable elevation above the sea, its possibilities rest largely on factors concerning which data might be collected as above recommended.

RESULTS.

While results predicated from information so obtained might sometimes be at fault owing to unknown influences, it is thought that determination and dissemination of the facts might save disappointment and the making of costly mistakes in some instances; while in others it might aid and give impetus to the settlement of what are believed to be among the best agricultural and pastoral areas of the Province.

FORESTS AND FIRES.

From observation, it is judged that the greater part of the country described in this report was at one time covered by a forest of fir, with some cedar and large spruce.

As far north as Quesnel, considerable areas have been swept by fires, which destroyed nearly all the cedar and much of the fir forest.

There are three known sources of forest fires—viz., lightning, the rubbing-together of trees by the wind, and human agency; all of which have probably contributed.

Many of these fires no doubt occurred before the influx of white men at the time of the Cariboo gold rush, although some of them were possibly of that or a later date.

The Indians probably first burned the forest to secure tillable land and pasturage; white men have followed their example in some cases; while many fires have very likely originated through sheer carelessness without thought of the far-reaching results.

EFFECT OF FOREST FIRES ON STREAM-FLOW.

Indians and white men who have lived in the country for the best part of two generations tell of lakes at much higher level, plenty of water in streams now nearly dry in summer, and express wonder at what most probably is merely a result of wholesale destruction of the forest covering of the earth. For the forest conserves moisture, giving it up slowly, thereby regulating the flow of streams and evaporation, thus avoiding the extreme floods and droughts which would otherwise obtain were the saturated earth or the snows of winter exposed to the full power of the sun.

REFORESTATION.

The burnt areas are reforesting themselves principally with jack-pine and poplar; but in Lillooet and Cariboo it was noticed in many places that young firs were thrusting up under cover of the jack-pine.

FORT GEORGE PLATEAU.

The plateau which the road traverses from Blackwater to Fort George has been swept almost clean of the fir forest which undoubtedly at one time covered it, small patches and charred remains of the ancient forest bearing evidence to the fact.

This country also is reforesting itself with jack-pine, spruce, and poplar, which in some places have attained fair growth; but nowhere on the fire-swept plateau were young firs found growing under cover of the jack-pine, although young spruce-trees were found in many places.

CONCLUSION.

Nature is curing herself; but as many years elapsed before the full effects of the injury were realized, so also will it probably be many years before the old conditions of lake and stream are fully restored.

It is thought that a comprehensive survey and examination of the whole area should be undertaken as before mentioned, and forest reserves set apart to assist in the restoration of and give permanency to conditions important to occupation of the country.

I have, etc.,

W. S. DREWRY,

Inspector of Surveys.

TIMBER INSPECTOR'S REPORT.

———o———

Hon. W. R. Ross,
Minister of Lands, Victoria, B.C.

SIR,—I beg to hand you a report of the Timber Department for the year ending December 31st, 1911.

The past year has been one of prosperity for the lumbermen of British Columbia. The marked steadiness of the lumber market enabled the mills to operate continuously during the entire year, with the exception of those of the Interior, which have been obliged to close down during November and December. This was caused by the dullness of the lumber market on the American side, and the American mills dumping their surplus cut on the markets of the North-west at less than cost.

I believe those conditions have changed, however, and I look for better times for the Interior mills.

TIMBER INSPECTOR'S OFFICE, VANCOUVER.

Royalty receipts for the year	$418,636 92
Tax receipts for the year	25,696 16
Total amount received	$444,333 08

The collections for the year 1911 exceed those of 1910 by $50,734.95.

Number of officers :—

1 Inspector.
1 Accountant.
1 Stenographer.
1 Assistant Inspector, Nelson.
1 " Kaslo.
1 " Kamloops.
1 " Vancouver.
1 Acting Inspector, Prince Rupert.

ASSISTANT TIMBER INSPECTORS.

I am pleased to inform you that the Assistant Timber Inspectors have worked together with a will, and have rolled up a record for the year's collections.

The Boundary District from Rossland to the Similkameen River has been added to the territory covered by J. R. Martin, Assistant Timber Inspector, Nelson, B.C., while the Cariboo District from Clinton to Fraser Lake and the South Fork of the Fraser has been placed under R. Trinder, Assistant Timber Inspector, Kamloops, B.C.

COLLECTIONS.

Received from the Assistant Timber Inspectors for the year 1911 :—

A Carney, East Kootenay	$65,247 14
J. R. Martin, West Kootenay	56,560 68
R. Trinder, Okanagan and Cariboo	31,844 13

SUPERVISOR OF SCALERS, VANCOUVER.

1 Supervisor, Vancouver.
1 Assistant Supervisor, Nelson.
1 Offiicial Log Scaler, Victoria.
1 " " Nanaimo.
1 " " McRae's Bay.
1 " " New Westminster.
1 " " Ocean Falls.
8 " " Vancouver.

		Feet.
Total scale for the year 1911, Coast District		619,152,386
Total scaled by Acting-Scalers, Interior		296,836,042
Besides the above scale, there was cut from the Esquimalt & Nanaimo Railway lands by the		
Canadian Western Lumber Co.	59,011,572	
International Logging Co., Vancouver Island.	10,000,000	
Canadian Puget Sound Lumber Co.	18,000,000	
Small mills on Vancouver Island	18,000,000	
Victoria Lumber & Manufacturing Co.	39,000,000	
		144,011,572
Total		1,060,000,000

The Coast District shows a decline from last year's scale of 21,215,406 feet.

Number of logging camps operating on Provincial timber lands	350
Number of men employed in camps	8,000
Number of mills in the Province operating on timber cut from Provincial lands	250
Number of men employed in mills	7,500
Total amount of timber cut but not manufactured in the Province	47,000,000 feet.
Total amount of timber manufactured into lumber in British Columbia	1,013,000,000 feet.
Average cost of production per thousand feet	$15
Total cost of cut for year	$15,195,000

TABLE OF COSTS.

Average cost of stumpage	$1 50
" " logging	6 50
" " towing	1 00
" " manufacturing and marketing	5 50
" " Government dues	50
	$15 00

LAUNCHES.

3 patrol launches.

3 captains, salary	$1,200 00	each per year.
3 engineers, "	900 00	"
1 cook, "	600 00	per year.
1 cruiser, "	1,200 00	"

HAND-LOGGER LICENCES.

One hundred and forty-three hand-logger licences have been issued during the year.

TIMBER EXPORTED.

Forty-seven million feet of timber have been exported to American mills. A change has been made in the system of granting permits for the export of timber cut from Crown grants, and these permits are now returnable to the captain of the patrol launch at the boundary-line, who issues a receipt for same.

We have cleaned up a lot of old outstanding accounts, and hope to have the rest wiped off at an early date.

Hoping this report will be of some interest to your Department.

I have, etc.,
G. D. MCKAY,
Provincial Timber Inspector.

NAMES OF THE OFFICERS OF THE TIMBER INSPECTOR'S OFFICE, AND WHERE LOCATED.

G. D. McKay, Timber Inspector	Vancouver.
Jos. Mackay, Accountant	"
G Dickinson, Stenographer	"
A. H. McLean, Assistant Inspector	"
J. R. Martin, "	Nelson.
A. Carney, "	Kaslo.
R. Trinder, "	Kamloops.
Capt. E. McCoskrie, Acting-Inspector	Prince Rupert.

SUPERVISOR OF SCALER'S STAFF.

R. J. Hamilton, Supervisor of Scalers	Vancouver.
T. W. Mouat, Assistant Supervisor of Scalers	Nelson.
D. A. Galbraith, Official Scaler	Victoria.
A. L. Bryant, "	McRae's Bay.
Alex. Garrett, "	New Westminster.
J. M. Hillis, "	Vancouver.
E. R. Thomas, "	"
Jas. McLean, "	"
G. R. McKay, "	"
A. E. Dunning, "	"
H. T. Wright, "	"
J. A. McRae, "	"
J. F. Marshall, "	Nanaimo.
D. S. Lothian, "	Ocean Falls.
Roy L. Moore, "	On board launch "R. J. Skinner."

PATROL LAUNCHES.

Launch "R. J. Skinner," patrols north of Jervis Inlet, in Sayward and Rupert Districts. Captain, J. Kidd; engineer, J. Woodbury; cook, J. Woodbury; cruiser, A. M. Black.

Launch "Kiora," patrols the east side of Vancouver Island and Gulf Islands. Captain P. Nye; engineer, S. Church.

Launch "Alanbee," patrols New Westminster District and Islands. Captain M. K. Morrison; engineer, H. Sacred.

REPORT ON FOREST PROTECTION.

———o———

BY THE SUPERVISORS.

Before the opening of the fire season of 1911, orders were issued by the Minister of Lands to the Divisional Wardens of the Mainland and Vancouver Island to begin the campaign against the dangerous accumulations of slash that are threatening everywhere to convert some of our forest districts into an almost continuous expanse of fire-traps. During April these Wardens conducted a series of slash-burnings at chosen dangerous places, partly in order to save the expense of patrolling these places during the summer, but chiefly in order to demonstrate by object-lessons that the burning of slash can be carried out, both safely and at moderate cost, in many sections of the Province. The experiments proved extremely successful, many private owners of timber being induced by our Divisional Wardens to clean up old slashings that were exposed to the risk of fire. Attention should be drawn, in this connection, to the agitation against the neglect of the slashing evil in many of the States of the Union that has resulted in some vigorous legislation already, and that is gradually convincing the operators that in dangerous places it is better to burn slash under proper control than to let it take fire at the wrong time by accident.

For the close season of the year the fire-preventive staff of the previous summer was almost doubled in numbers and reorganized. The Province was divided into two—a Supervisor and an Assistant Supervisor being placed in charge of the Upper Country, and the other Supervisor controlling the Coast districts and Northern British Columbia. These two sections were subdivided into ten divisions, each in charge of an Inspector (or Divisional Warden), with headquarters at Victoria, Vancouver, Vernon, Revelstoke, Fernie, Cranbrook, Nelson, Grand Forks, Kitsalas, and Barkerville. A network of patrol was maintained by the appointment of 110 District Wardens acting under the divisional men. Six launches patrolled the timbered water-front of the islands and inlets between Vancouver and Victoria and Alert Bay.

Though weather conditions were favourable, the closeness of the new patrols had a powerful effect in reducing the damage from forest fires, since all but a few of them were nipped in the bud by the prompt arrival of a Local Warden. The statistics of the season's fires are given below.

Apart from many matters now dealt with by the Forest Bill, the chief needs of the Province in the matter of fire-prevention are permanent improvements. The wandering patrolman, who is sometimes hard to find when wanted in an emergency, has had his efficiency vastly increased in many sections of the West by the establishment of field-telephone systems to which he may connect his portable line and instrument; by the cutting-out of fire lines and trails; by signal systems worked from look-out stations placed in commanding situations, and in many other ways. Money must be expended upon such up-to-date improvements if fire-control is to be assured in British Columbia.

STATISTICS OF SEASON'S FIRES.

District.	With Expense Fires.	Without Expense Fires.	Total Expenses.
Eburne	11	1	$ 244 85
South Vancouver	4	....	29 50
New Westminster	3	....	222 50
White Rock	1	....	386 15
Langley	1	2	2 00
Abbotsford	1	8	18 50
Chilliwhack	1	1	175 65
Hope	3	1	27 00
Divisional Fire Warden	2	11	40 40
Steamboat Mountain	2	....	129 75
Harrison Hot Springs	....	....	....
Mission	....	3	....
North Vancouver	7	....	141 00
"	1	1	78 40
Bowen Island	3	1	70 25
Breckendale	1	1	259 35
Pender Harbour	6	4	863 60
Powell River	....	5	....
Heriot Bay	7	4	913 85
Rock Bay	2	6	47 30
Port Harvey	....	1	....
Bella Coola	2	....	321 80
Skidegate	4	3	132 65
Atlin	....	....	....
Kitsalas	10	2	1,459 50
94-Mile	6	....	356 20
Hazelton	4	....	233 25
Aldermere	3	1	59 00
François Lake	....	....	....
Lillooet	3	....	153 45
Victoria District	17	17	563 20
Duncan	2	1	456 00
Cowichan Lake	7	....	938 00
Ladysmith	9	2	2,902 50
Parksville	6	8	1,147 20
Comox	4	4	167 50
Campbell River	2	1	12 50
Quatsino	3	....	67 50
Alberni	3	2	257 00
New Alberni	2	1	57 30
Port Renfrew	5	....	216 10
Buttle Lake	3	....	1,439 50
Fort George (Divisional Fire Warden)	2	1	98 40
South Fort George	....	2	....
"	1	2	254 00
Quesnel	....	1	....
Barkerville	....	....	....
Quesnel Forks	....	1	....
Lac la Hache	....	....	....
Tete Jaune Cache, West	....	....	....
" East	....	....	....
Kitsumkalum Lake	7	2	663 55
Clinton	4	....	461 10
North Vancouver	....	2	....
Kitsalas	6	3	301 00
Vernon (Divisional Fire Warden)	2	....	123 10
Jameson Creek	3	....	218 00
Kamloops	....	....	....
Adanes Lake	....	2	....
Seymour Arm	1	....	8,732 00
Douglas Lake	2	....	16 75
Armstrong	3	....	91 10
Lumby (Trinity bal.)	2	....	1,279 00
Kelowna	3	1	358 00
Penticton	3	....	524 50
Carried forward	190	109	$19,710 90

STATISTICS OF SEASON'S FIRES—*Concluded.*

District.	With Expense Fires.	Without Expense Fires.	Total Expense.
Brought forward	190	109	$19,710 90
Peachland	....	1	....
Aspen Grove	5	....	426 00
Princeton	2	1	184 00
Fairview	....	....	....
Revelstoke (Divisional Fire Warden)	1	....	117 00
" " "	1	2	44 95
Big Bend Patrol	1	....	94 00
Nakusp	4	3	701 00
New Denver	4	....	532 00
Lardo	3	....	981 00
Trout Lake	4	....	45 00
North of Golden	1	....	301 00
Galena	....	....	....
Athalmer, East	....	....	....
"	....	....	....
Windermere	....	....	....
West Arrow Park	4	1	1,154 00
Jaffray	....	....	....
Elko	....	3	....
Waldo	....	....	....
Gold Creek	....	....	....
Fernie	2	....	161 90
Hosmer	....	7	....
Sparwood	....	....	....
New Michel	....	1	....
Corbin	....	....	....
Flat Head Valley	....	....	....
Cranbrook (Divisional Fire Warden)	....	1	....
Moyie	1	....	53 70
Cranbrook, West	....	....	....
" East	....	....	....
Wycliffe	....	....	....
Marysville (Wasa)	....	....	....
Wardner	1	....	6 00
Kitchener	....	....	....
Creston	2	3	221 00
Procter	6	1	906 00
Nelson	4	1	292 55
Ymir	4	....	1,590 00
Waneta	....	....	....
Trail	3	1	1,436 50
Shields	....	2	....
Needles	1	....	178 40
Slocan	4	....	98 00
Kaslo	5	....	266 00
Greenwood	2	3	40 50
Grand Forks	....	....	....
Paulson	....	1	....
Carne	....	1	....
Rock Creek	1	....	10 20
Keremeos	....	....	....
	257	142	$29,406 60

EXPENDITURE.

Fires as shown	$ 29,406 60
Patrol expenses	112,174 00
Total for season of 1911	$141,580 60

NOTE.—In addition to the above, $6,338.20 was paid out in settlement of accounts dating from the previous season.

CAUSES OF FOREST FIRES.

Unknown	142
Travellers, campers, prospectors, hunters, surveyors, tramps	67
Logging-engines, logging camps, logging operations	37
Railway locomotives	26
Old fires started over again	25
Clearing fires without permit	24
Lightning	20
Clearing fires with permit	16
Indians	8
Road contractors	5
Railway construction and right-of-ways	4
Houses and shacks burnt	3
Government roadmen and foremen	3
Supposed incendiary	3
Steamboats	2
Traction-engines	2

MISCELLANEOUS.

Live wires broken, British Columbia Electric, North Vancouver	2
Blasting in Government quarry	1
" stumps	2
Men of Canadian Power Co., Pitt Meadows	1
Bottles lying in the sun	1
Sparks from house stove-pipe	1
Oil-lamp thrown from tent	1
An accident	2
Chinaman	1

I have, etc.,

WYNYARD C. GLADWIN.

Provincial Fire Warden's Office,
Vancouver, B.C.

REPORT OF THE WATER RIGHTS BRANCH.

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OFFICE-WORK.

This branch of the Department, having to be organized with no data except the copies of records on file, had much preparatory work to do before being able to show results.

The first step taken in 1910 was to prepare alphabetical indexes to the records arranged as to grantees' names and stream names. Many stream are known by several names and many names are duplicated, but official names are being given as soon as circumstances permit. These indexes are nearly completed, and similar indexes, as to licences issued under the 1909 Act, are prepared as the licences come in.

The system of filing correspondence commenced last year has been continued, and has been supplemented by a system of indexing which permits of easy reference. It would be advisable, however, that important documents, which are now among the correspondence, should be filed in a more secure manner when this branch is provided with vault accommodation.

The correspondence and other documents relating to licences under the "Rivers and Streams Act" are being collected from the different departments, and are being filed in this branch for more convenient reference.

The revenue collected from water records and licences is being checked, with a view of ascertaining what amounts are in arrears and devising means for its more efficient collection. Much cannot be done until the Board of Investigation has completed more of its adjudications.

It was found, on making an inspection of all licences issued before August of this year, that many did not conform to the requirement of the Act, and it was decided that all District Commissioners should submit the applications to this branch before adjudication, in order that it might be ascertained that the quantities applied for were reasonable, and whether the requirement of the Act had been fulfilled. This was particularly necessary to prevent over-recording, and to avoid the want of precision that has caused tronble over the records issued under former Acts. These examinations entail much work and at times some delay, but the results will be that the licences issued will be of more value and that much future trouble will be avoided.

It has been found that the Board of Investigation cannot deal promptly in the determination of the rights of claimants under former Acts without a close scrutiny of the claims being made before the hearing of evidence and argument. These old records were very brief documents and need inquiry as to the title of the original grantees, which involves much research in the files of the Department. These searches can be conducted by the office staff systematically and with much less loss of time than would attend the production of the documents one by one at the hearing. The information thus obtained is produced at the hearing. The evidence can be confined to the points on which the parties interested do not agree.

Information is now being collected as to records in the Railway Belt preparatory to the investigations which will be required there.

Information is being collected as to power-sites and reservoir-sites for future use; this is done without much expense in connection with other works of the branch.

J. F. ARMSTRONG,
Acting Chief Water Commissioner.

BOARD OF INVESTIGATION UNDER THE "WATER ACT, 1909."

Meetings of the Board in 1911 were held as follows:—

March 22nd, 23rd, 24th and 25th, at Victoria.—Members present: The Chief Water Commissioner and Mr. J. T. Robinson. Clerical work in connection with meetings previously held.

March 27th, at Victoria.—Same members present. It was determined to adjudicate on claims on Mission Creek at Mission City. Notice of an appeal against the decision of the Board on the adjudication in favour of McLean was filed. Various letters were read and referred to future meetings.

May 1st and 2nd, at Victoria.—Same members present. Orders were passed adjudicating on ten records in the vicinity of Penticton, cancelling the record of Thomas Ellis of water from Penticton Creek, and ordering the issue of a licence to the Municipality of Penticton in substitution therefor. Orders were passed adjudicating on eight records for water out of Ellis Creek and its tributaries, and notice of these adjudications sent to the Water Commissioner of Similkameen Water District.

August 29th, at Victoria.—Members present: J. F. Armstrong, Acting Chief Water Commissioner, and G. Gray Donald, member of the Board. The Board determined that on the 11th day of October, 1911, they would proceed to adjudicate upon claims to water on streams in the vicinity of Kelowna, and directed that all persons having claims on such streams do come in and present their claims on or before the 30th day of September, 1911.

September 11th, at Victoria.—Same members present. The Board determined that on the 24th day of October, 1911, they would proceed to adjudicate upon claims to water on streams in the Slocan Water District, and directed that all persons having claims on such streams do come in and present their claims on or before the 10th day of October, 1911.

October 9th, at Victoria.—Same members present. The Board decided to hear evidence and adjudicate on claims in the vicinity of Kelowna on the 23rd day of November, 1911, at Kelowna, and that all persons having such claims should present them before the 10th day of November, 1911.

October 16th, at Victoria.—Same members present. The Board determined that on the 10th day of January, 1912, they would proceed to adjudicate on all claims to water on streams in the Osoyoos Water District not already presented, and directed that all persons having claims on such streams do come in and present their claims on or before the 30th day of November, 1911.

October 26th, at Victoria.—Same members present. The Board determined that on the 10th day of January, 1912, they would proceed to adjudicate on all claims on Furry Creek, a tributary of Howe Sound, in the New Westminster Water District, and directed that all persons having claims on the said creek do come in and present their claims on or before the 30th day of November, 1911.

November 23rd to 30th, at Kelowna.—Same members present. The Board heard evidence on claims in the following precincts: Saw Mill Creek, Scotty Creek, Mill Creek, Mission Creek, Dry Valley; and adjourned to a date to be fixed by the Chairman, in order to further tabulate the claims and allow time for the claimants to file further information required to determine the rights of the various claimants.

December 11th, at Victoria.—Same members present. The Board determined that on the 1st day of March, 1912, they would proceed to adjudicate on claims to water on creeks in the Nelson Water District, and directed that all persons having claims on such creeks do come in and present their claims on or before the 31st day of January, 1912. The Board also determined that on the 1st day of March, 1912, they would proceed to adjudicate on the remainder of the creeks in the Slocan Water District, and directed that all persons having claims on such creeks do come in and present their claims on or before the 31st day of January, 1912.

January 11th, 1912, at Vancouver.—Same members present. Argument was heard with regard to claims on Furry Creek, and adjournment was taken to allow claimants to furnish evidence.

January 13th, at Victoria.—Same members present. The Board determined that on the 30th day of March, 1912, they would proceed to adjudicate on claims to water on creeks in the New Westminster Water District, and directed that all persons having claims on such creeks do come in and present their claims on or before the 29th day of February, 1912.

February 5th, at Victoria.—Same members present. It was decided that notices under section 33 be served on thirty-four holders of records who have not presented claims on streams in the vicinity of Kelowna.

February 15th, at Victoria.—Same members present. The Board determined that on the 7th day of March, 1912, they would proceed with the adjudication of claims on Furry Creek, in the New Westminster Water District.

HYDROGRAPHIC SURVEY FOR 1911-1912.

1. The work which was commenced in 1910 was again taken up at the opening of the season 1911 by three parties and carried on uninterruptedly.

2. There were, in all, nine parties in the field, and the work accomplished, with their sphere of operation, is set out as follows:—

Party No. 2 took up the previous year's work at Okanagan Falls, and continued it south to the Boundary and westwards to the Keremeos District and country tributary to the Similkameen River. An area of 374 square miles was covered by close survey and 361 square miles by reconnaissance survey, at a total cost of $6,096.

Party No. 3 continued the 1910 work in the White Valley and carried it to Cherry Creek, the limits of the watershed, then took up the west side of Okanagan Lake from Cæsar's, or Short's Point, northwards. The area covered was 406 square miles close survey and 728 square miles reconnaissance survey, at a total cost of $4,234.

Party No. 4 started on new ground and completed Slocan Lake and the mining district in the vicinity of Sandon, also the country tributary to the Kootenay River from Slocan Junction to Nelson; thence the West Arm as far as Procter. The area covered was 250 square miles by close survey and 5,860 square miles by reconnaissance survey, at a cost of $4,063.

Party No. 5 worked in conjunction with No. 4 and completed the Slocan River, the country from Slocan Junction to Trail, and had done considerable work in the vicinity of Grand Forks before disbanding for the winter. The area covered under close survey was 301 square miles and by reconnaissance survey 579 square miles, at a cost of $3,575.

Party No. 6 took up the west side of Okanagan River and Lake from Kaledon north to Summerland, and covered 182 square miles by close survey and 154 square miles by reconnaissance survey, the total cost being $4,761.

Party No. 7 operated in the Railway Belt and completed all work in the Hat Creek and Oregon Jack drainage; 203 square miles was covered by close survey and 121 square miles by reconnaissance, and the cost was $3,601.

Party No. 8 was put in to join up the Kelowna and Mission Valley work of 1910 with the survey of White Valley, and operated in the district round Woods and Long Lakes, completing this work. The area covered was 112 square miles by close survey and 158 square miles by reconnaissance survey, and the cost was $2,685.

Party No. 9 was stationed in the Nicola District and embraced the country lying round Nicola River and its tributaries, from Mill Creek on the east to where the Nicola River enters the Railway Belt. The area covered was 161 square miles by close survey and 30 square miles of reconnaissance work, at a total cost of $4,928.

Party No. 10 was placed in the Cranbrook District and covered the territory in the vicinity of Cranbrook and Elko, and Linklater Creek, accounting for an area of 213 square miles by close survey and 132 square miles by reconnaissance survey, at a cost of $2,766.

3. In addition to the regular surveys, a great amount of general information respecting power schemes and possibilities, storage-sites, and steam-gaugings has been obtained; most of it is necessarily fragmentary, but each season's work will add to its value. On Vancouver Island all the main streams from Gordon River on the south-west coast, round by south-east, and east, up to and including the Courtenay, have been gauged, and water-gauges have been established on them; but continuous observations will have to be made to render these investigations of real value. The Fraser River and some of its tributaries have also been gauged.

4. The season was favourable for field-work.

5. Altogether, 2,202 square miles were surveyed by what is known as "close survey" and 8,123 square miles by "reconnaissance survey," the former being adopted on streams having a number of records on them and considerable area of irrigable land; the latter on isolated and detached cases where the greater expense would not be warranted.

G. GRAY DONALD,
Chief Hydrographer.

Victoria, B.C., 15th February, 1912.

LIST OF PARTIES AND ENGINEERS IN CHARGE OF THEM.

Party No. 2.—J. C. Dufresne, succeeded by O. Bergoust.
" 3.—W. R. C. Morris.
" 4.—E. Davis.
" 5.—C. Varcoe.
" 6.—W. H. Ricardo, succeeded by H. A. Icke.
" 7.—W. R. Pilsworth.
" 8.—G. H. Corringham.
" 9.—P. de Lautour.
" 10.—H. B. Hicks.

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1912.