

**CIHM
Microfiche
Series
(Monographs)**

**ICMH
Collection de
microfiches
(monographies)**



Canadian Institute for Historical Microreproductions / Institut canadien de microreproductions historiques

© 1997

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming are checked below.

- ☐ Coloured covers / Couverture de couleur
- ☐ Covers damaged / Couverture endommagée
- ☐ Covers restored and/or laminated / Couverture restaurée et/ou pelliculée
- ☐ Cover title missing / Le titre de couverture manque
- ☐ Coloured maps / Cartes géographiques en couleur
- ☐ Coloured ink (i.e. other than blue or black) / Encre de couleur (i.e. autre que bleue ou noire)
- ☐ Coloured plates and/or illustrations / Planches et/ou illustrations en couleur
- ☐ Bound with other material / Relié avec d'autres documents
- ☐ Only edition available / Seule édition disponible
- ☐ Tight binding may cause shadows or distortion along interior margin / La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure.
- ☐ Blank leaves added during restorations may appear within the text. Whenever possible, these have been omitted from filming / Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.
- ☐ Additional comments / Commentaires supplémentaires:

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

- ☐ Coloured pages / Pages de couleur
- ☐ Pages damaged / Pages endommagées
- ☐ Pages restored and/or laminated / Pages restaurées et/ou pelliculées
- ☒ Pages discoloured, stained or foxed / Pages décolorées, tachetées ou piquées
- ☐ Pages detached / Pages détachées
- ☒ Showthrough / Transparence
- ☐ Quality of print varies / Qualité inégale de l'impression
- ☐ Includes supplementary material / Comprend du matériel supplémentaire
- ☐ Pages wholly or partially obscured by errata slips, tissues, etc., have been refilmed to ensure the best possible image / Les pages totalement ou partiellement obscurcies par un feuillet d'errata, une pelure, etc., ont été filmées à nouveau de façon à obtenir la meilleure image possible.
- ☐ Opposing pages with varying colouration or discolourations are filmed twice to ensure the best possible image / Les pages s'opposant ayant des colorations variables ou des décolorations sont filmées deux fois afin d'obtenir la meilleure image possible.

This item is filmed at the reduction ratio checked below /
Ce document est filmé au taux de réduction indiqué ci-dessous.

10x	14x	18x	22x	26x	30x
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12x	16x	20x	24x	28x	32x

The copy filmed here has been reproduced thanks to the generosity of:

British Columbia Archives and Records Service.

The images appearing here are the best quality possible considering the condition and legibility of the original copy and in keeping with the filming contract specifications.

Original copies in printed paper covers are filmed beginning with the front cover and ending on the last page with a printed or illustrated impression, or the back cover when appropriate. All other original copies are filmed beginning on the first page with a printed or illustrated impression, and ending on the last page with a printed or illustrated impression.

The last recorded frame on each microfiche shall contain the symbol ➡ (meaning "CONTINUED"), or the symbol ▼ (meaning "END"), whichever applies.

Maps, plates, charts, etc., may be filmed at different reduction ratios. Those too large to be entirely included in one exposure are filmed beginning in the upper left hand corner, left to right and top to bottom, as many frames as required. The following diagrams illustrate the method:

1	2	3
---	---	---

1	2
4	5

L'exemplaire filmé fut reproduit grâce à la générosité de:

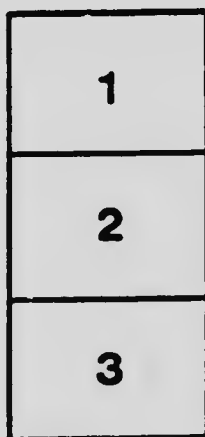
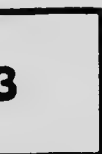
British Columbia Archives and Records Service.

Les images suivantes ont été reproduites avec la plus grande soin, compte tenu de la condition et de la netteté de l'exemplaire filmé, et en conformité avec les conditions du contrat de filmage.

Les exemplaires originaux dont la couverture en papier est imprimée sont filmés en commençant par le premier plat et en terminent soit par la dernière page qui comporte une empreinte d'impression ou d'illustration, soit par le second plat, selon la cas. Tous les autres exemplaires originaux sont filmés en commençant par la première page qui comporte une empreinte d'impression ou d'illustration et en terminent par la dernière page qui comporte une telle empreinte.

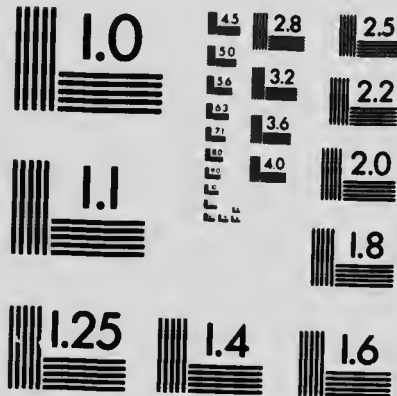
Un des symboles suivants apparaîtra sur la dernière image de chaque microfiche, selon la cas: le symbole ➡ signifie "A SUIVRE", le symbole ▼ signifie "FIN".

Les cartes, planches, tableaux, etc., peuvent être filmés à des taux de réduction différents. Lorsque le document est trop grand pour être reproduit en un seul cliché, il est filmé à partir de l'angle supérieur gauche, de gauche à droite, et de haut en bas, en prenant le nombre d'images nécessaire. Les diagrammes suivants illustrent la méthode.



MICROCOPY RESOLUTION TEST CHART

(ANSI and ISO TEST CHART No. 2)



APPLIED IMAGE Inc

1853 East Main Street
Rochester, New York 14609 USA
(716) 482 - 0300 - Phone
(716) 288 - 5989 - Fax

Map
976100
D923
C. 2.

REPORT
OF
THOS. H. DUNN, C.E.
OF THE
WATER POWER BRANCH OF
THE DEPARTMENT OF
THE INTERIOR

7700p.
971.1CC
0923

C. 2

J. B. CHALLIES, Esq.,
Supt. Water Power Branch,
Department of Interior,
Ottawa, Ont.

SIR:—

I beg to submit the following report based on information gained from my examination of the locality and maps and gaugings made by the Railway Belt Hydrographic Survey during the Season of 1912.

General Description

The Columbia River takes its rise in Columbia Lake about latitude 50, 15 North, and Longitude 150, 50 West. From Columbia Lake it flows North West through Lake Windermere and continues in the same direction, generally past the town of Golden, situated on the main line of the Canadian Pacific Railway at the junction of the Kicking Horse River with the Columbia.

The valley is bounded by the Rocky Mountains on the East side, and the Selkirk Mountains on the West, lying in parallel ranges. Running through this great valley is a low flat strip of land of considerable uniformity, averaging about a mile in width and extending from Lake Windermere to a point near Donald. At extremely high water this is virtually the bed of the Columbia River, for it is practically covered with water at such times, although no doubt, there is but little velocity outside of the low water channels, while at extreme low water the whole flat is dry, and the river winds through this flat by many and devious channels, being confined chiefly to the main channel. Adjoining the flat on both sides are high dry benches which have the most part steep sides next the river and which shed little or no water, not getting enough from the scant rainfall to satisfy the thirsty soil.

The range on the East is narrow and precipitous and its Eastern slope feeds the Kootenay River which parallels the Columbia for about sixty miles of its course and at a distance of only about twelve miles to the East, but flowing in the opposite direction. From these conditions

183482

it will be readily seen that there can be few creeks on the East side flowing to the Columbia. There are none of importance within the railway belt South of Golden. The West side of the range is more broken and the creeks are longer and of course larger. Canyon creek, small as it is, is the only tributary of any importance within this portion of the railway belt.

South of the railway belt there are some good sized creeks of which the most important are, Spillamacheen, Bugaboo, No. 2, Horse Thief and Toby. Spillamacheen, although situated within the railway belt, enters the Columbia just South of the Southern limit of the belt, these are all on the West side and with Canyon Creek and the discharge from Windermere Lake, constitute the chief supply of the Columbia South of Golden. The discharge from Windermere Lake is not great and when Toby Creek is in flood the water flows back into the Lake, which was the condition at the time of my visit.

The water of all the Creeks is heavily charged with silt, a large percent of which is deposited on entering the comparatively sluggish waters of the Columbia. This has resulted in the raising of a small section of the bottom lands above high water at and near the mouths of Toby, Horse Thief and Canyon Creeks.

Transportation

The Columbia Valley is entered at the main line of the Canadian Pacific Railway at Golden which is situated at the confluence of the Kicking Horse with the Columbia. From Golden the C. P. R. follows the valley of the Columbia down Stream as far as Beaver Mouth. A branch of the C. P. R. known as the Kootenay Central Railway, is under construction between Golden and some point of the Crows' Nest Branch. This line follows the Columbia on the East side and the rails are laid about half of the way from Golden to Windermere Lake. In a year or two, years at most, this road will be in full operation.

(This Railway is now completed.)

There is a good highway along the East side of the

Valley from Golden to Atholmer. This road continues on South and down the Kootenay valley to Cranbrook on the Crows' Nest Branch. There it is also a good road which extends down the West side of the Columbia from Invermere. An automobile highway from Banff to Windermere is under construction and is well on the way toward completion. This road traverses the Kootenay valley and enters the Columbia Valley by way of Sinclair Pass and when completed will form one of the links of the much talked of National Highway to the Coast and will form a very attractive feature.

The Columbia is navigable between Golden and Windermere Lake for flat bottomed boats with stern wheels, such as are shown in the attached photographs, during the greater part of the Season. At the low water period, however, there is considerable difficulty on account of numerous sand bars. It is quite true, as stated in the report of Canavan and Mitchell, that some of the bends in the River channel are very short and no doubt are a great trouble and annoyance in navigation. There are six boats plying on the River from Golden South.

The navigation of this portion of the River is at present a very important matter, and is bound to become more and more important as the valley becomes settled until the Kootenay Central comes into operation, and even then it will be essential for the West side unless the bottoms are reclaimed as there are at present few places where a crossing could be constructed. With the unwatering of the flats, however, this difficulty would largely disappear.

Settlement and Agriculture

The principal town and the only one of any size is Golden, with a population of about 2,000. Lumbering and construction has been the chief employment of the people, agriculture holding a very important place. However the filling of the larger valleys nearer the Coast and the scarcity of lands suitable for agricultural purposes has directed attention to the upper Columbia

valley and during the last few years a number of settlers have taken up land upon the East side of the valley.

The very light rainfall in the upper valley, which makes irrigation of the benches necessary, has more than anything else retarded settlement because irrigation is too difficult and expensive for individual effort in this land of sloping benches, and where the water supply must be drawn from deep and sometimes remote canyons. This condition is now being remedied by large irrigation companies, who have acquired lands in the valley and are carrying on extensive improvements preparatory to putting their lands on the market.

I visited the Townsite of the Columbia Valley Orchards Lands Company, where I found a large corps of laborers at work clearing the land of all trees, stumps and stones and constructing a complete system of irrigation for a large tract which it is proposed to plant in apples or such orchard or other fruits as may be suitable to the climate. Considerable land on this tract is being plowed this year.

Several townsites have been laid out in the valley and such small places as Athaimer, Invermere and Wiibur have a considerable number of houses. The largest of these is Athaimer, which is situated at the foot of Lake Windermere.

It seems quite certain that with the completion of the Kootenay Central railway and perfecting of the plans of the Irrigation Companies, the valley will receive a considerable influx in population.

With the settlement of the benches will come a strong demand for the reclamation of the bottom lands for the growth of hay. The local supply of hay has been an almost minus quantity and much hay is bought from outside points. The price varies some but is always high, being from \$2.00 to \$45.00 per ton and even higher at times.

Climate

During the few days of my visit the weather was delightful, and I am given to understand that this is the prevailing condition during the summer.

Value

The bench lands are suitable for the cultivation of fruits. Where they have been cleared, sub-divided, placed under irrigation and otherwise improved, they are held at from \$175.00 to \$300.00 per acre. The bottom lands are of course alluvial and consist of a very fine soil. Men of much experience in the Columbia valley say that this will make first class land, very productive, and will be worth fully as much, if not more than, the irrigated lands adjoining.

Reclamation Dyking

Of all the plans suggested for reclaiming these lands, dyking, combined with drainage must be the method made use of, if any degree of success is to be attained within a reasonable time. Nevertheless, since the area to be treated is very long, and the main channel of the river cuts the flats into many sections by its meanderings, each section will have to be dealt with separately and receive such treatment as would appear to be necessary from a study of all the conditions at that point.

All of which is Respectfully Submitted,

(Sgd.) THOMAS H. DAVIS, C. E.

Dated at WINNIPEG, June 14, 1913.

183482



