

CCA2015

Cartography and Geovisualization
Charlottetown, Prince Edward Island
May 27-29, 2015

ACC2015

Cartographie et Géovisualisation
Charlottetown, Île-du-Prince-Édouard
27 au 29 mai, 2015

**Dam(n)ing BC:
Utilizing historical maps and web maps to remember the dam(n)ed**

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outline

- **Background / How? / Why?**
- **“Site C”: BC Hydro 3rd dam on Peace River**
- **other dam(ned) sites**

methods / sources

- **gov't reports, maps and photos from late 18th century onwards**

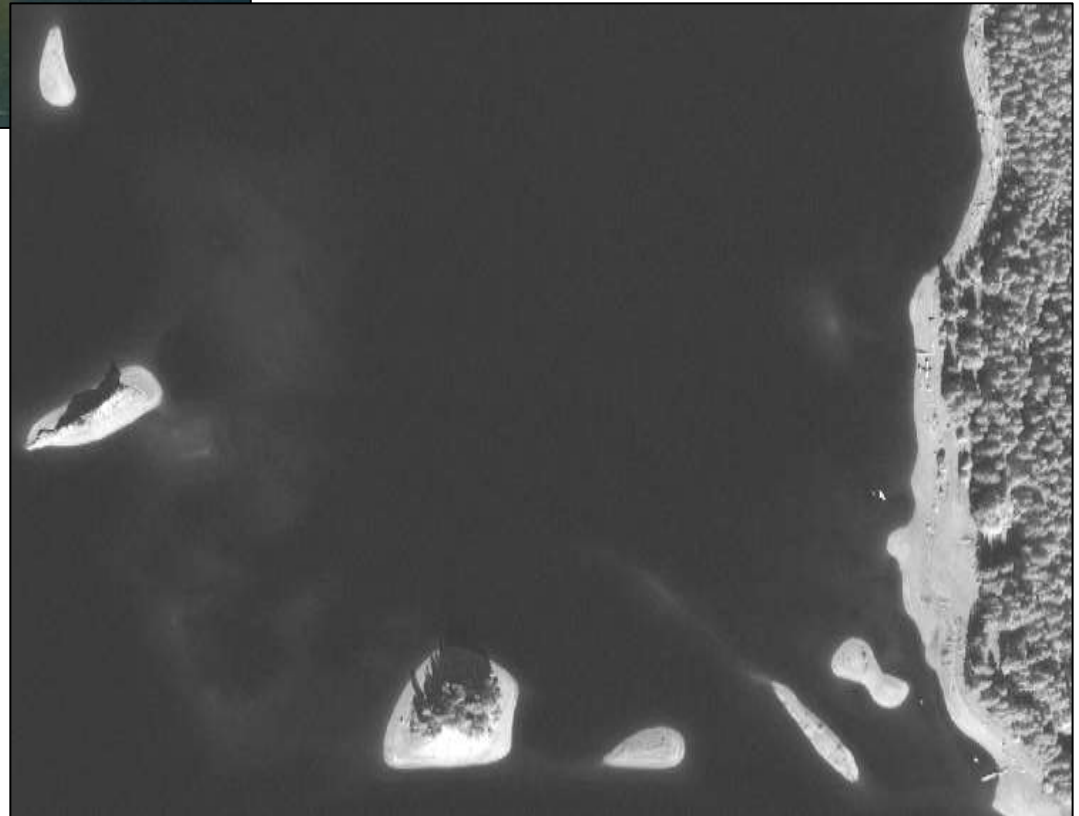
near North "Buttle Lake" campground



“Campbell River” Islands...



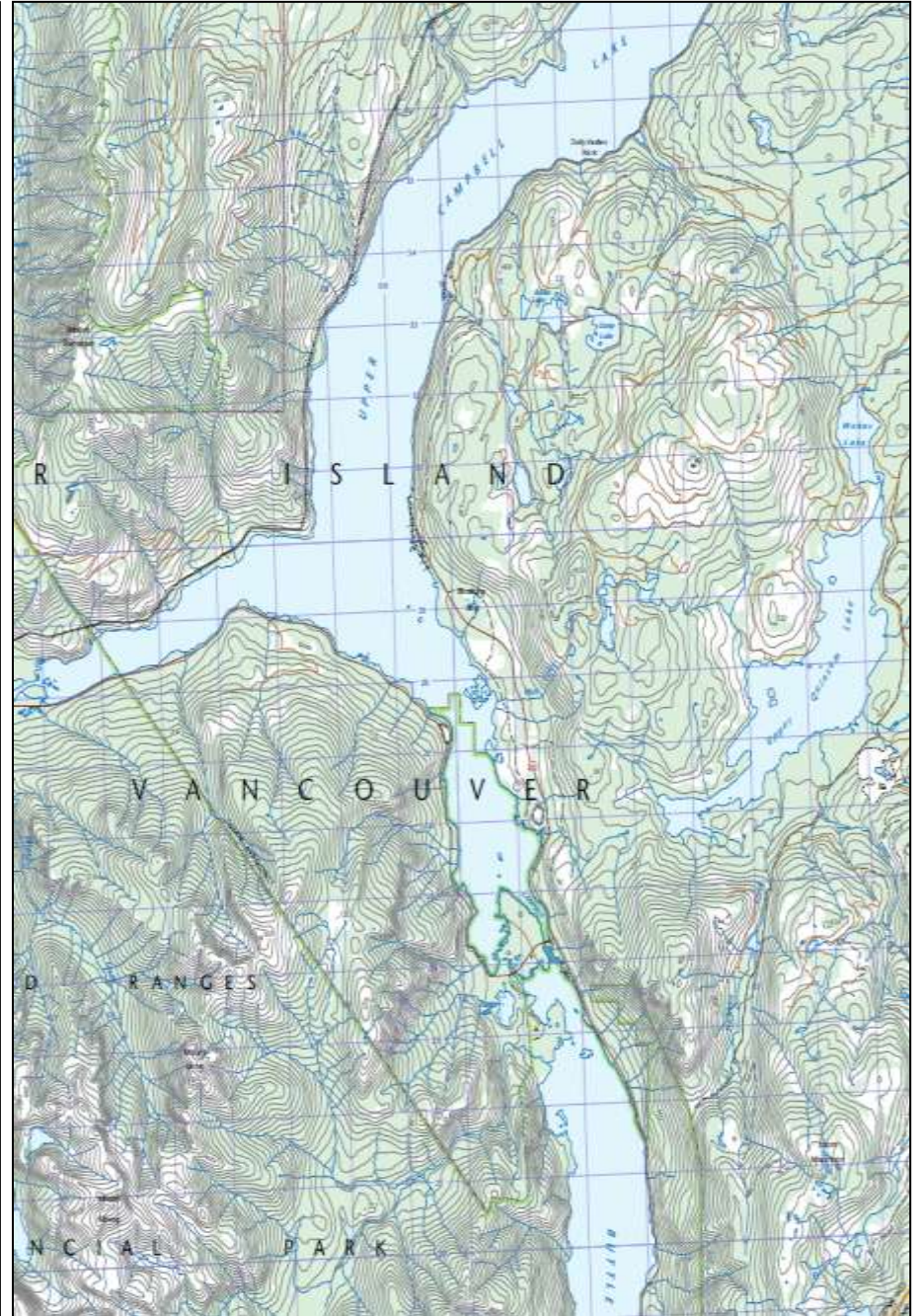
...near Strathcona Park Lodge



(part of sheet) NTS 92F/13: before / after 1952-54 dam construction



1946: 1st edition



2011 4th edition

Before Strathcona Dam



deliberate #1?... hmmm...

ABOUT SITE C

Site C will be a third dam and generating station on the Peace River in northeast B.C. The project will provide 1,100 megawatts of capacity and about 5,100 gigawatt hours of energy each year to the province's integrated electricity system.



**WAC Bennett and Peace Canyon Dams
(on Peace River backing up into Parsnip and Parsnip Rivers)
created Williston Reservoir**



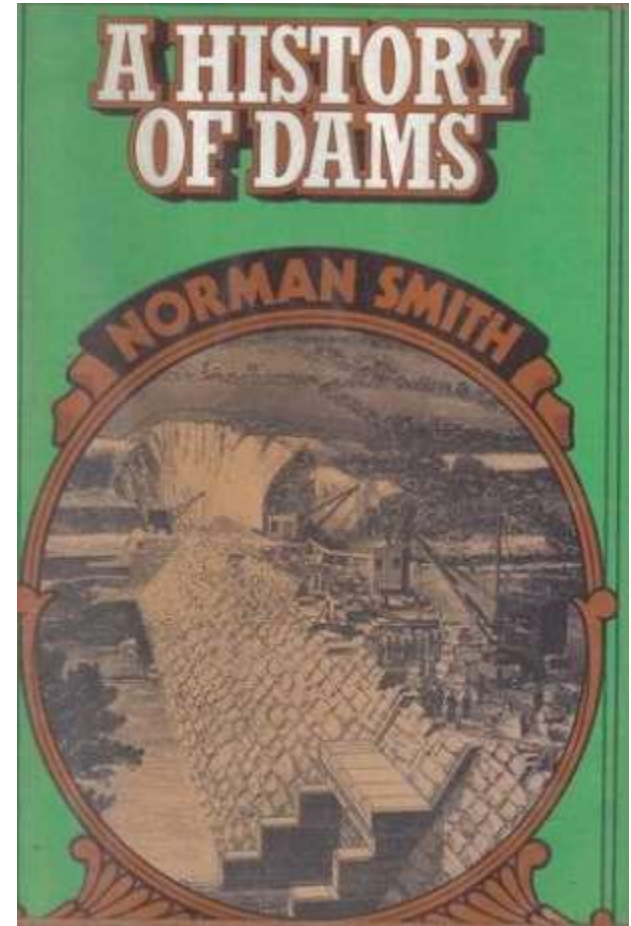
deliberate #2?... hmmm...



Rivers and humans

humans have manipulated rivers for millennia

- Smith, N. *A history of dams*, 1971



- Goudie, A.S. *The human impact on the natural environment: Past, present, and future* (7th edition since the 1980s!)

- Wohl, E. & Merritts, D.J. What is a natural river? *Geography Compass*, 2007

Site C Joint Review Panel Report, 2014

Panel's Reflections:



**“Today’s distant beneficiaries [electricity consumers] do not remember the Finlay, Parsnip, and pristine Peace Rivers...”
(p.307)**



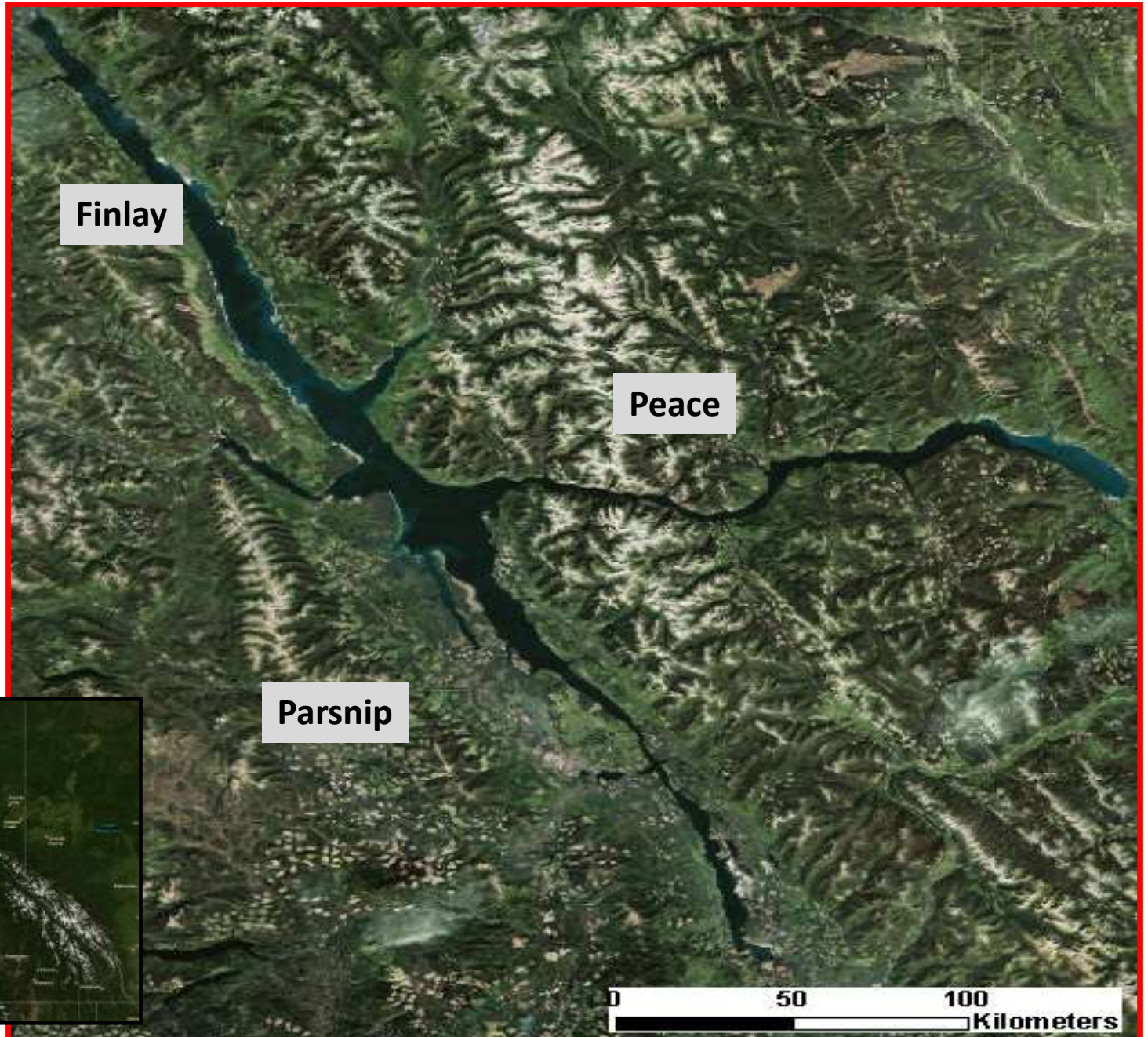
How did we get from this...



[section of map from] *Peace River Chronicles*, 1963

...to this...

...so let us remember the...



Utilizing historical maps and webmap to...

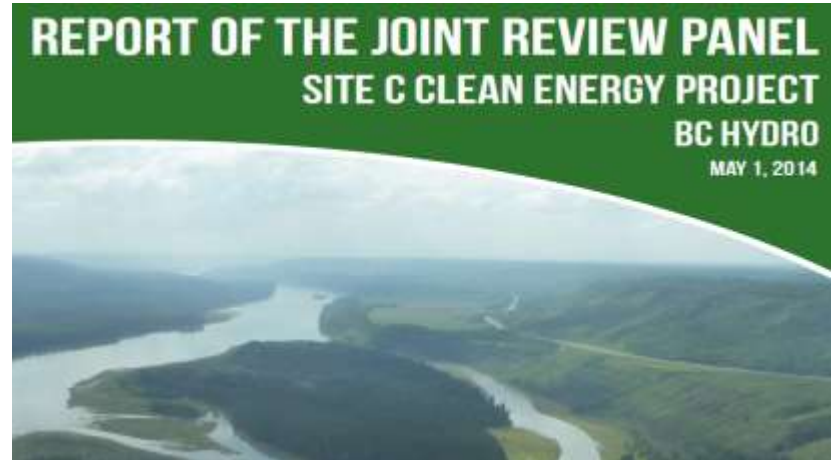
- **Remember the Findlay, Parsnip, Peace Rivers and their tributaries**

methods / sources

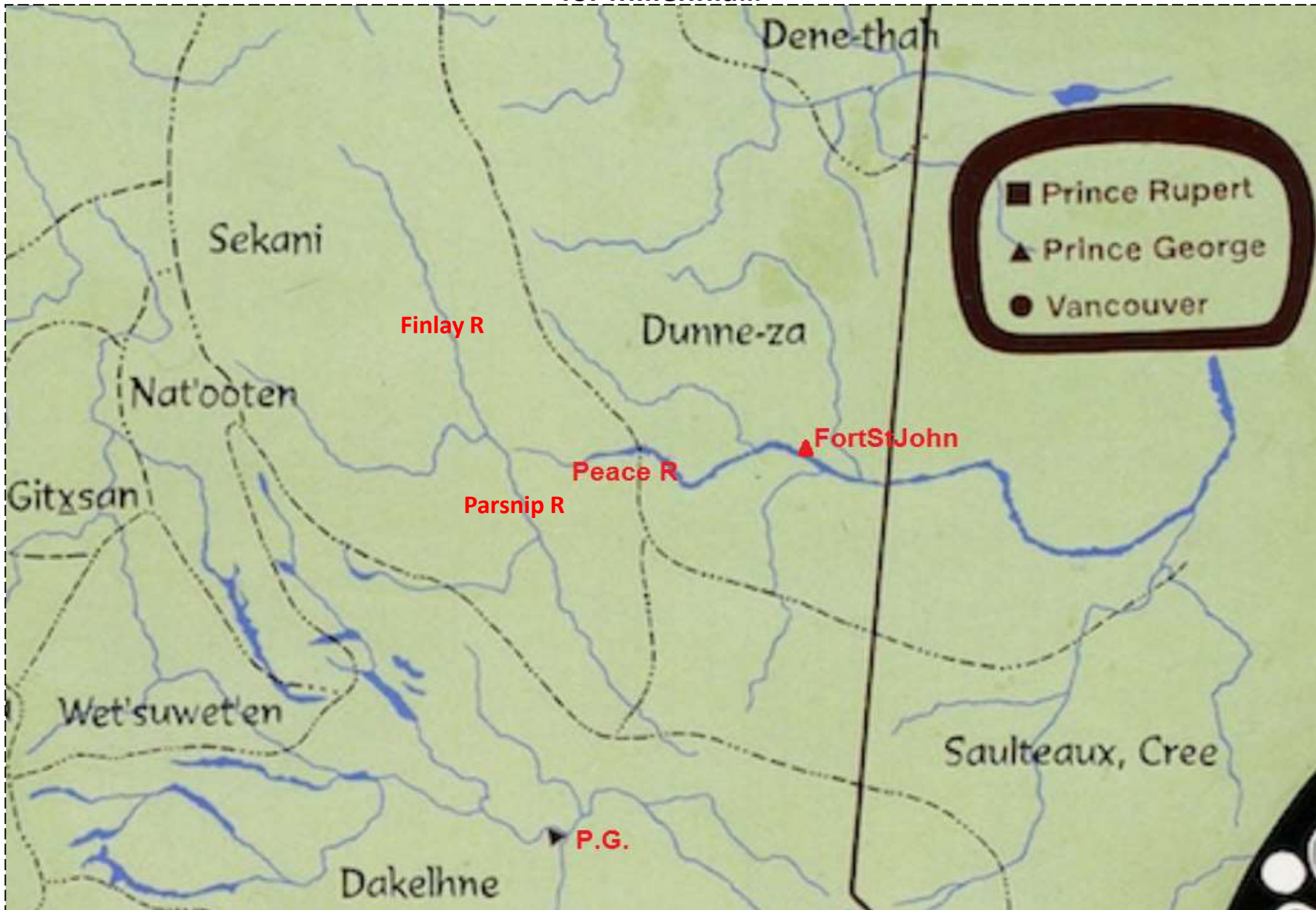
- **gov't reports, maps and photographs from late 18th century onwards**

Site C Joint Review Panel Report, 2014

**“All but two Aboriginal groups opposed the Project.
Of the two, one favoured the Project and one was ambivalent.”
(p.308)**

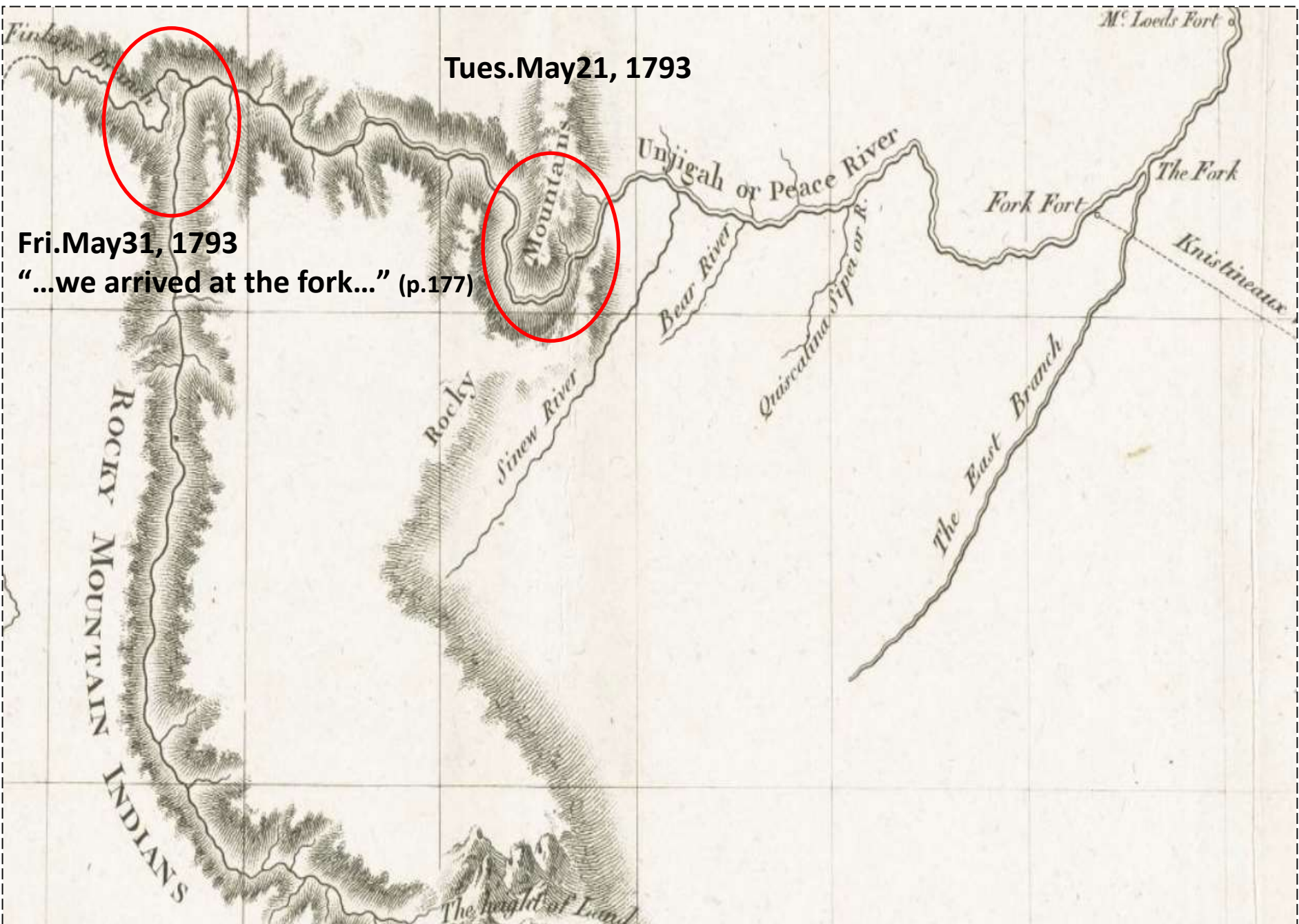


for millennia...



100kms

Wilson, L. [section of] *First Nations of British Columbia*, 2002.



Tues. May 21, 1793

Fri. May 31, 1793

"...we arrived at the fork..." (p.177)

~100kms

[section of] A map of Mackenzie's track from Fort Chipewyan to the Pacific Ocean in 1793, 1801.

[section of] A map exhibiting all the new discoveries in the interior parts of North America



~100kms

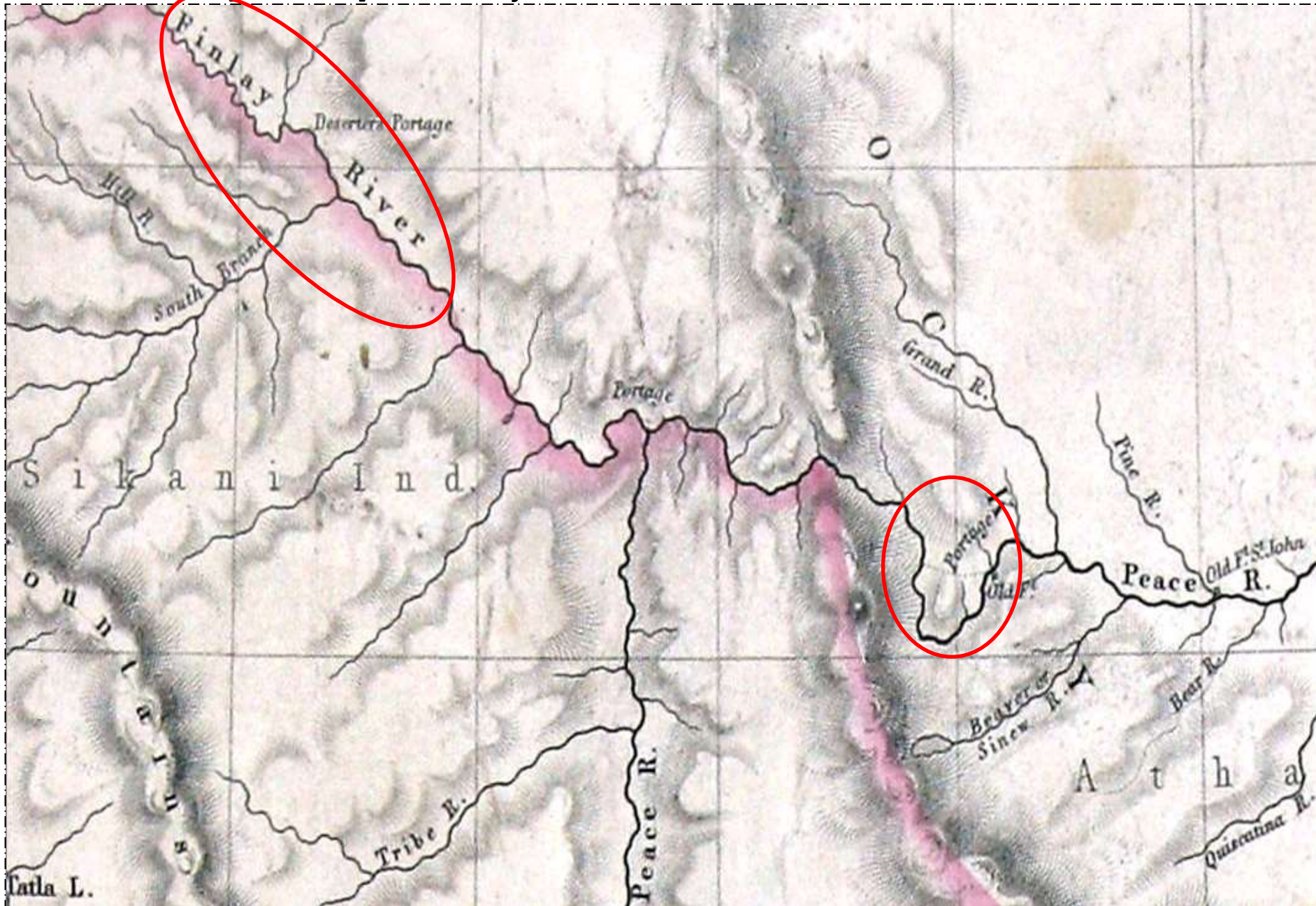
A.Arrowsmith, 1802; (various editions exist)



100kms

[section of] David Thompson's *Map of the North West Territory of the Province of Canada*, [1814]

[section of] *Provinces of British Columbia and Vancouver Island... 1859*

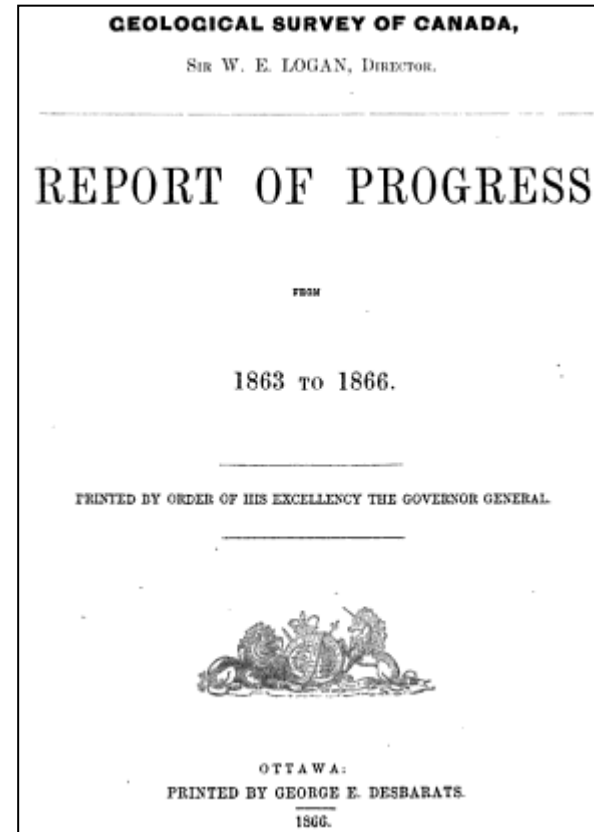


100kms

"compiled from original documents by John Arrowsmith"

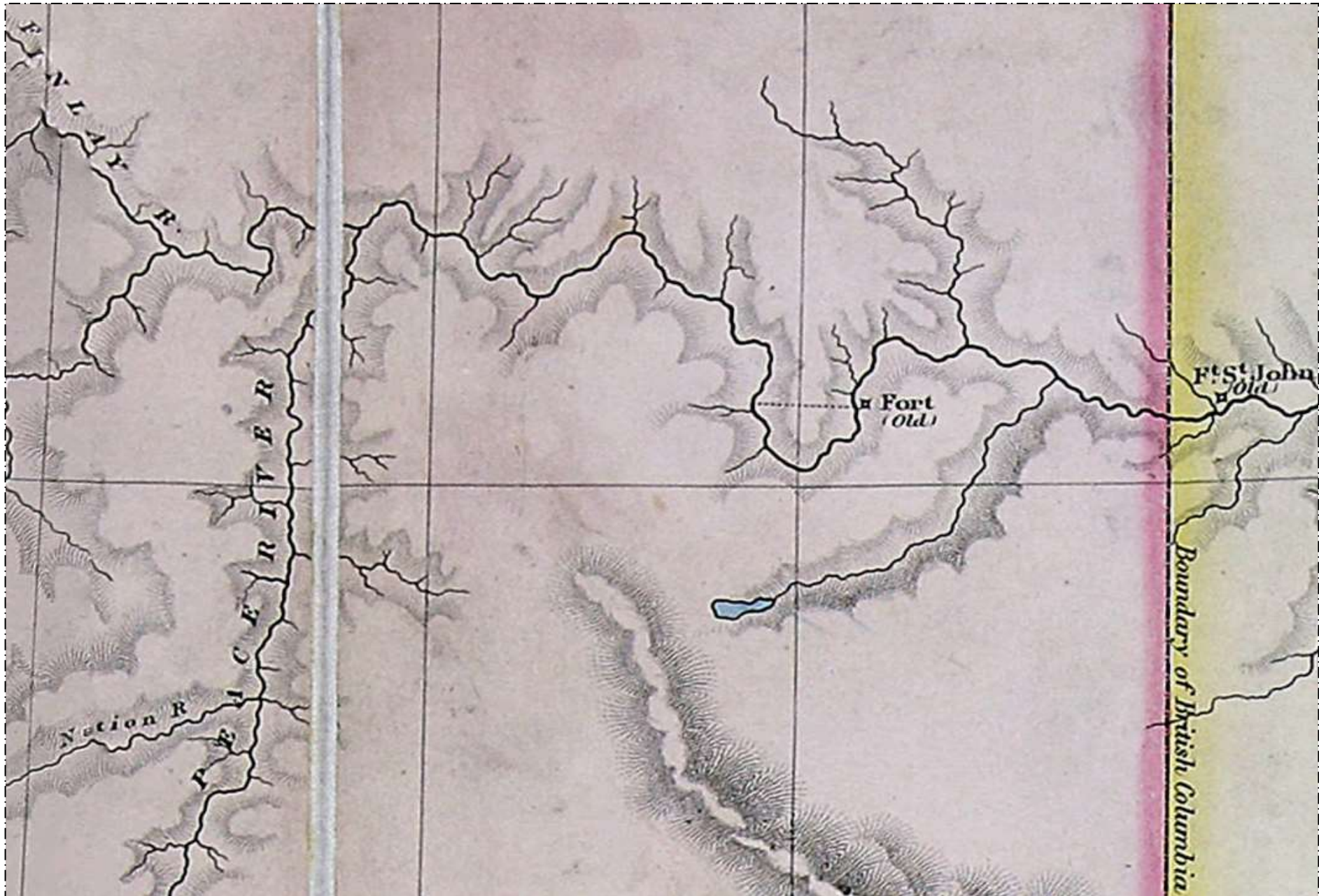
Canada's "water power"

- 1866: "...there is good water power..."
[for operating mining equipment]
(p.298; Geological Survey of Canada
Report on Progress, 1863 to 1866, 1866)



- 1870: "...Water-power, if needed, is accessible in several localities..."
(p.308; Geological Survey of Canada *Report on Progress, 1867-69, 1870*)

[section of] *Map of British Columbia to the 56th Parallel North Latitude, 1871*



100kms

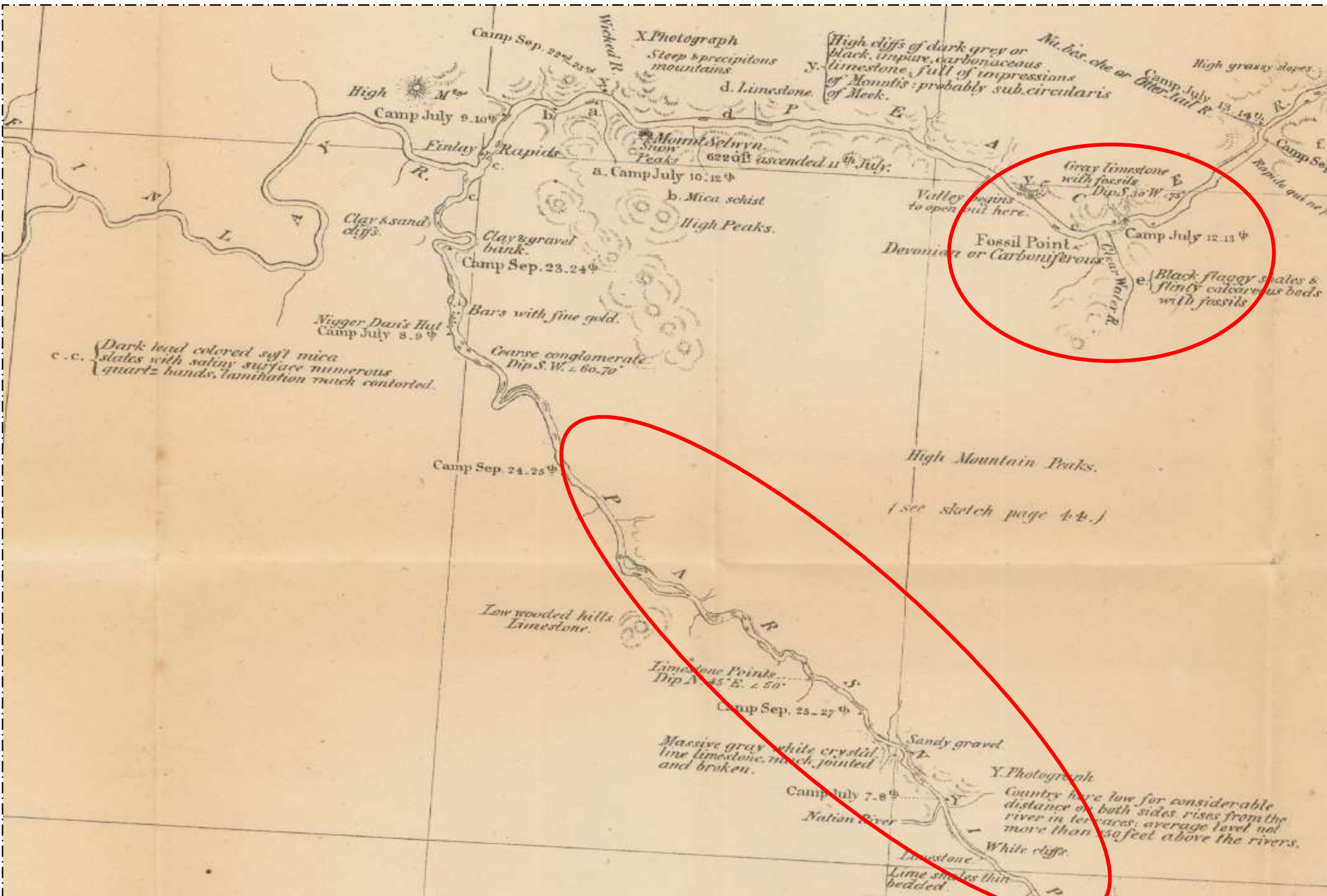
under the direction of Joseph W. Trutch; J. B. Launders, draughtsman

[section of] *Sketch survey of route from Quesnel mouth by Stewart and McLeod's lakes to junction of Smoky River and Peace River*



100kms

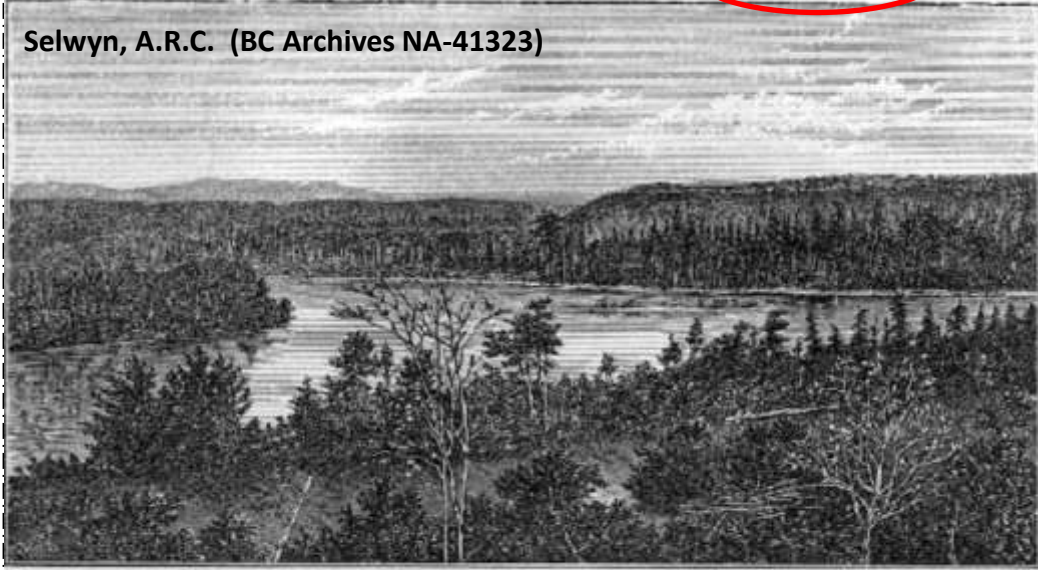
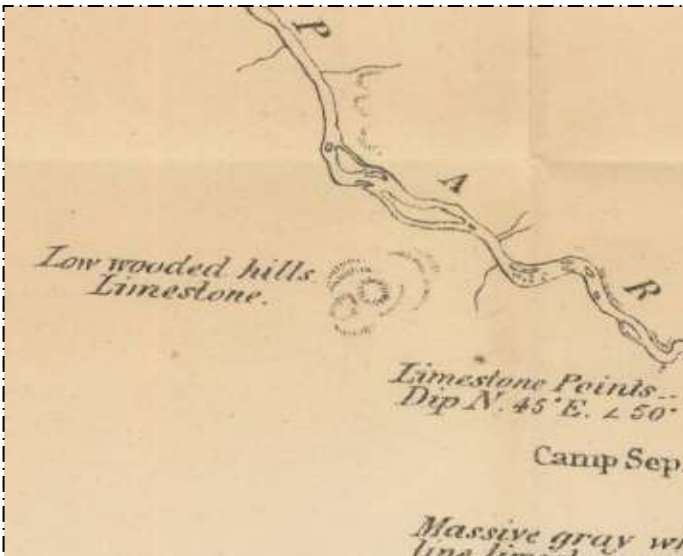
“we passed into the Parsnip, so named on accounts of the cow-parnsip (*Heracleum lanatum*) being so abundant on its banks”



50kms

“...we ascended the Parsnip River down to the mouth of Nation River...”, 1877

LAC a037522, 1875



Selwyn, A.R.C. (BC Archives NA-41323)

From a Photo by A. R. C. SELWYN, Rep.
JUNCTION OF NATION AND PARSNIP.

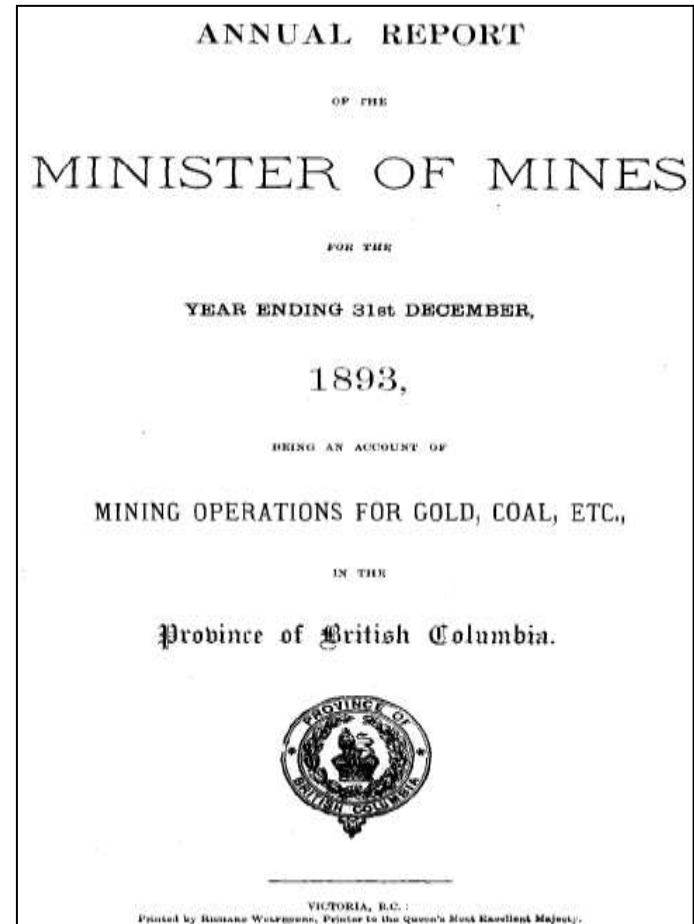
BC Minister of Mines: “water power”

1874 - onwards:

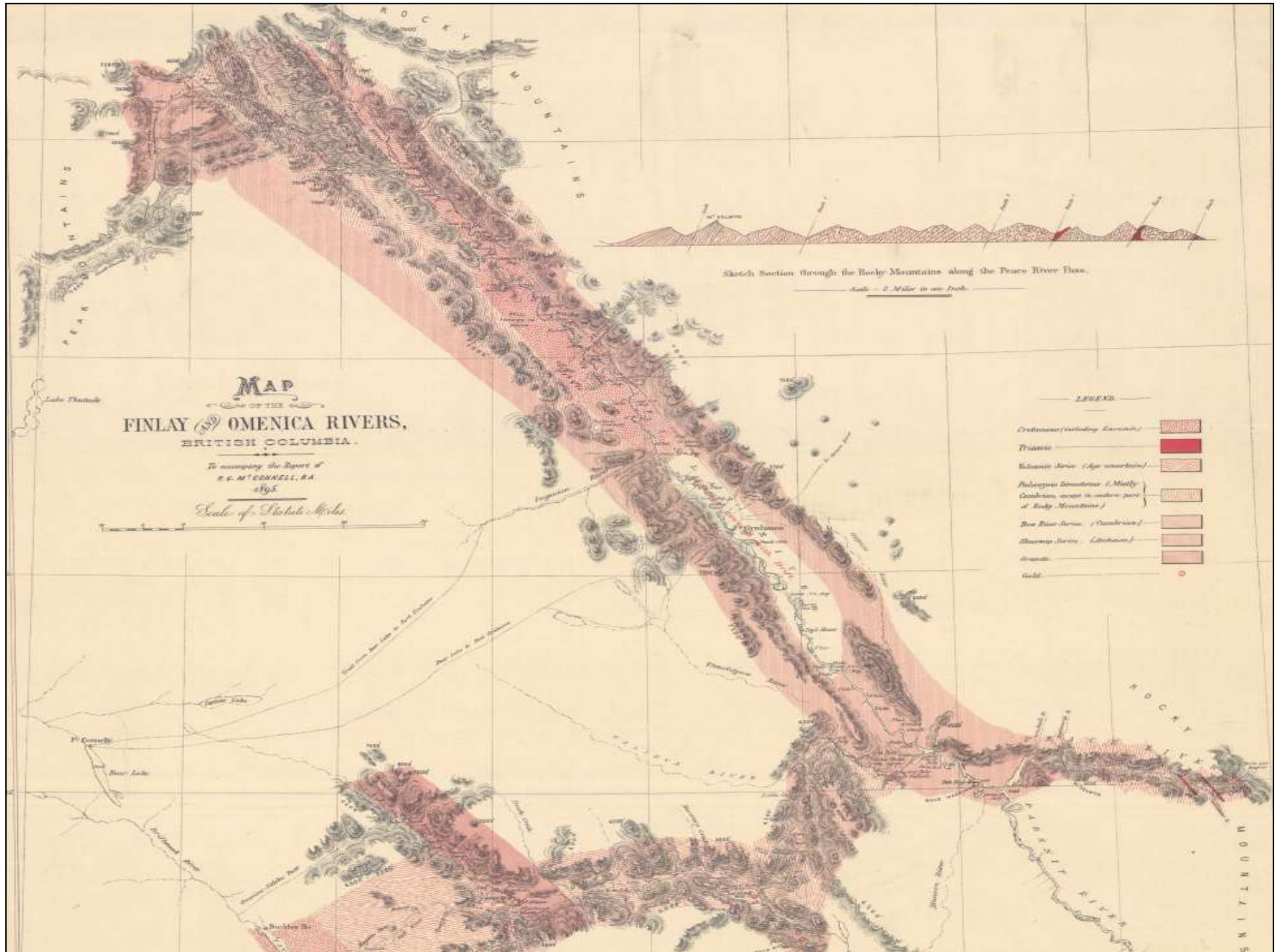
several “water power” references throughout the province
but not in reference to the Peace River...

“There is not a mine in the district at which electricity generated by water power
could not be used.”

BC Annual Report of the Minister of Mines 1893, 1894

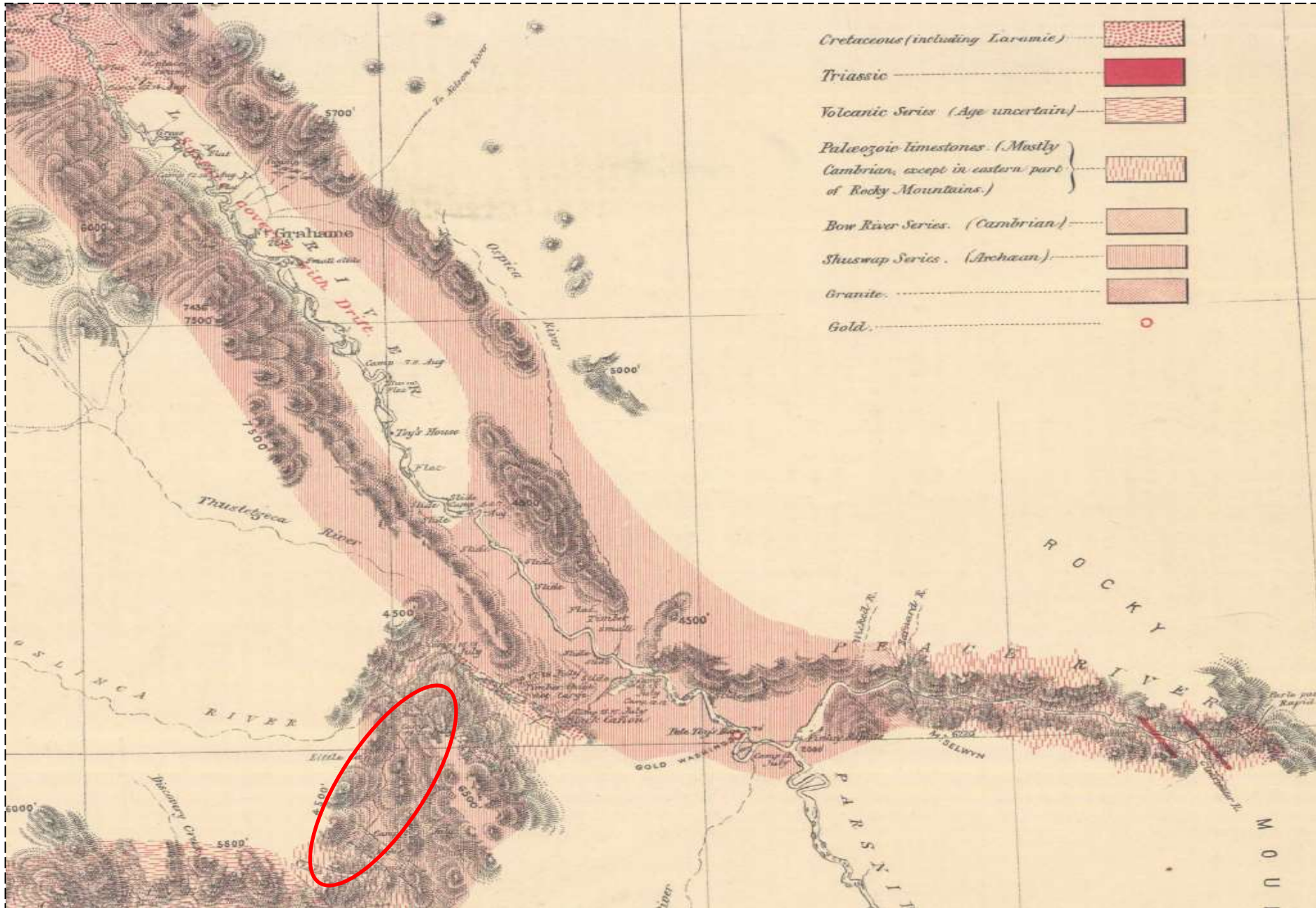


Map of the Finlay and Omineca Rivers, 1895



Russel(I), H.Y. Multicoloured Geological Survey of Canada Map 567, 1895

Omineca R: "...its current is extremely swift, the slope of the bed exceeding ten feet to the mile." (p.7)

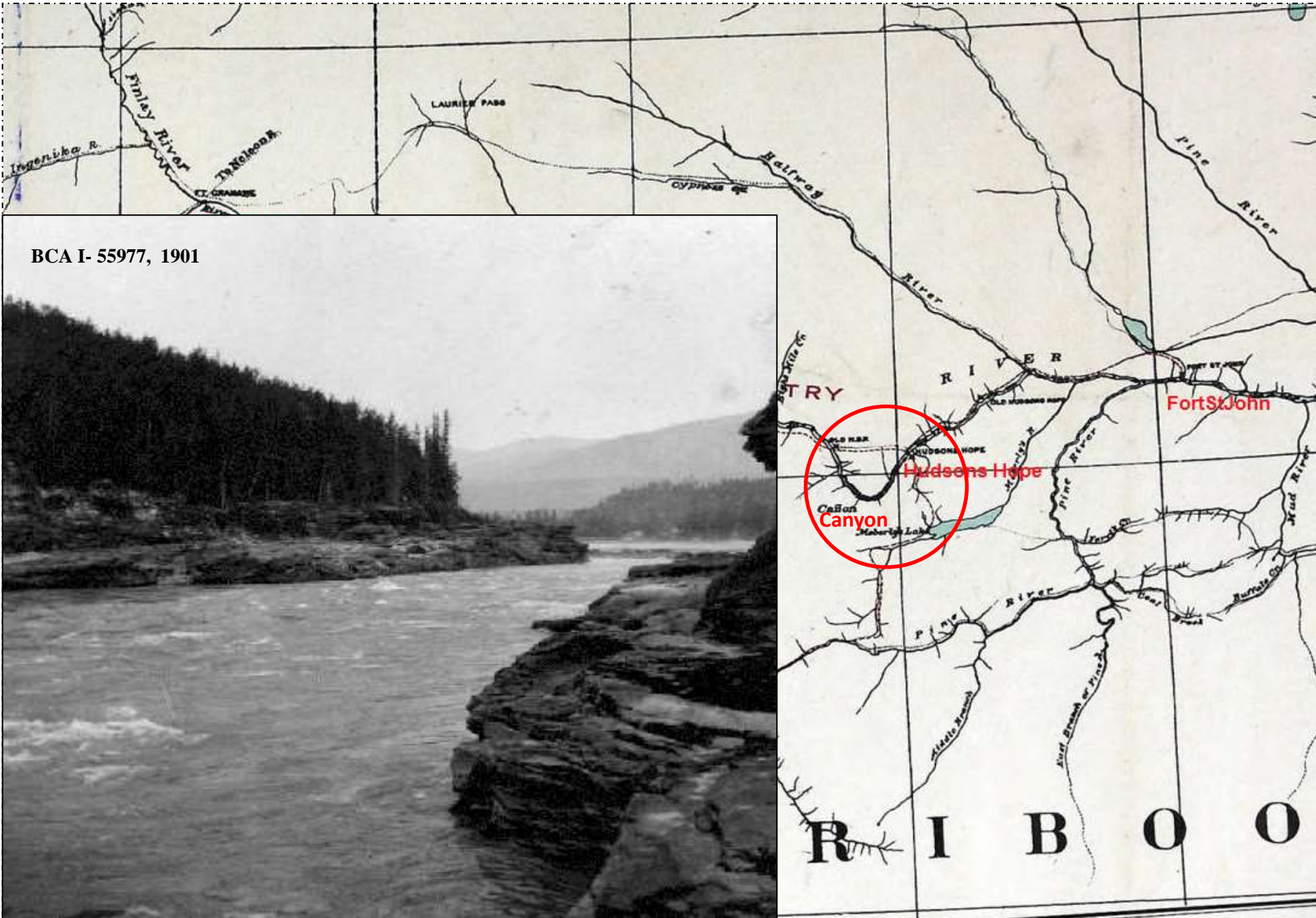


[section of] Russel(l), H.Y. *Map of the Finlay and Omineca Rivers*. Multicoloured Geological Survey of Canada Map 567, 1895

[section of] Map of the Northern Interior of British Columbia, shewing undeveloped areas



looking up river from the entrance to the Peace River Canyon, 1901



BCA I- 55977, 1901

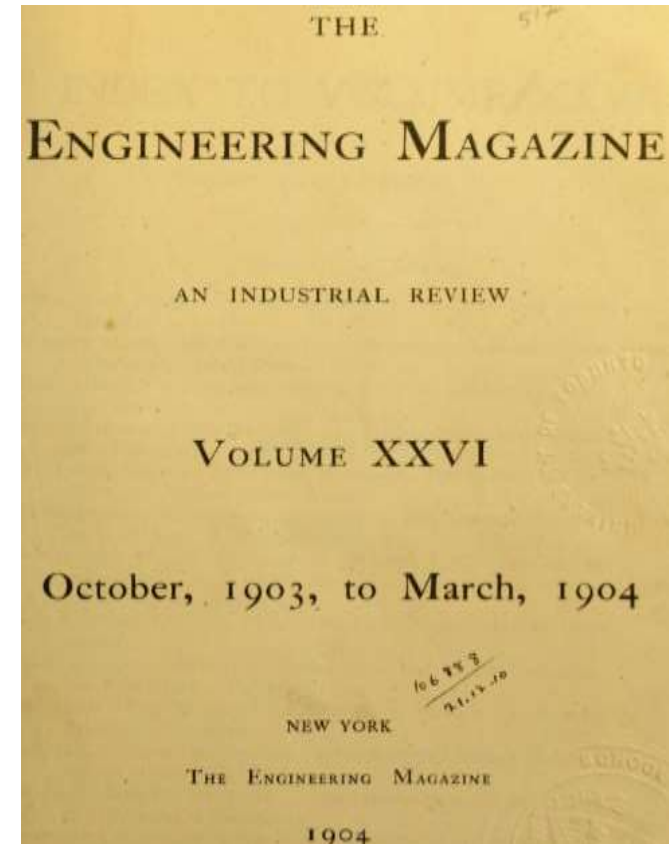
“Peace River”

1903:

“Peace River...of great size and volume...”

“So far as known to me no official or other competent survey or report has been made of the water power available in British Columbia.”

(p.335; *Water powers of British Columbia*, 1903)

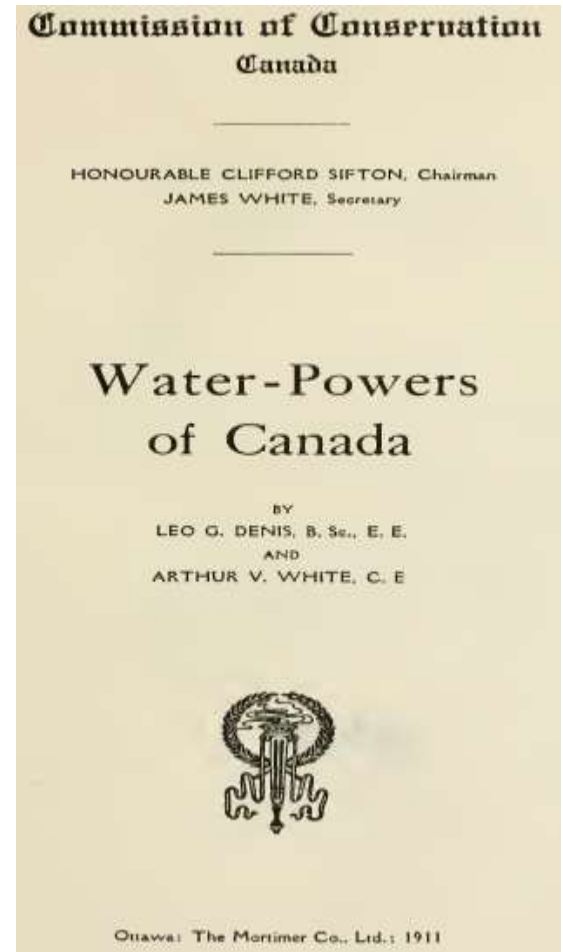


BC water powers: “Peace River”

1911:

“Peace River...power sites ...there are two important sites...
...the upper is at Rocky Mountain portage.”

“At this point the river is a raging torrent flowing 25 miles
through a canyon, and has a total fall of 270 feet”
(p.287; *Water-powers of Canada*, 1911)



Coal measures of Peace River Canyon

SKETCH MAP OF PEACE RIVER COALFIELD

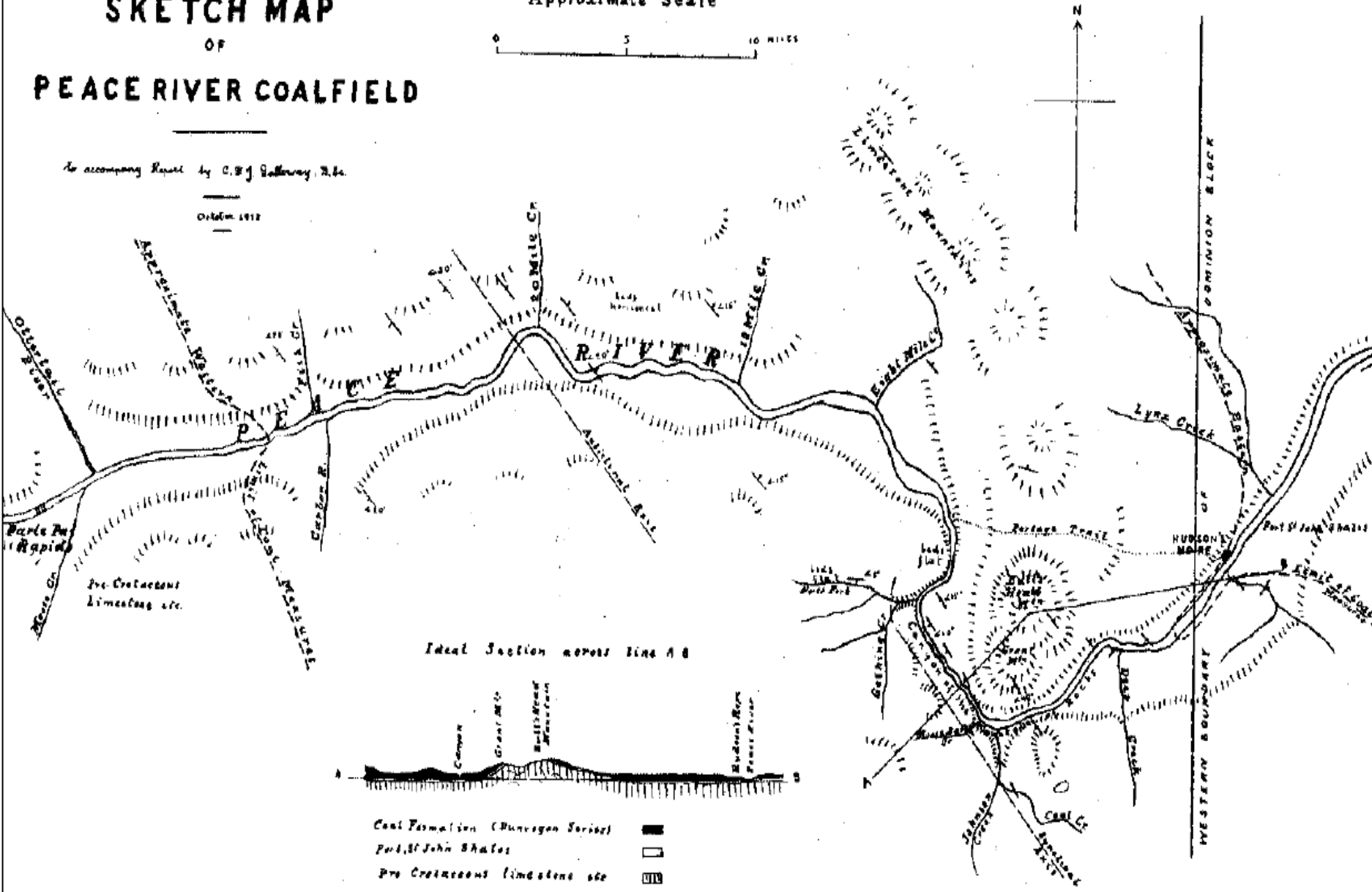
To accompany Report by C.F.J. Galloway, B.C.

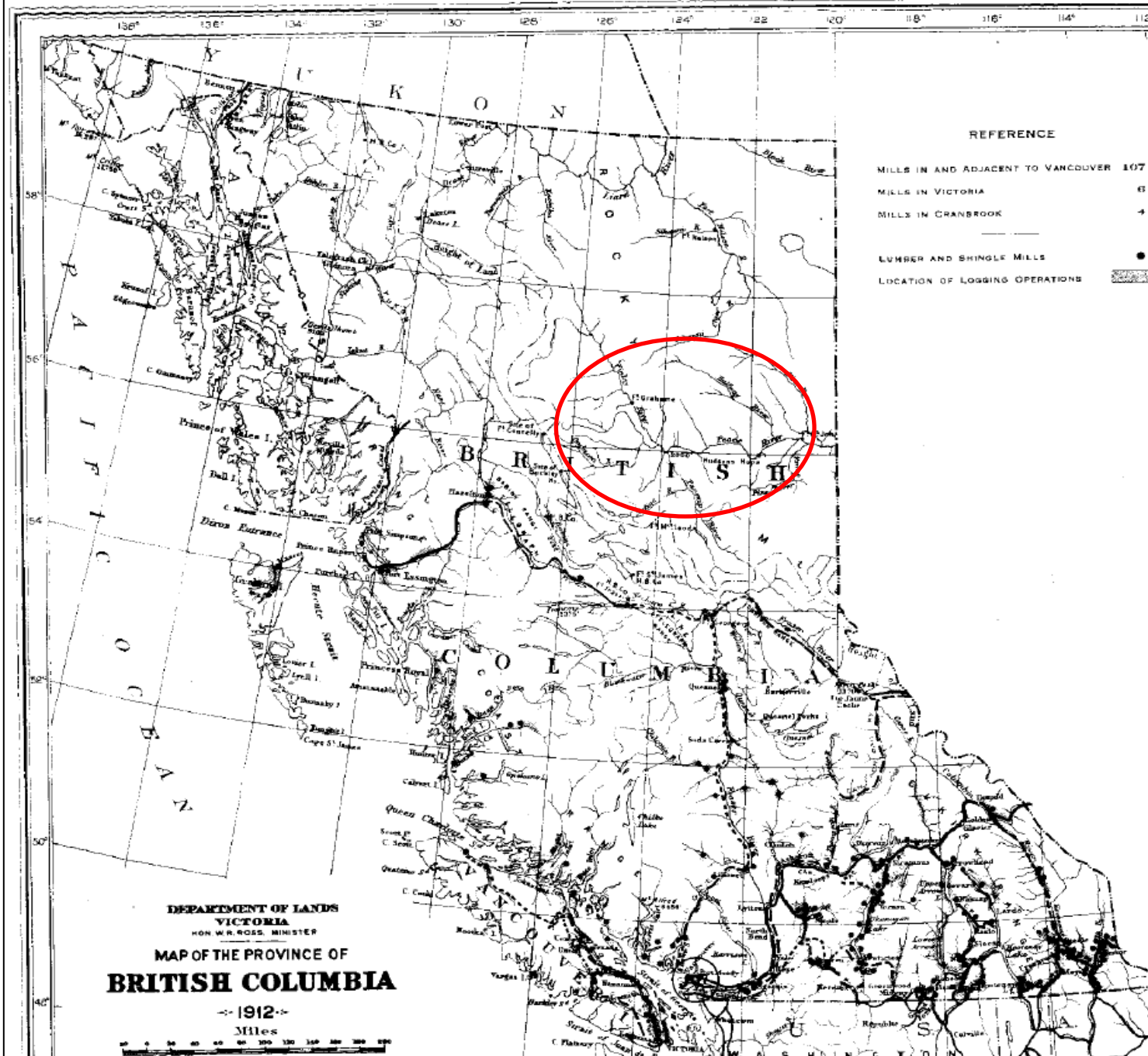
October 1912

Approximate Scale

0 5 10 MILES

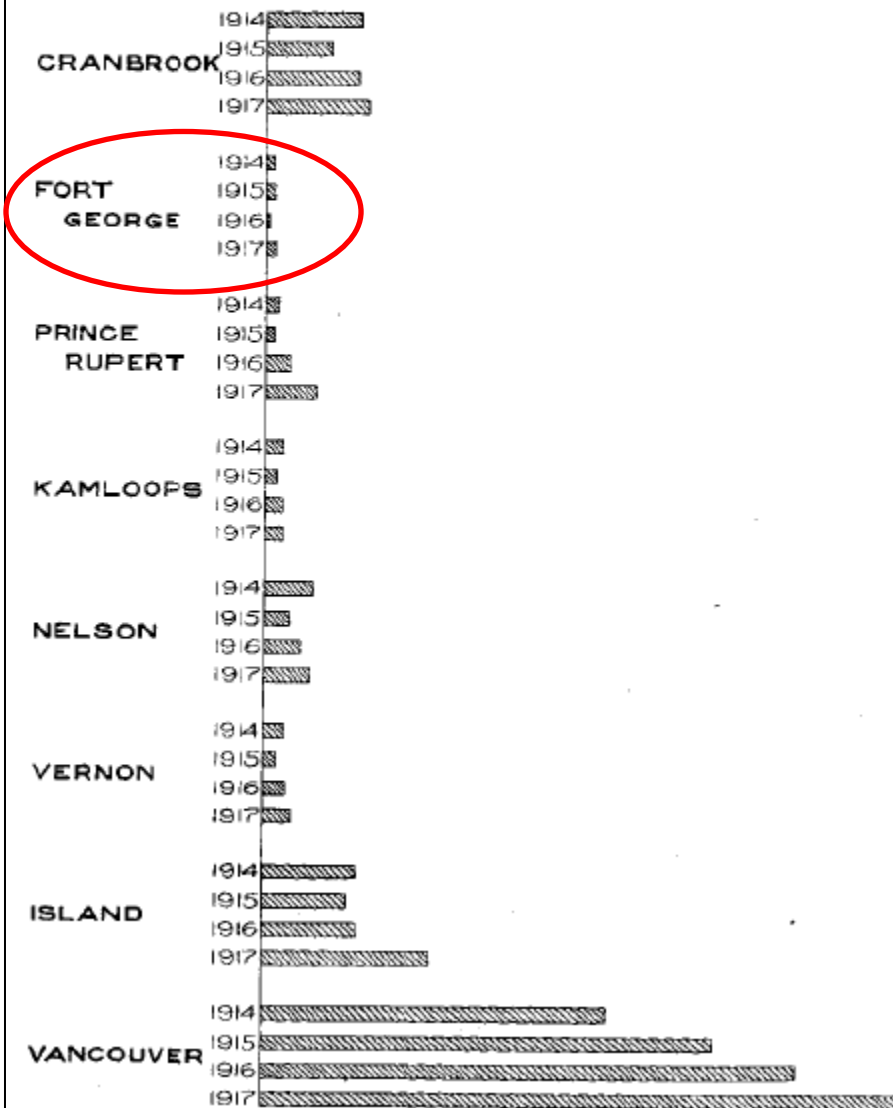
N



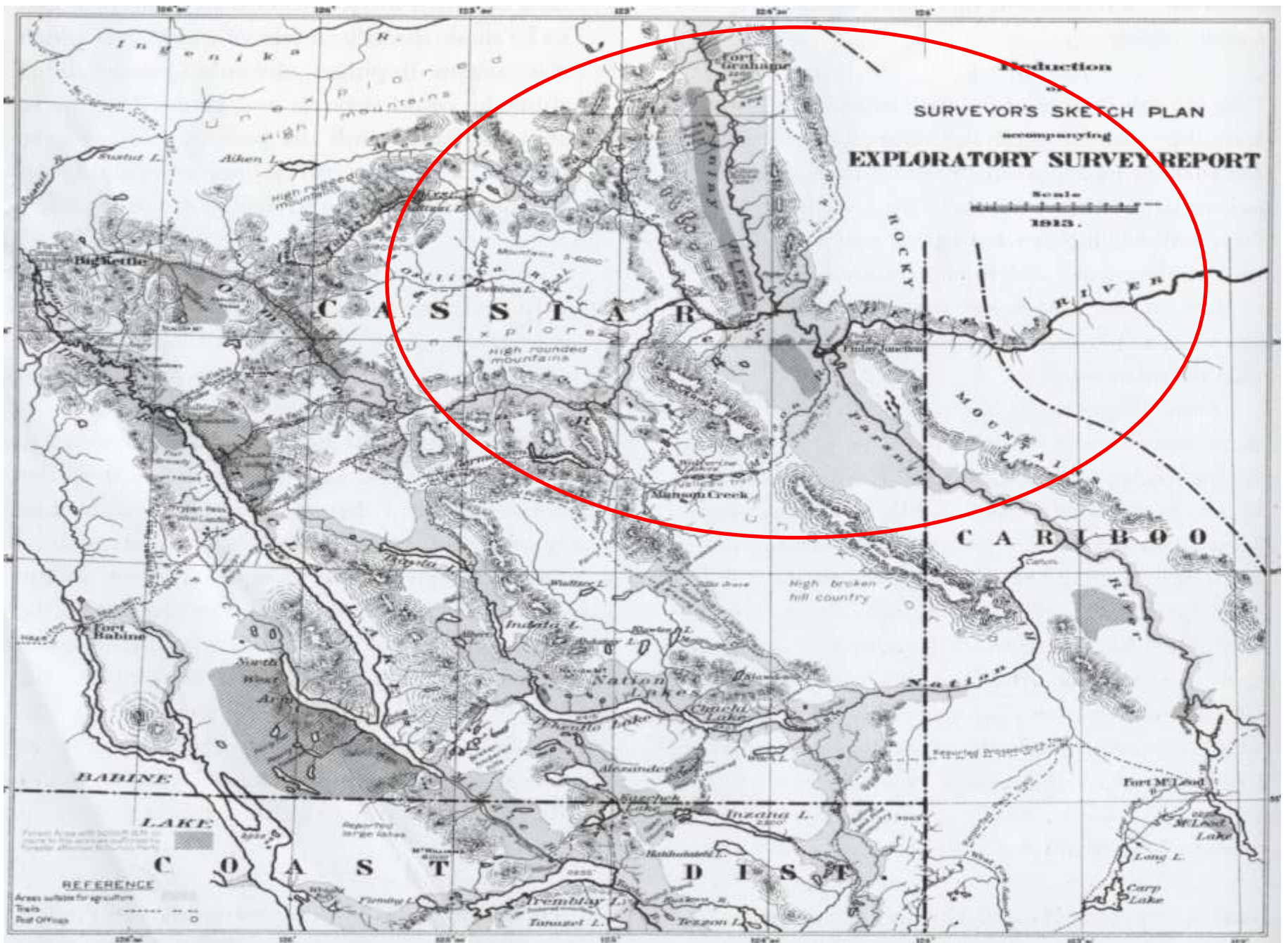


BC Dept. of Lands,
Forest Branch, 1912

TIMBER SCALED BY DISTRICTS



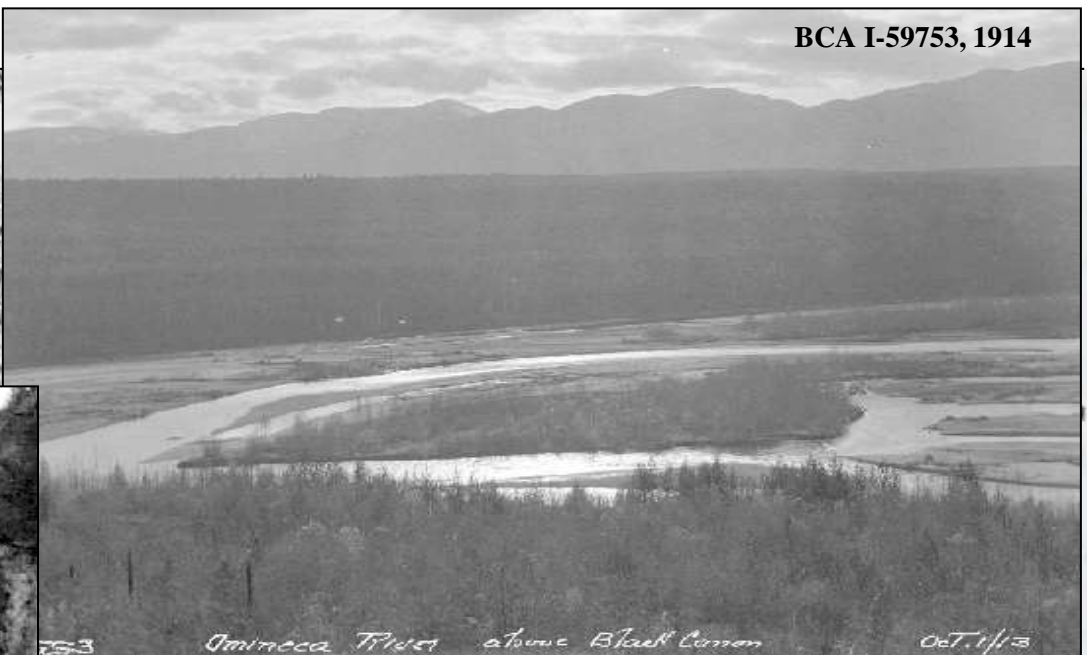
BC Dept. of Lands,
Forest Branch, 1918



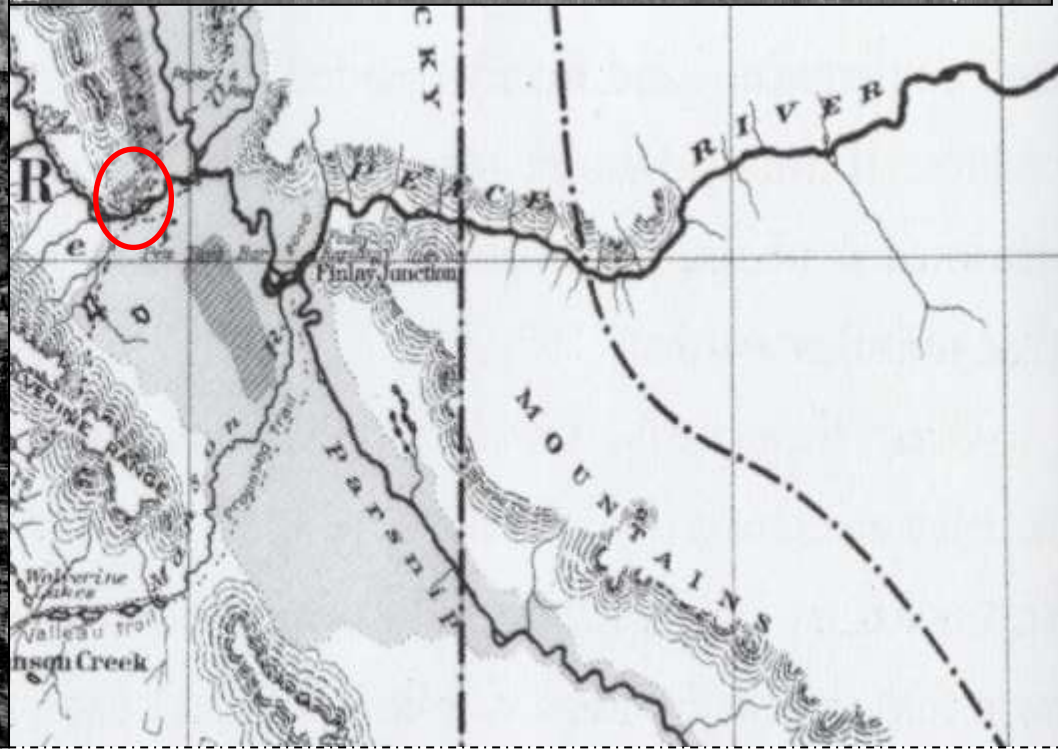
(Frank Swanell) , 1913

Black Canyon, Omineca R

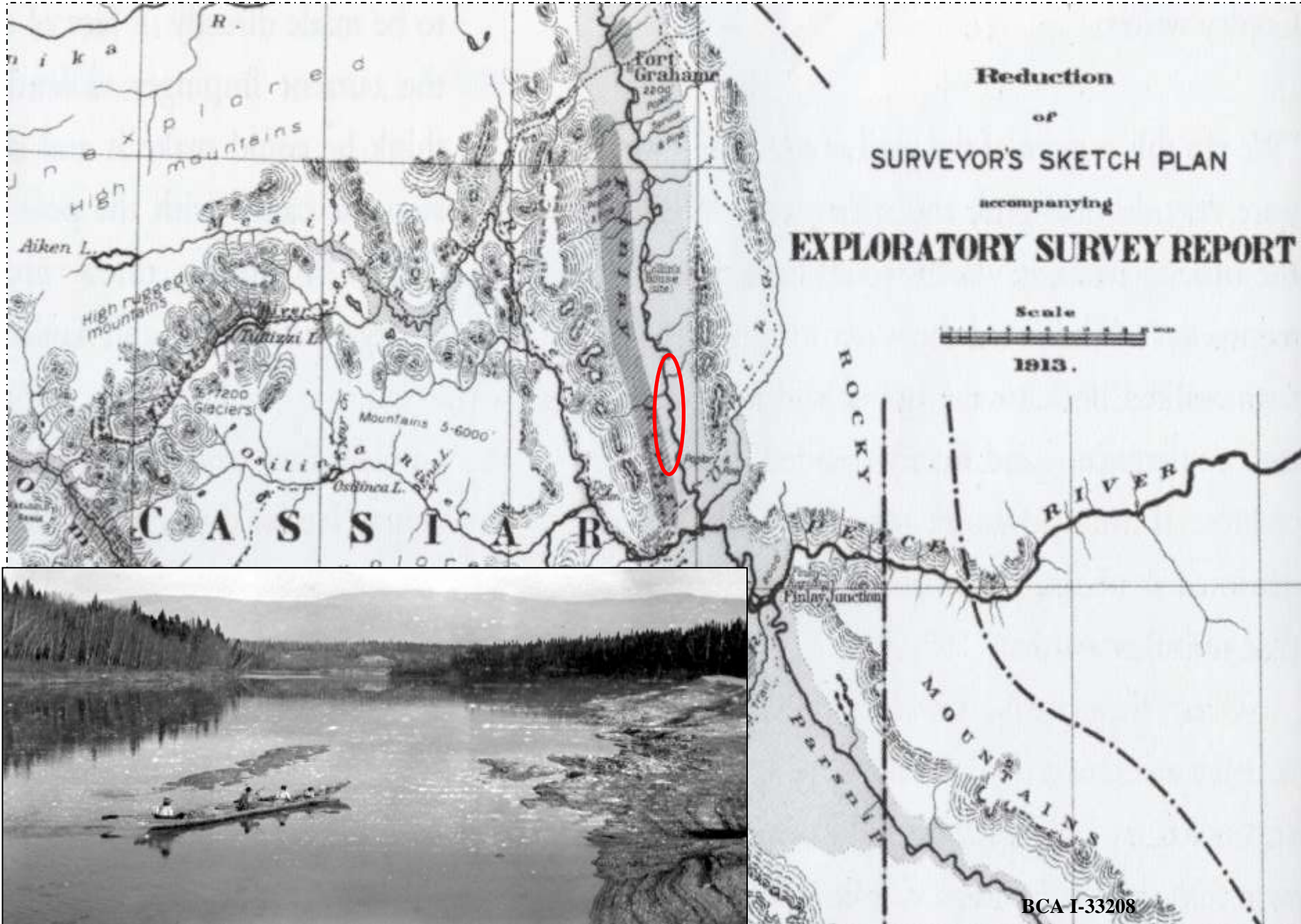
BCA I-59753, 1914



BCA I-59772, 1913



[Frank Swannell] survey expedition crossing Finlay River at Moodie Trail, Oct.1914 (low water)



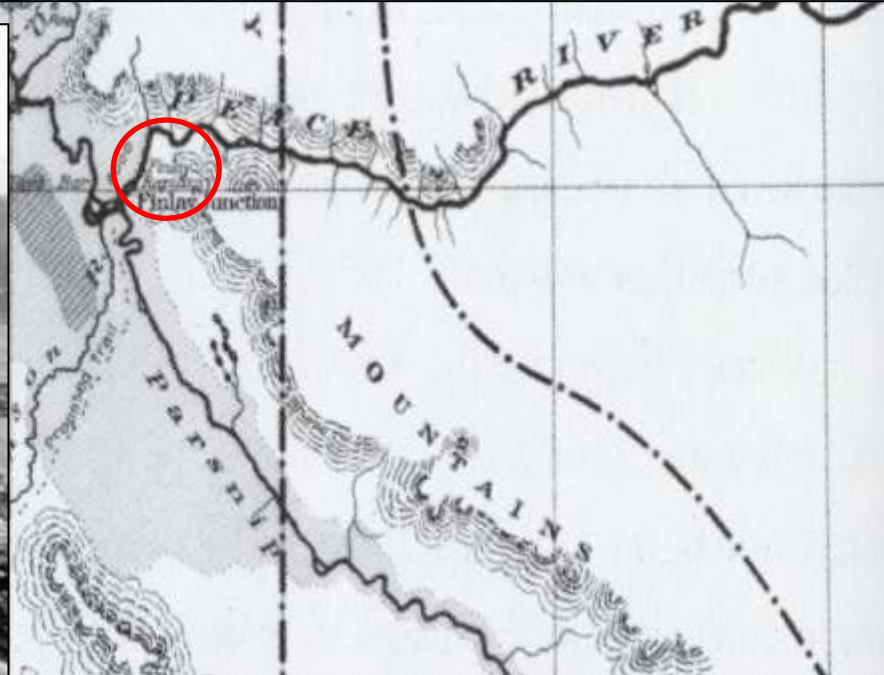
BCA I-33208

Finlay rapids on the Peace River, October (low water), 1914



BCA I-59806, 1914

BCA I-59753, 1914

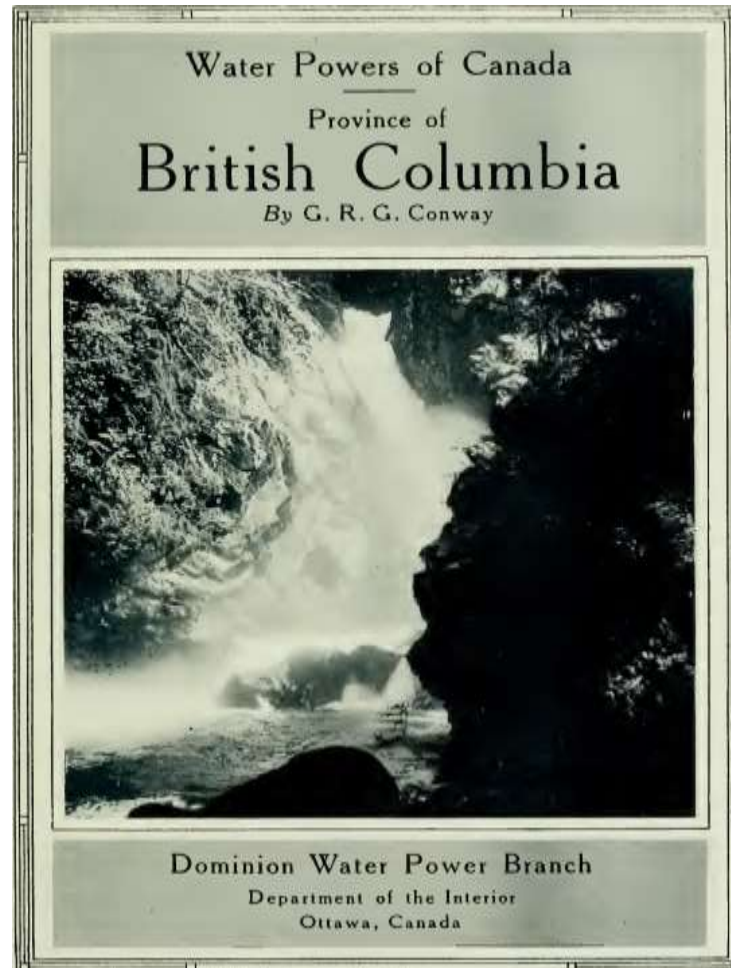


“Peace River”

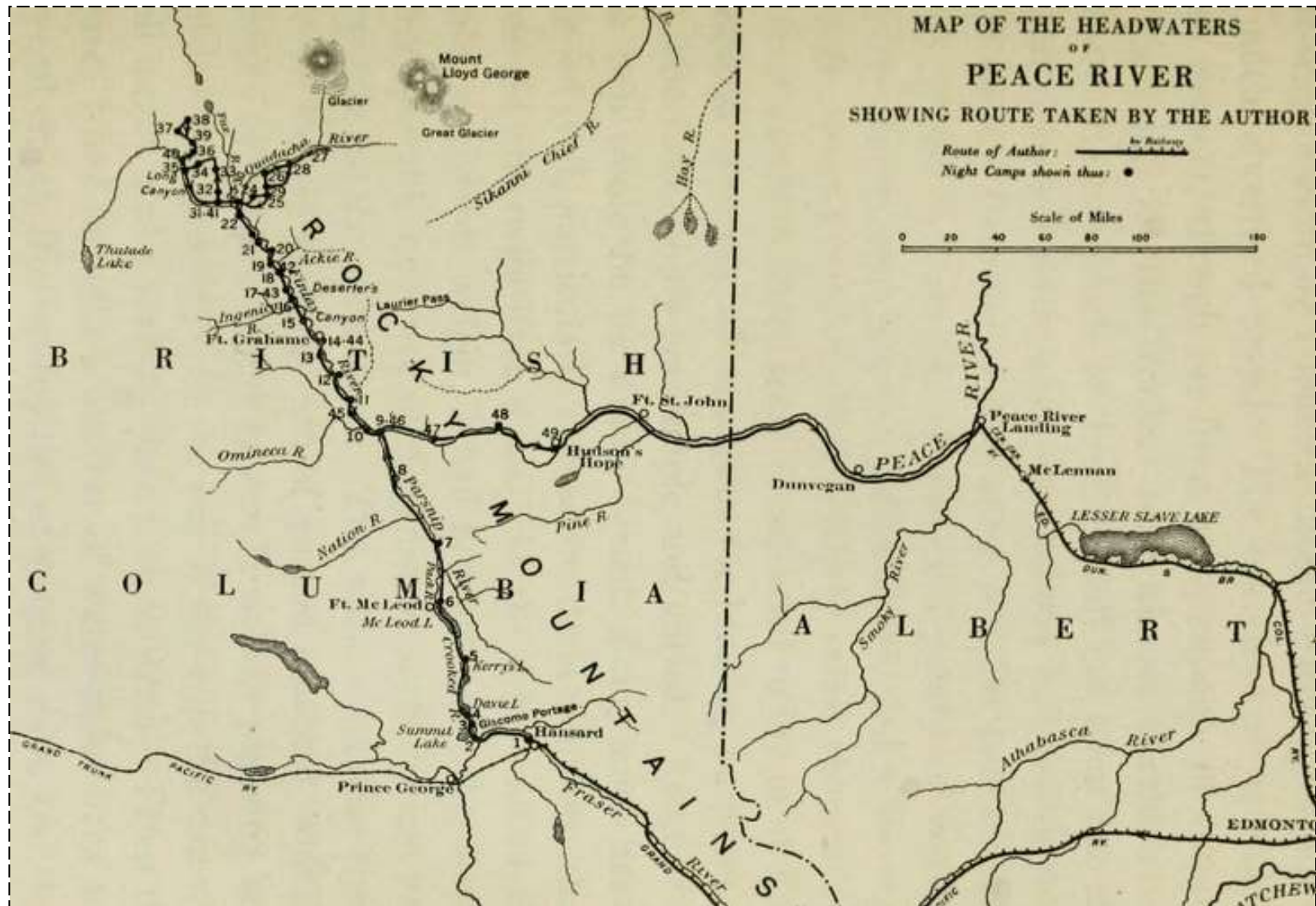
1915:

“Peace River...of great size and volume...”

(p.12; *Water powers of Canada, BC, 1915*)



“Peace River”: Dreams and schemes

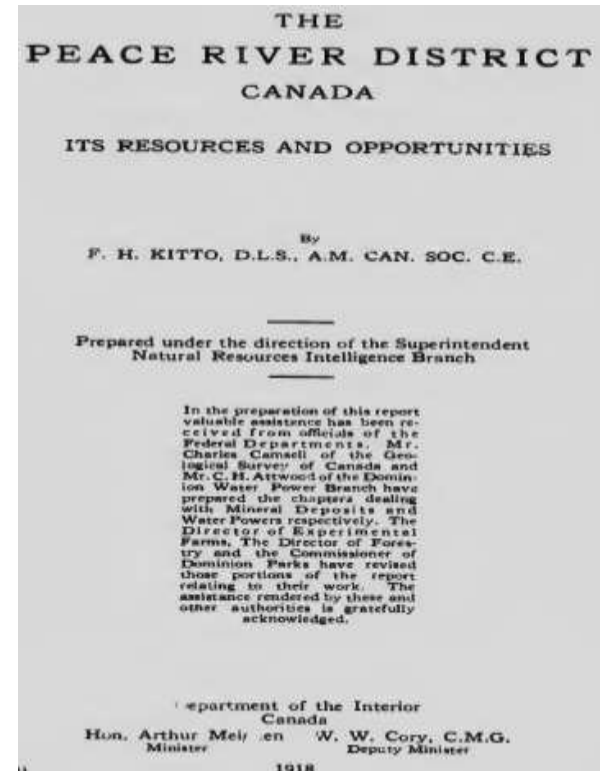


1917:
“...this canyon will be harnessed to great turbines...great manufacturing establishments...”
(p.266)
On the headwaters of the Peace River

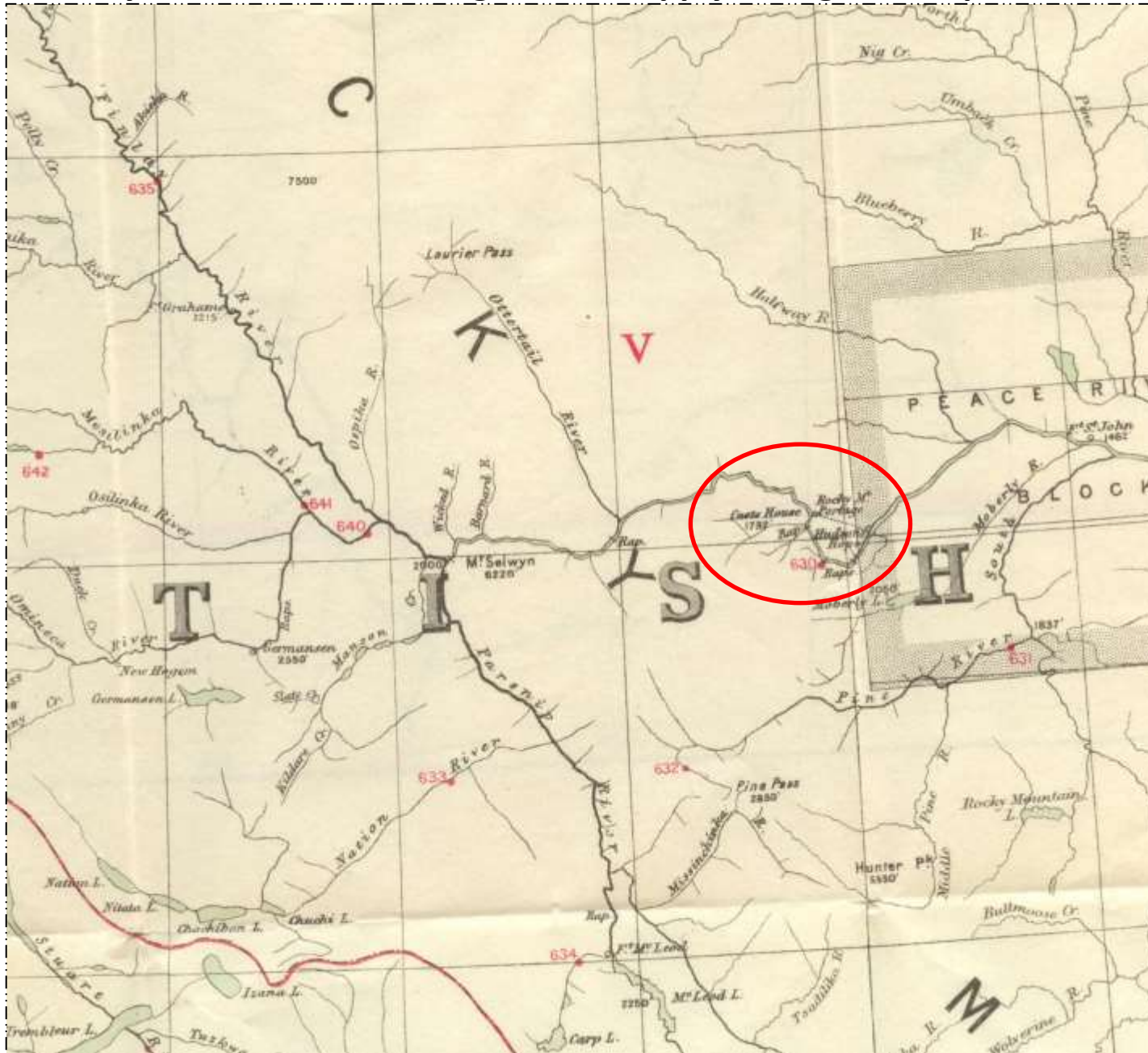
“Peace River”

1918:
“Many misleading statements have been published relating to the vast amount of power available on the Peace river.”

“...a power development at this site will be an expensive undertaking, and can only be accomplished when a market for the power is available close at hand.”
(p.18)



“...canyon...considerable magnitude...supply the lights and power needs...of Peace district.”



[potential]
● water powers

Water Powers of British Columbia, 1919 (Ottawa)

WATER POWERS

BRITISH COLUMBIA

CANADA



DEPARTMENT OF LANDS
 HON. T. D. PATTULLO Minister
 GEORGE R. NADEN Deputy Minister
 E. A. CLEVELAND Controller of Water Rights

A FEW OF THE IMPORTANT WATER POWERS OF BRITISH COLUMBIA 1924

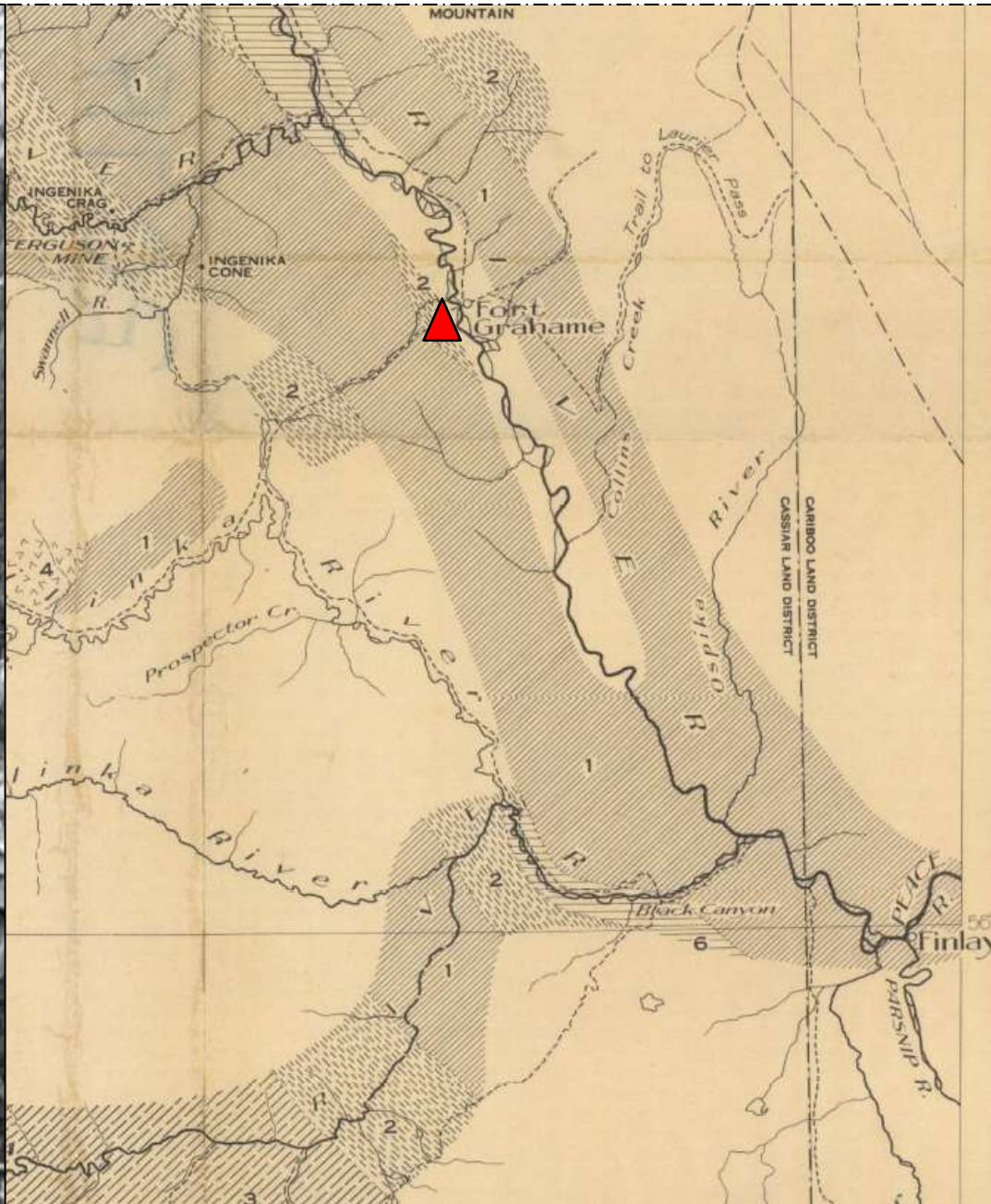
- | UNDEVELOPED. | DEVELOPED. |
|-----------------------------|--------------------------------------|
| 2. Pend d'Oreille River. | 1. Bull River. |
| 3. Kootenay River. | 4. Kootenay River (Bonington Falls). |
| 6. Chilliwack River. | 5. Kootenay River (Bonington Falls). |
| 7. Jones Lake. | 9. Similkameen River. |
| 8. Chehalis River. | 11. Jordan River. |
| 10. Fraser River. | 12. Goldstream. |
| 17. Chekanus River. | 13. Stave River. |
| 18. Nanaimo River. | 14. Buntzen River. |
| 20. Stamp River. | 15. Beinnania Creek & others. |
| 21. Ash River. | 16. Colar Creek. |
| 22. Eagle River. | 19. Millstone River. |
| 25. Nimpkish River. | 22. Pustledge River. |
| 29. Campbell River. | 24. Powell River. |
| 27. Klmukliu River. | 33. Barriere River. |
| 28. Homathko River, E. Fork | 37. Hirtlewart River. |
| 29. Homathko River, W. " | 46. Lank River. |
| 30. Green River. | 48. Swanson Creek. |
| 31. Bridge River. | 49. Cougar Lake. |
| 32. Chilcotin River. | 54. Woodworth Lake. |
| 34. Shuswap River. | 58. Anyox Creek. |
| 35. Columbia River. | |
| 36. Toby Creek. | |
| 38. Kickinghorse River. | |
| 39. Columbia River. | |
| 40. Martle River. | |
| 41. Quasset River, S. Fork. | |
| 42. Fraser River. | |
| 43. Fraser River. | |
| 44. Willow River. | |
| 45. Upper Nechako River. | |
| 47. Dean River. | |
| 50. Low Inlet. | |
| 51. Crab River. | |
| 52. Fook Creek. | |
| 53. Ain River. | |
| 55. Falls River. | |
| 56. Khtada River. | |
| 57. Skeena River. | |
| 59. Nass River. | |
| 60. Bulkley River. | |

Legend:
 Undeveloped Power Sites shown thus ●
 Developed Power Sites shown thus ■

DEPARTMENT OF LANDS
 Water-Rights Branch

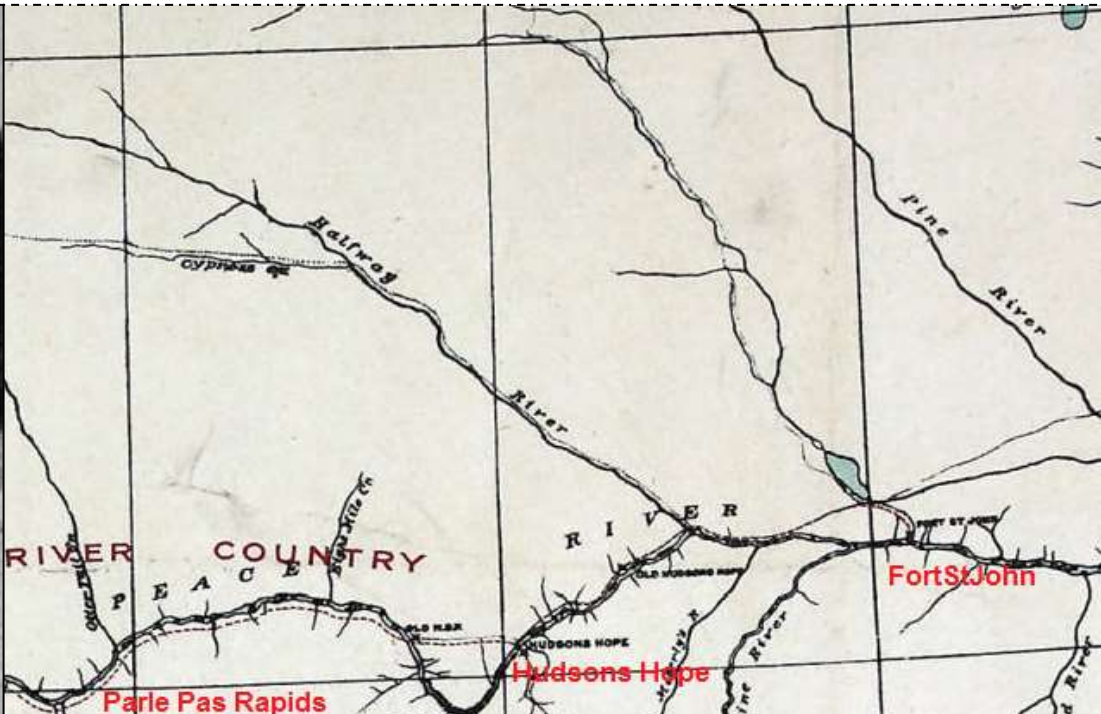


making a dugout canoe near Fort Grahame, 1927



(Nes) Parle Pas Rapids on the Peace River, July 1929

BCA I-33314



BCA I-58153

Frank Swannell, 1880-1969

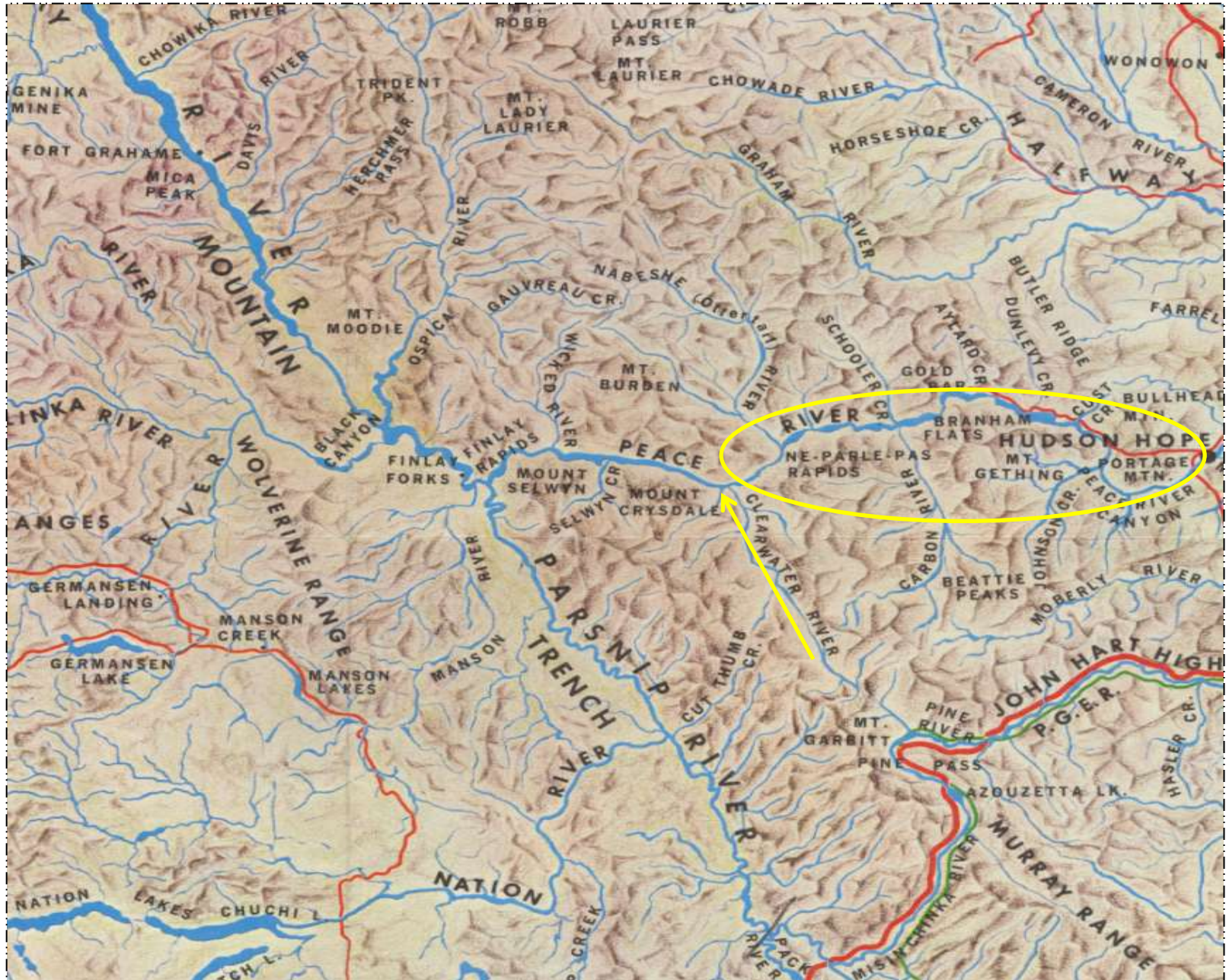
mouth of the Ingenika River (at Finlay R), Oct. 1930



BCA I-33314
Frank Swannell, 1880-1969



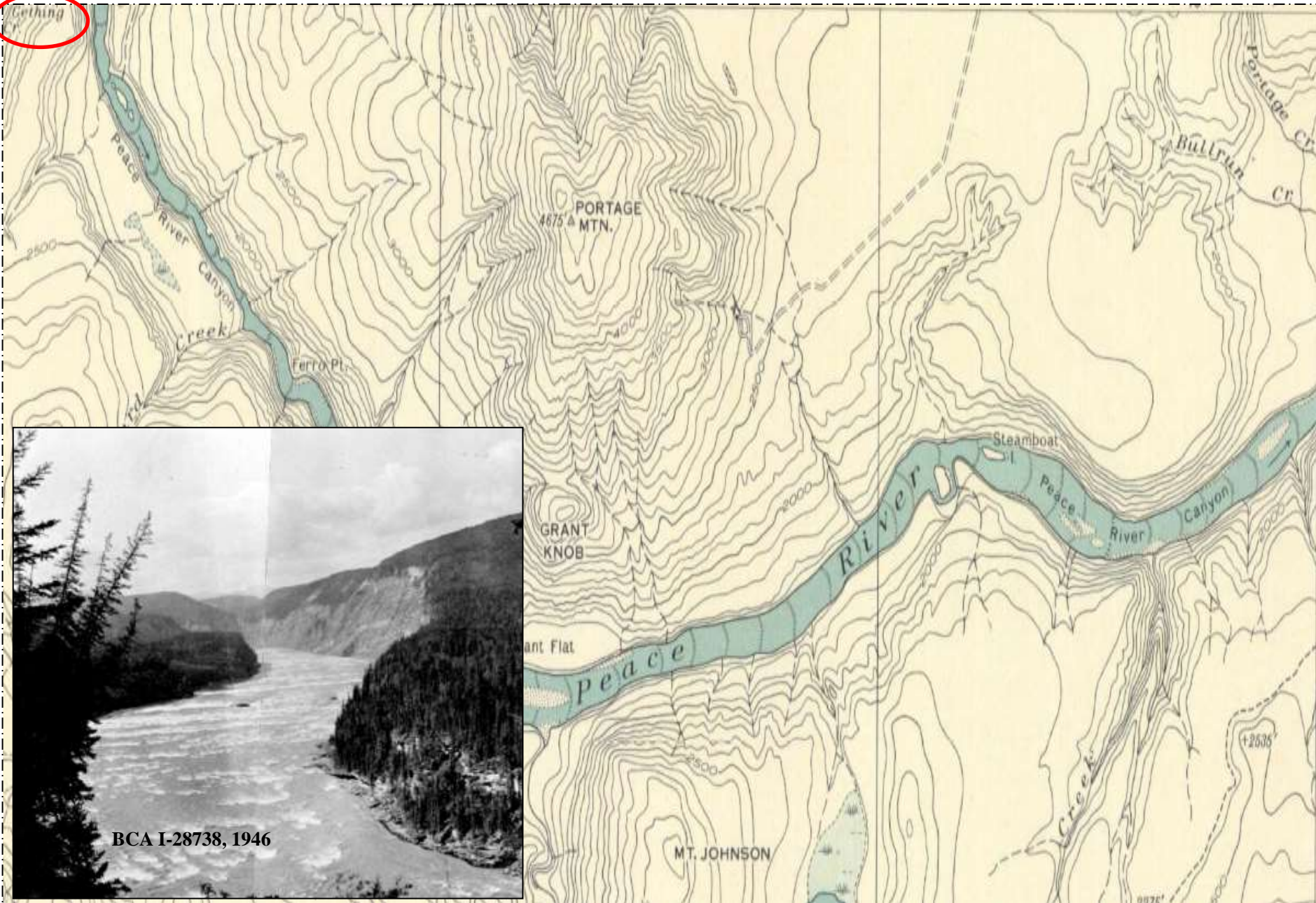
1930: "...create a reservoir...upstream to Clearwater Creek..."



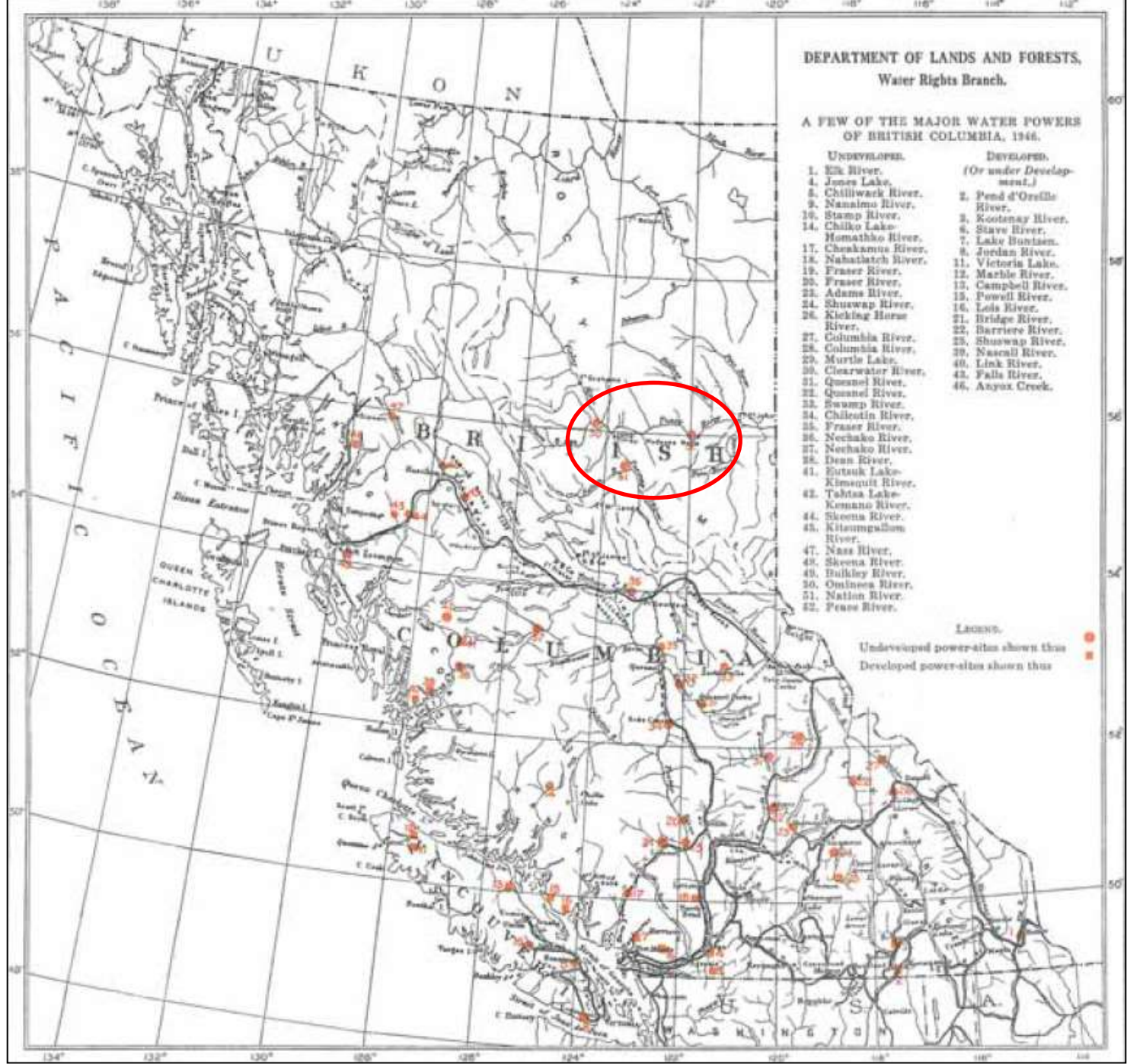
Pacific Great Eastern Railway lands report of survey resources, 1930

[section of map from] *Peace River Chronicles, 1963*

“...that’s just the place to drop a dam...1/4 million horsepower going to waste...”

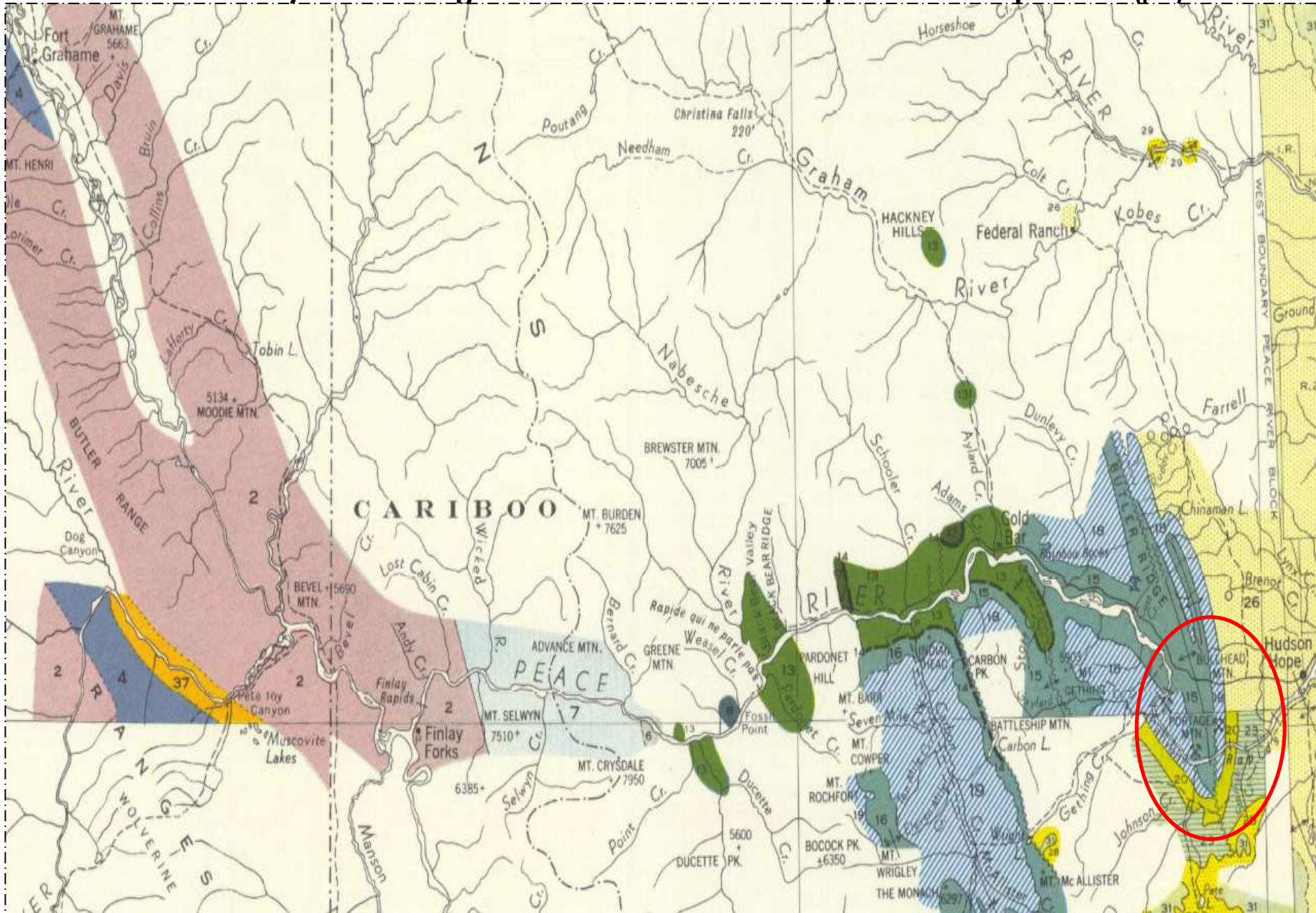


[section of] GSC Map 793A, 1944



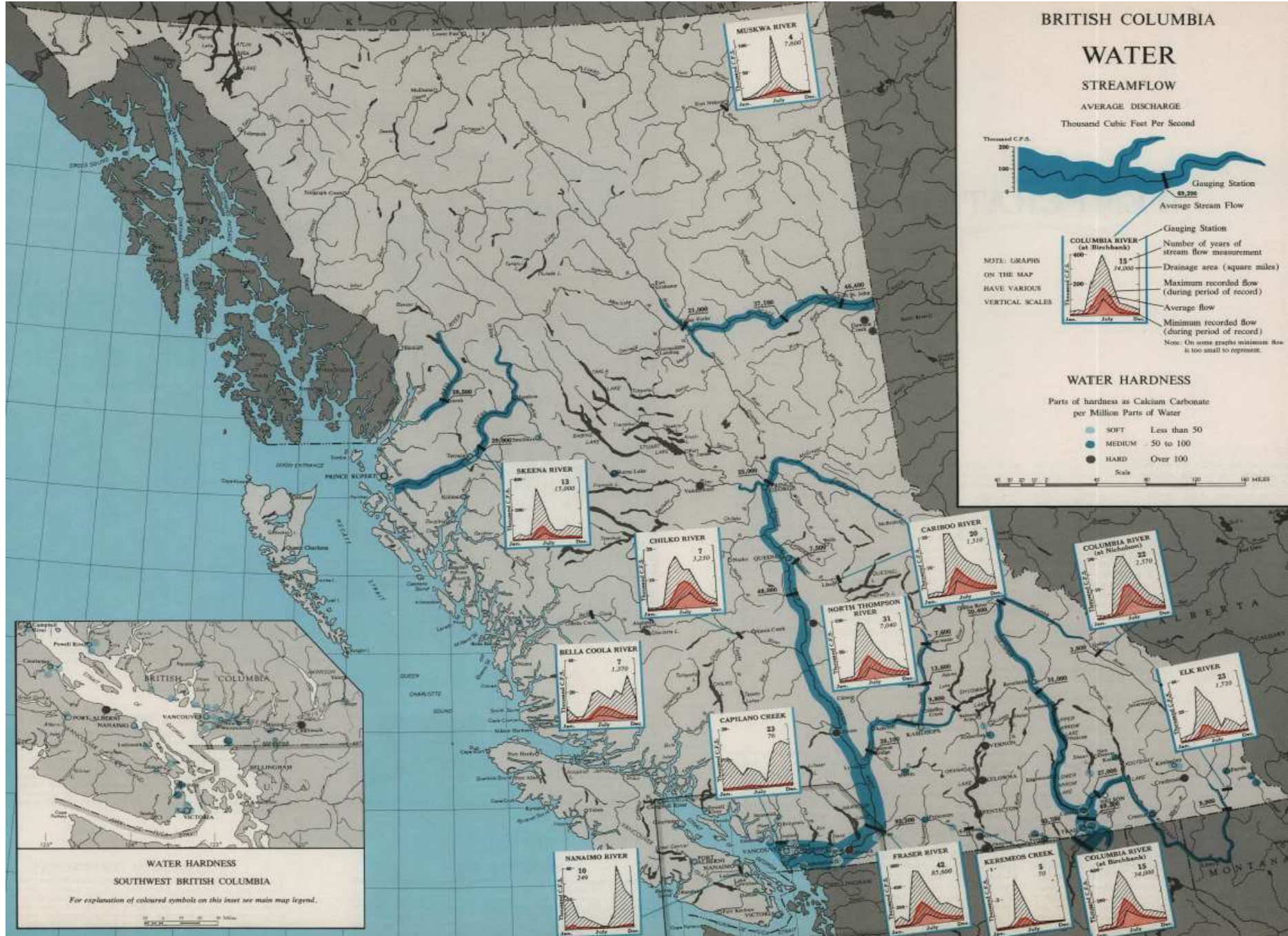
*Few Major Water Powers, 1946
BC Minister of Lands*

“Peace River Canyon offers a good site for future water-power development.” (p.5)



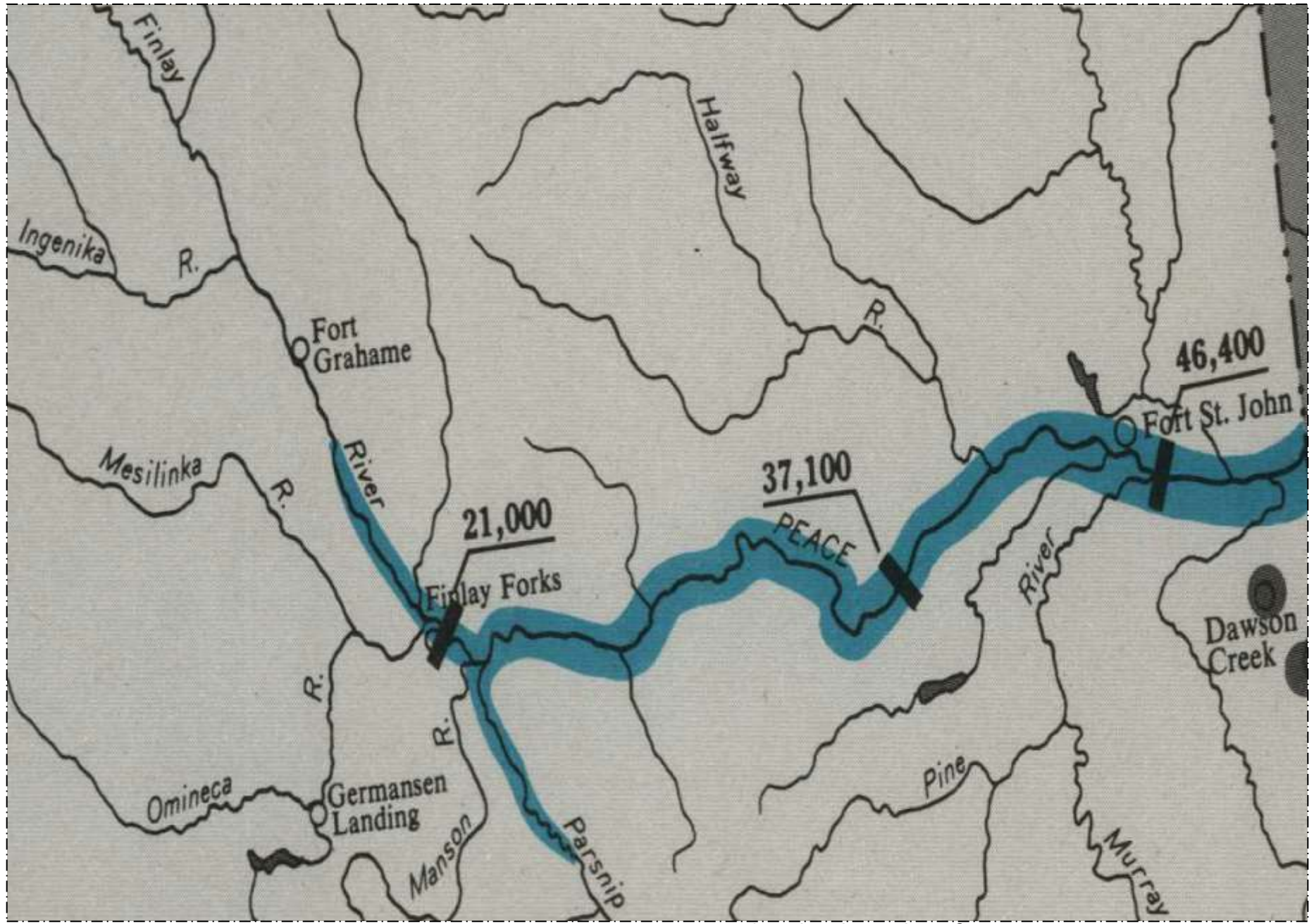
1:

Kindle, E.D. [section of] *Northeastern British Columbia*, Geological Survey of Canada, Map 1000A, 1951



British Columbia atlas of resources, 1956

Stream flow: Thousands cubic feet / second

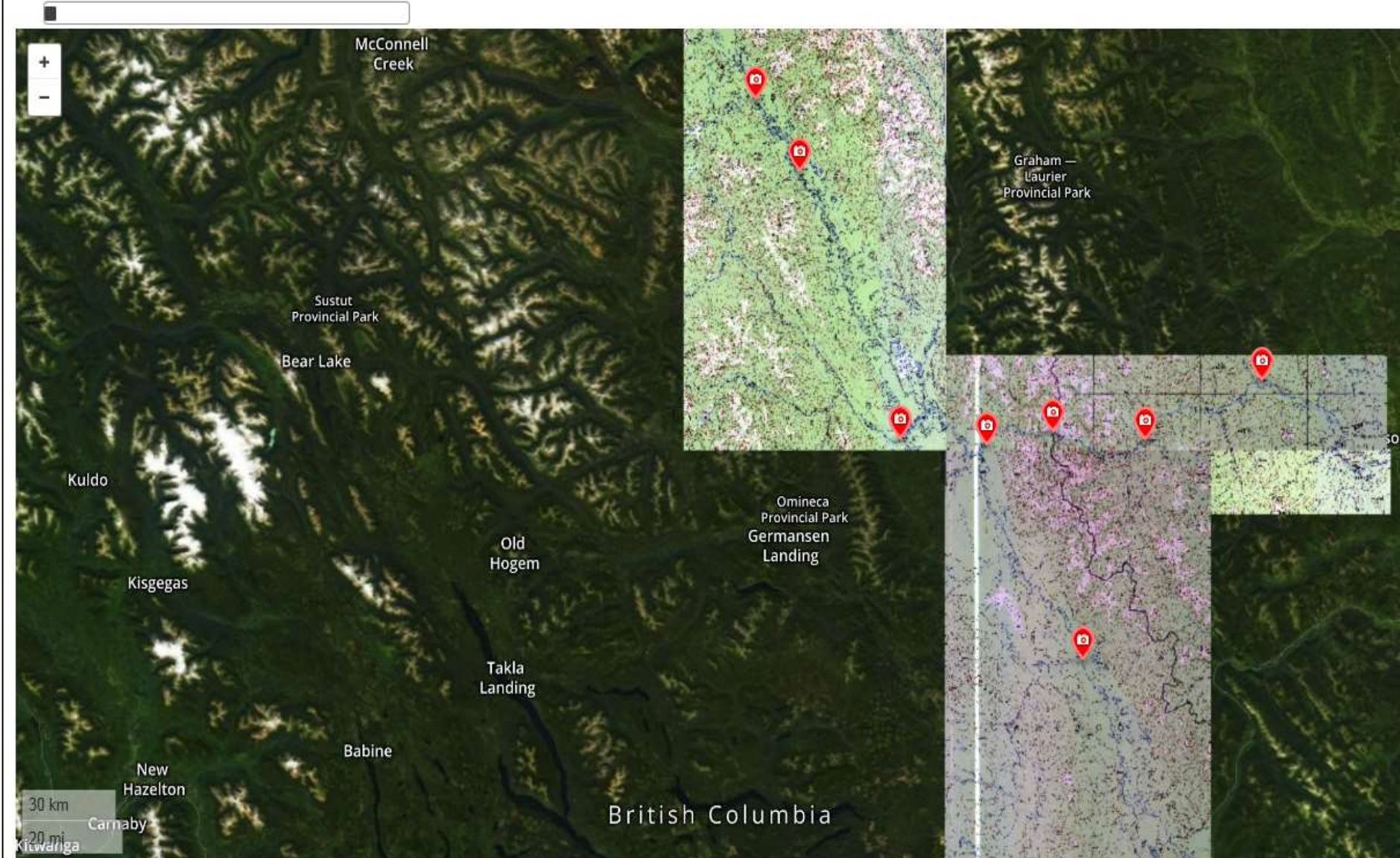


British Columbia atlas of resources, 1956

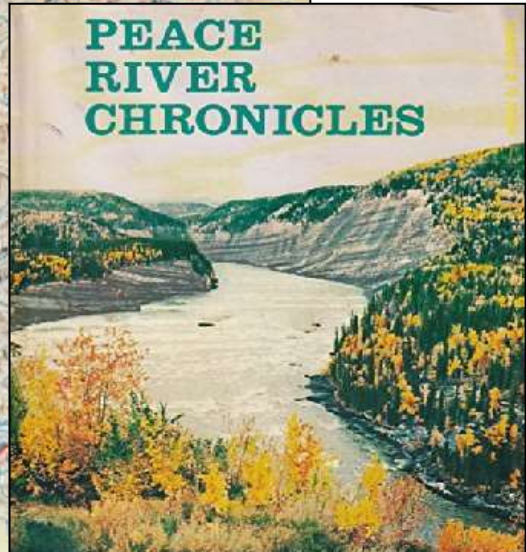
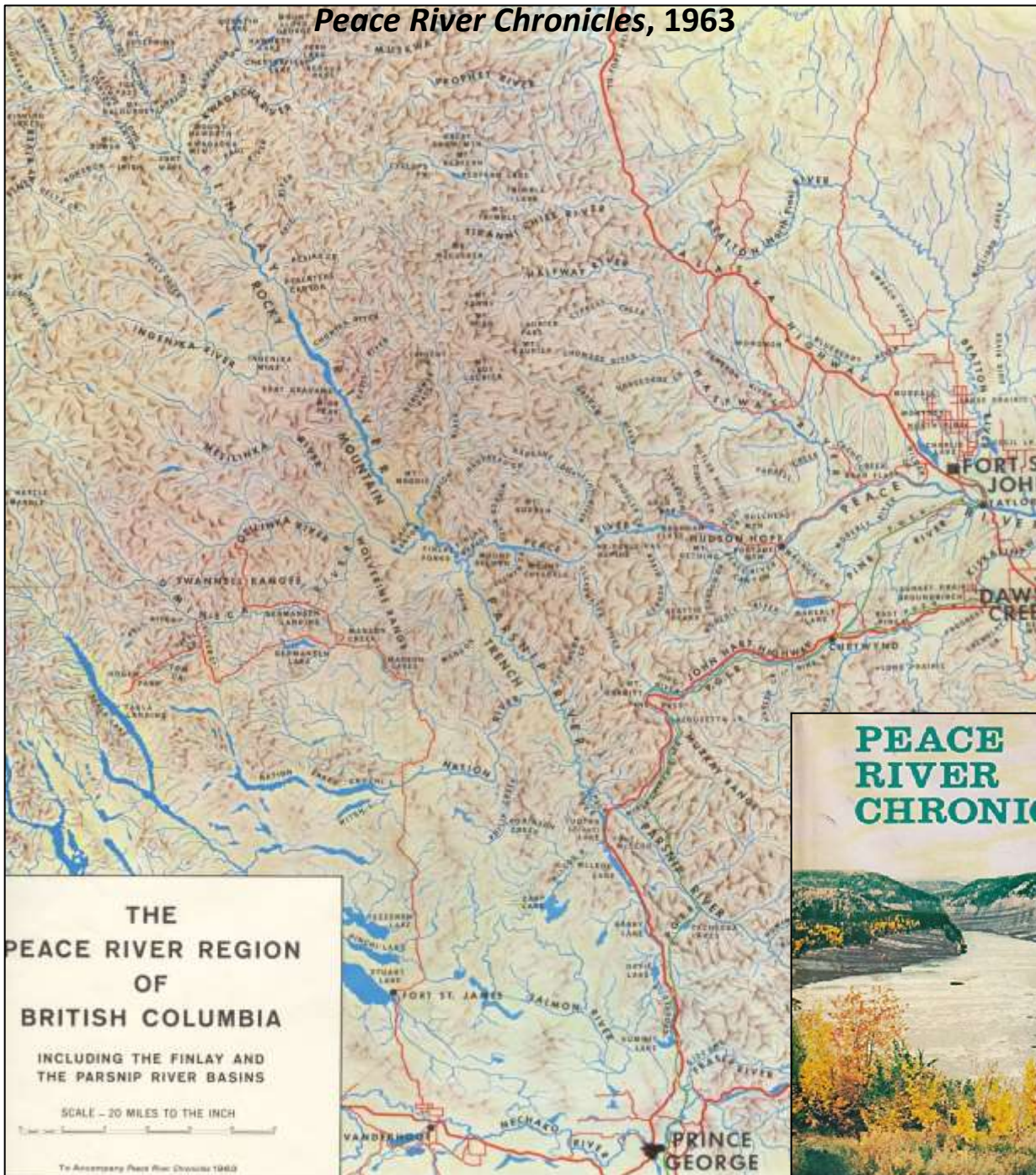
Remembering the Dam(n)ed: Finlay, Parsnip and Peace rivers before Williston reservoir

"Today's distant [electricity consumers] do not remember the Finlay, Parsnip, and pristine Peace Rivers..."(SiteC Joint Review Panel, 2014)

Zoom in to see the rivers; click markers for historic photos;
and use slider to fade out pre-Williston reservoir topographic maps.



Peace River Chronicles, 1963

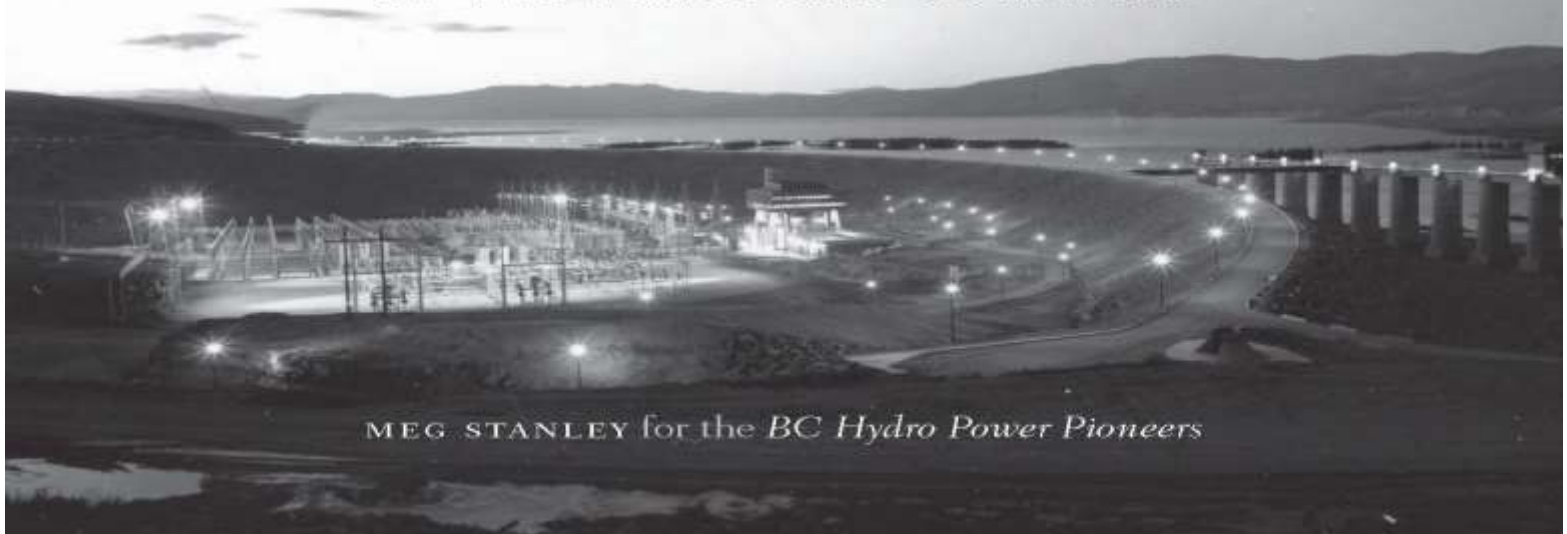




HARNESSING THE POWER

Voices from Two Rivers

OF THE PEACE AND COLUMBIA



MEG STANLEY for the *BC Hydro Power Pioneers*

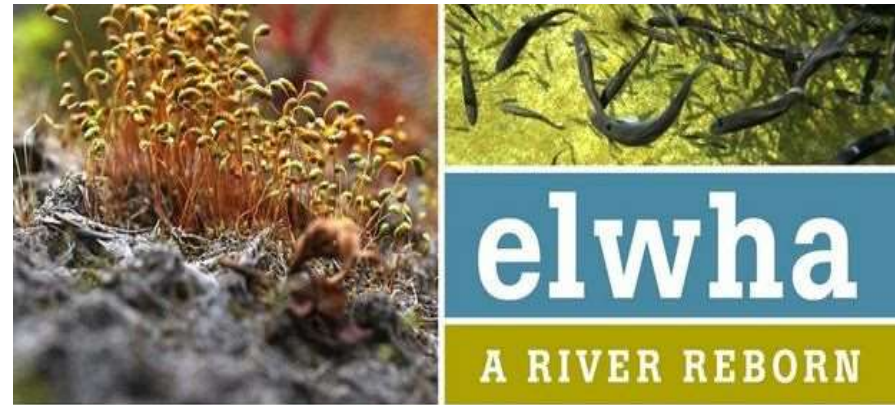
Before Mica Dam



ultimately dams age... and rivers triumph...



Elwha River, “free” after 100 years!



summary

historical maps...

- (are invaluable!)
- (are cartographically beautiful !)
- provide view of former landscape

web maps...

- necessary geovisualisation in today's digital world?