

WD-CAG 2015 | March 12-14

~~University of Northern BC (UNBC)
Prince George, BC~~



THOMPSON RIVERS UNIVERSITY



**Dam(n)ing BC or Remembering the dam(n)ed:
Site C and mega dams in the era of contested economies and environments**

danielbm@uvic.ca



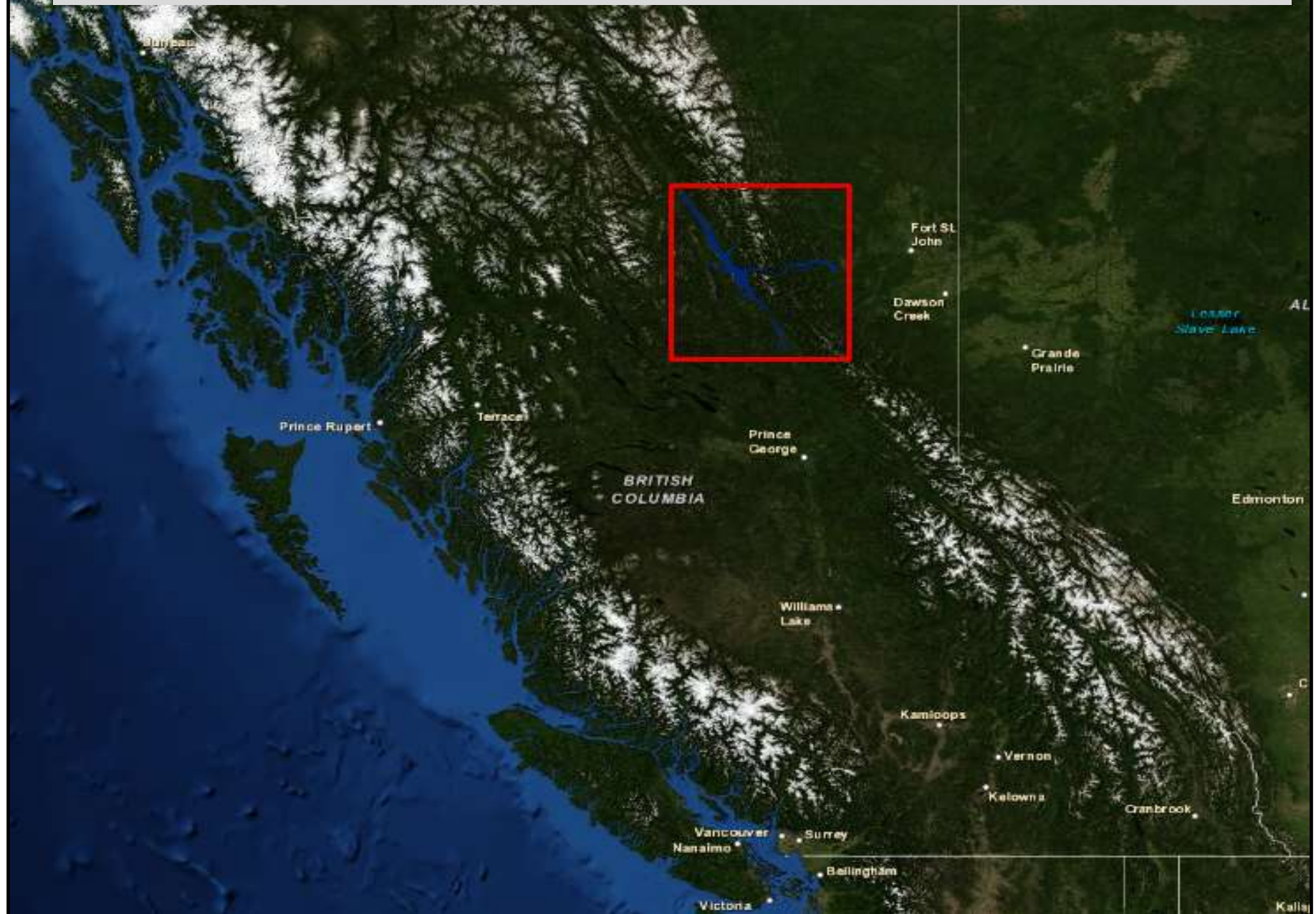
**University
of Victoria**

Libraries

deliberate #1?
blocking/hiding part of the current Williston reservoir...
....hmmm...



Site C: continuation of WAC Bennett Dam, Peace Canyon Dam,
and Williston Reservoir



Preamble...

Consumers of electricity

- current society needs / wants electricity



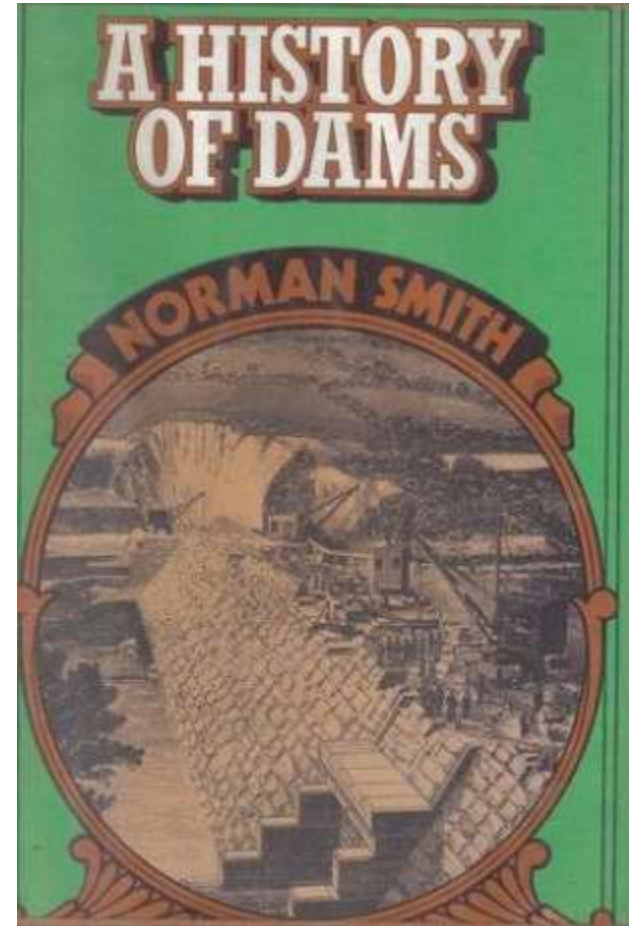
- only 1% - 3% electricity load saved on Earth Hour



Rivers and humans

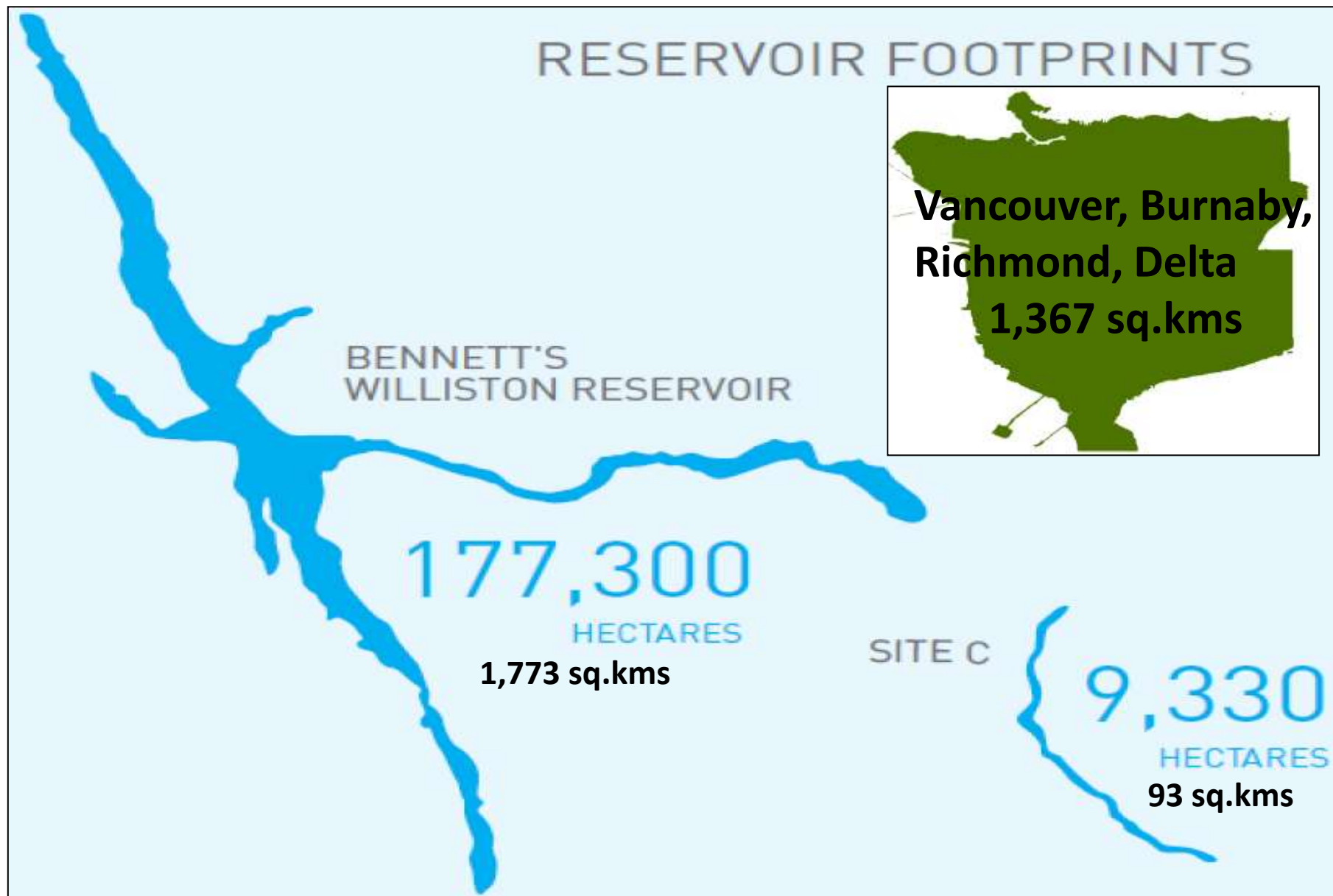
humans have manipulated rivers for millennia

- 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

deliberate #2? Note site C reservoir location...hmmm...



Site C...

**“...is in the public interest
and that the benefits provided by the project
outweigh the risks of significant adverse environmental, social and heritage effects.”**

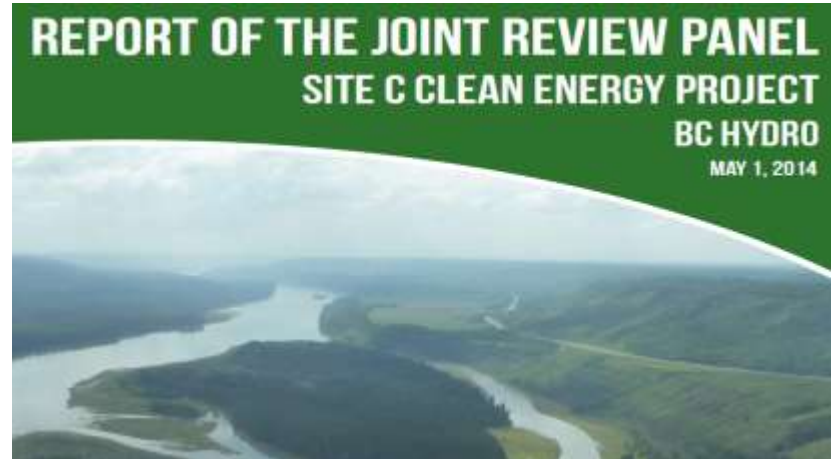
(BC government newsroom, October 14, 2014)

cost\$ to pay for electrical power

Site C “...would be accompanied by significant environmental and social costs, and the costs would not be borne by those who benefit.” (p.307)

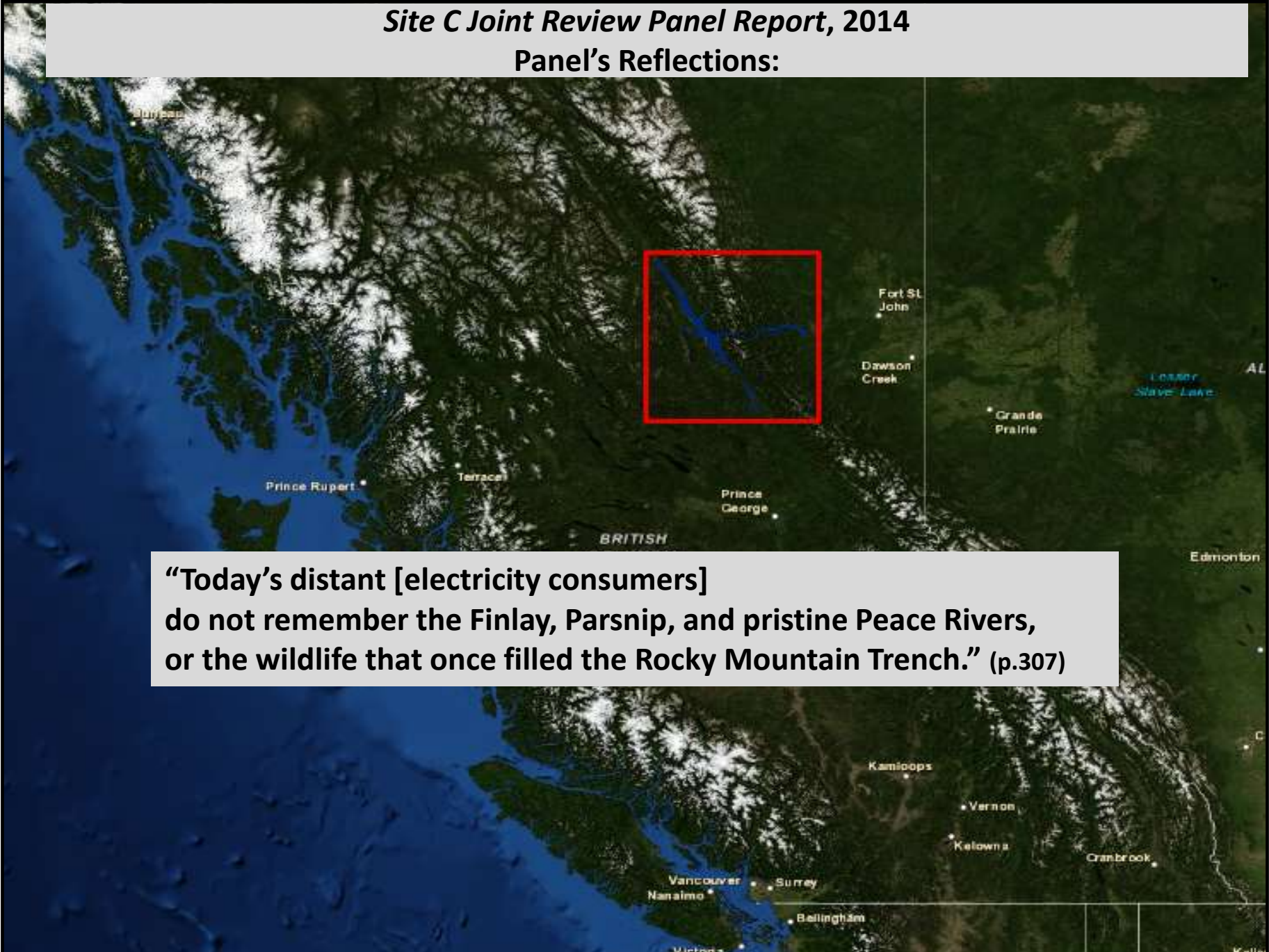
**“These losses will be borne by the people of the Valley...
Those who benefit...will be future electricity consumers all across the province.” (p.307)**

(Report of the Joint Review Panel: Site C project, 2014)



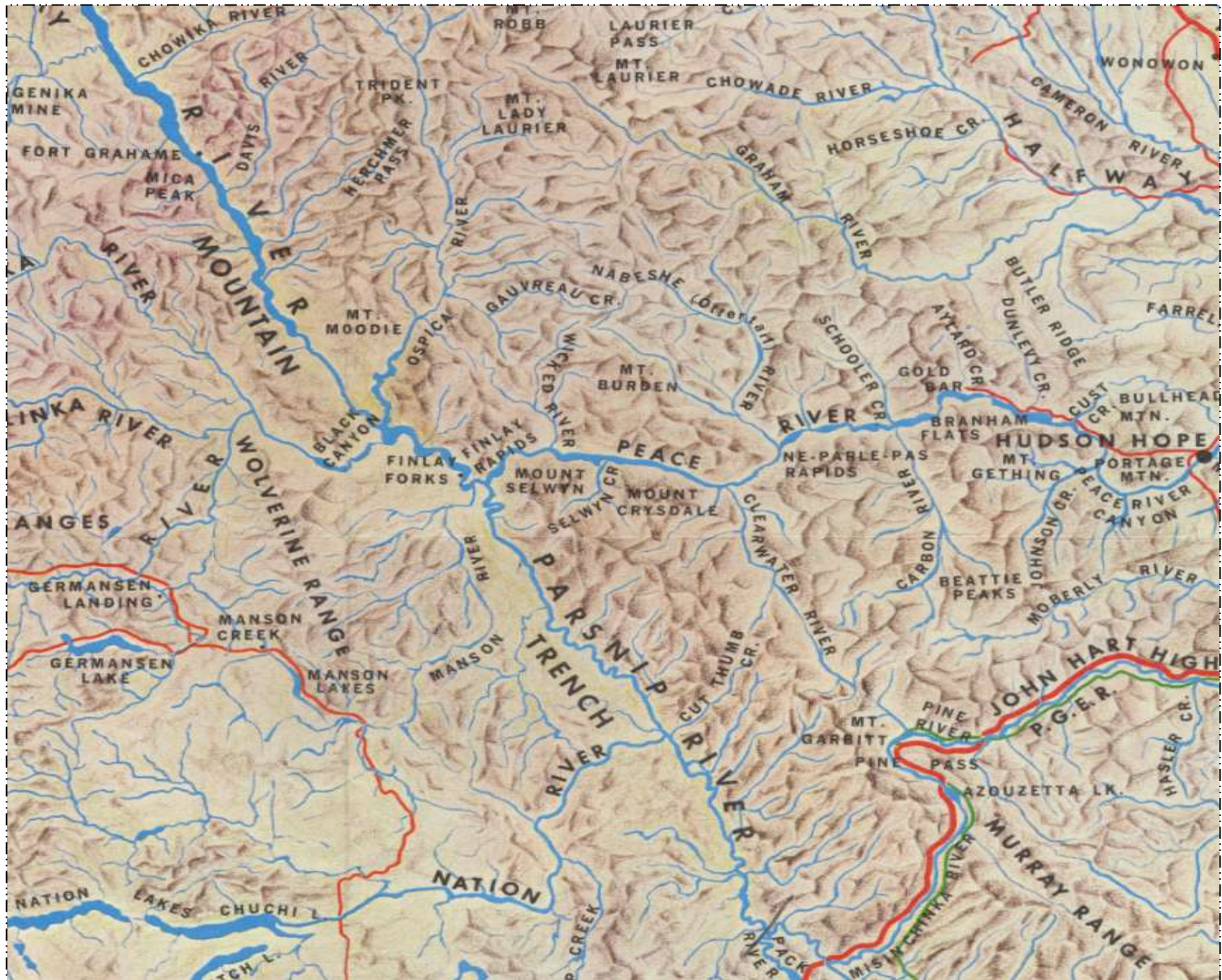
Site C Joint Review Panel Report, 2014

Panel's Reflections:



**“Today’s distant [electricity consumers]
do not remember the Finlay, Parsnip, and pristine Peace Rivers,
or the wildlife that once filled the Rocky Mountain Trench.” (p.307)**

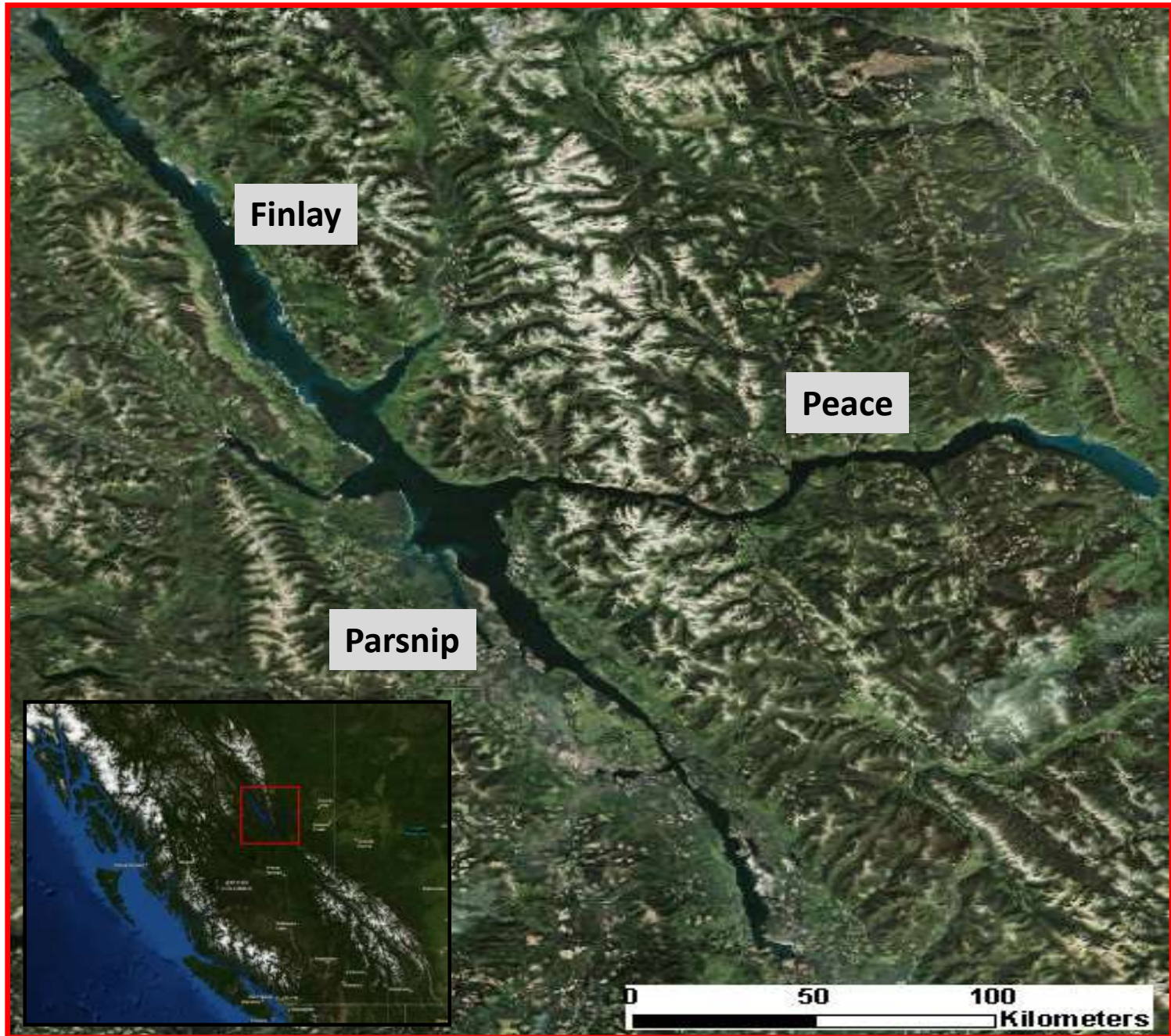
How did we get from this...



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

...to this...

...let us remember the...



outline

- **With a historical geography lens, how did the Findlay, Parsnip, and Peace Rivers end up being considered as a potential major hydroelectric site?**
- **Remember the Findlay, Parsnip, Peace and their tributaries**

methods / sources

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

“Aboriginal Engagement”

“...meaningful consultation with the potentially affected Aboriginal groups...”

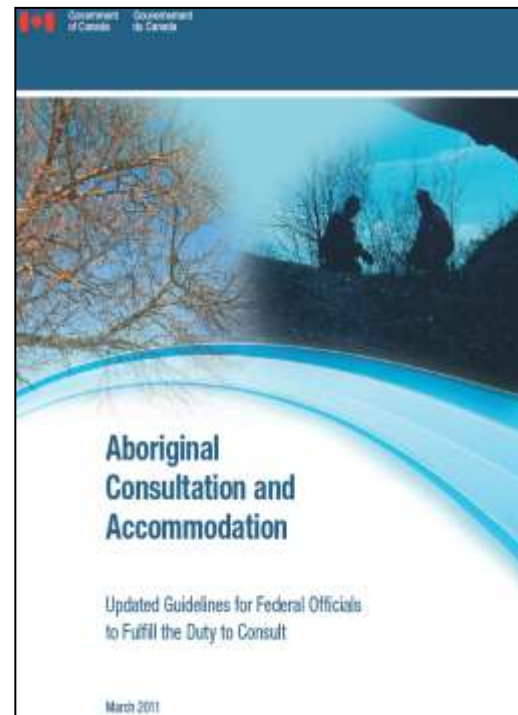
“...consultation has been carried out in good faith...”

Federal / Provincial Consultation and Accommodation Report, 2014

(and BC gov’t announcement slideshow)

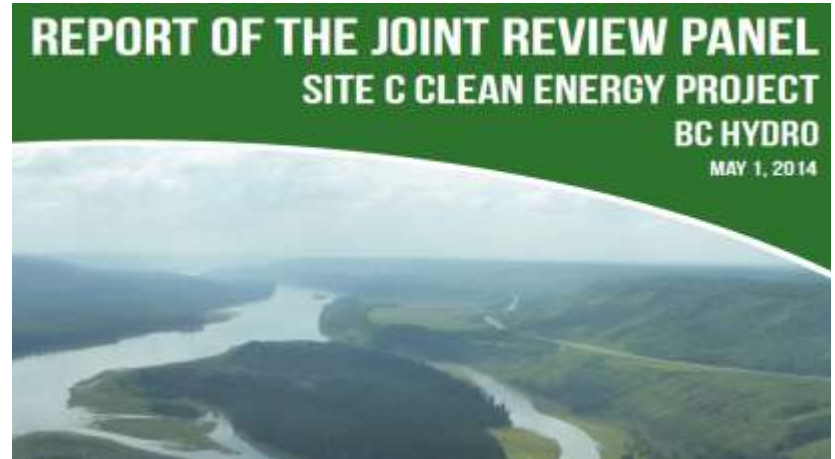
uses (exact) phrases from:

***Aboriginal Consultation and Accommodation:
Updated Guidelines for Federal Officials
to Fulfill the Duty to Consult, 2011***



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...

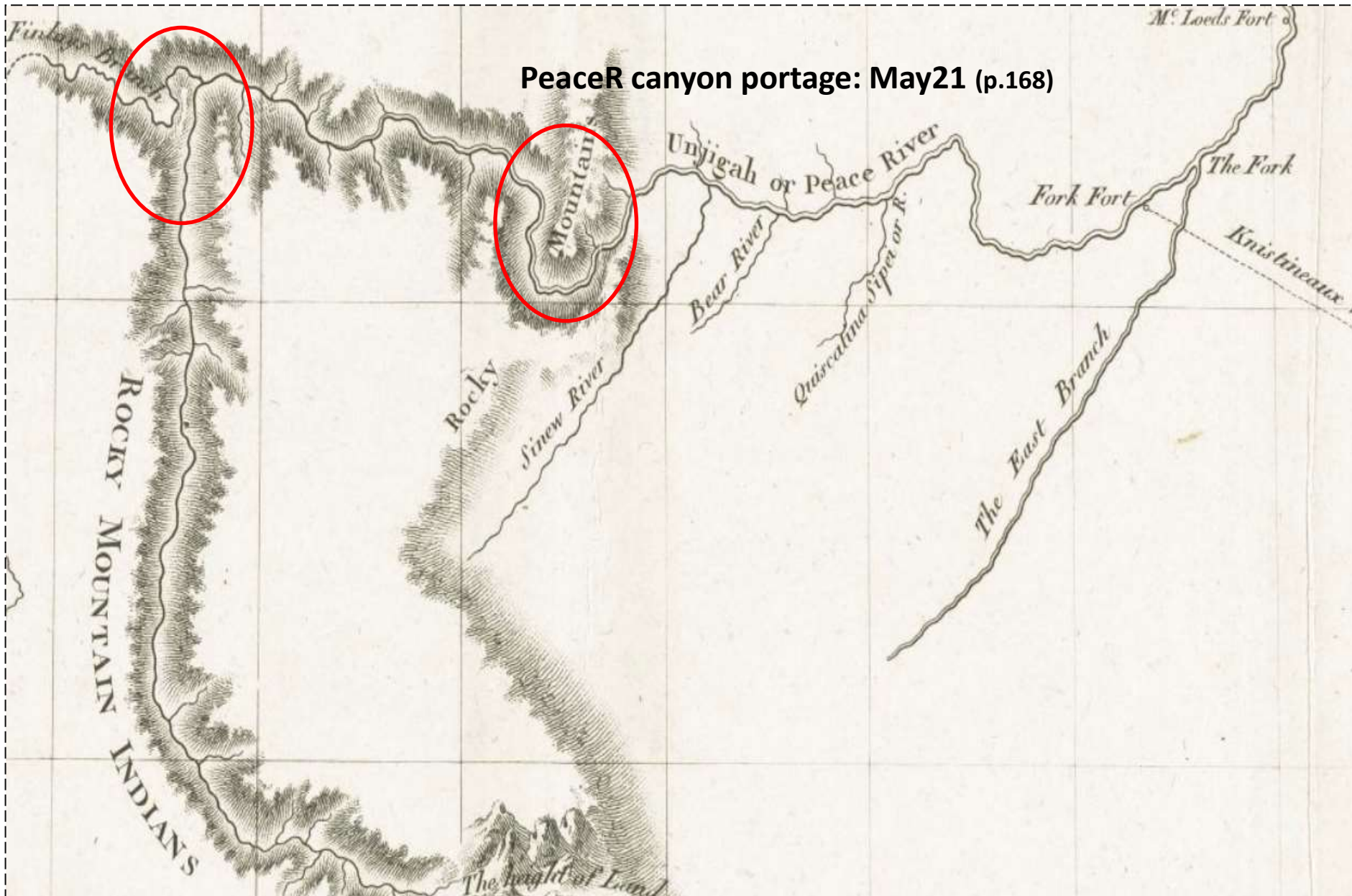


100kms

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

May 31, 1793 "...we arrived at the fork..." (p.177);

PeaceR canyon portage: May 21 (p.168)

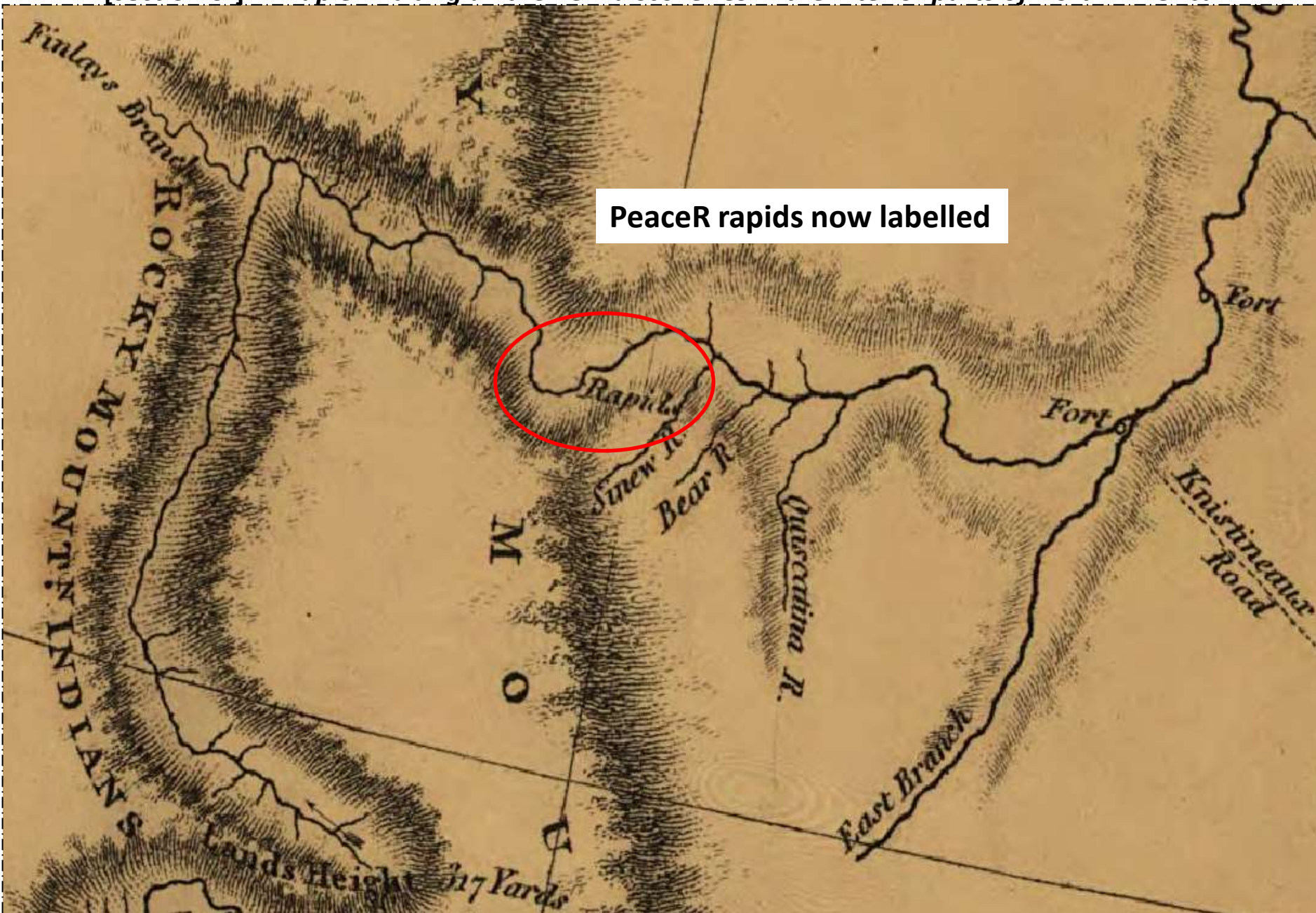


~100kms

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

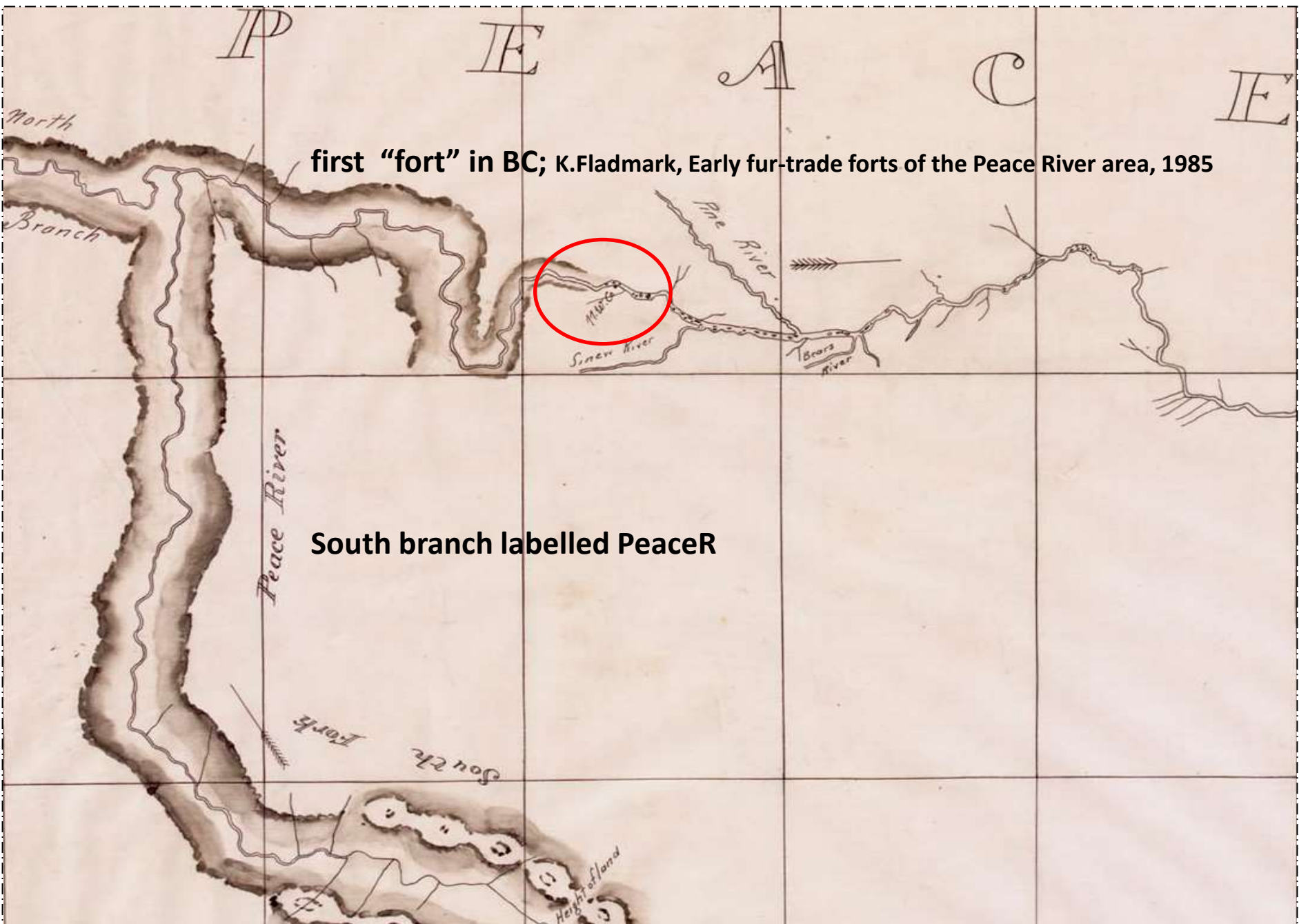
[section of] *A map exhibiting all the new discoveries in the interior parts of North America*

Peace R rapids now labelled



~100kms

A.Arrowsmith, 1802; (various editions exist)



first "fort" in BC; K.Fladmark, Early fur-trade forts of the Peace River area, 1985

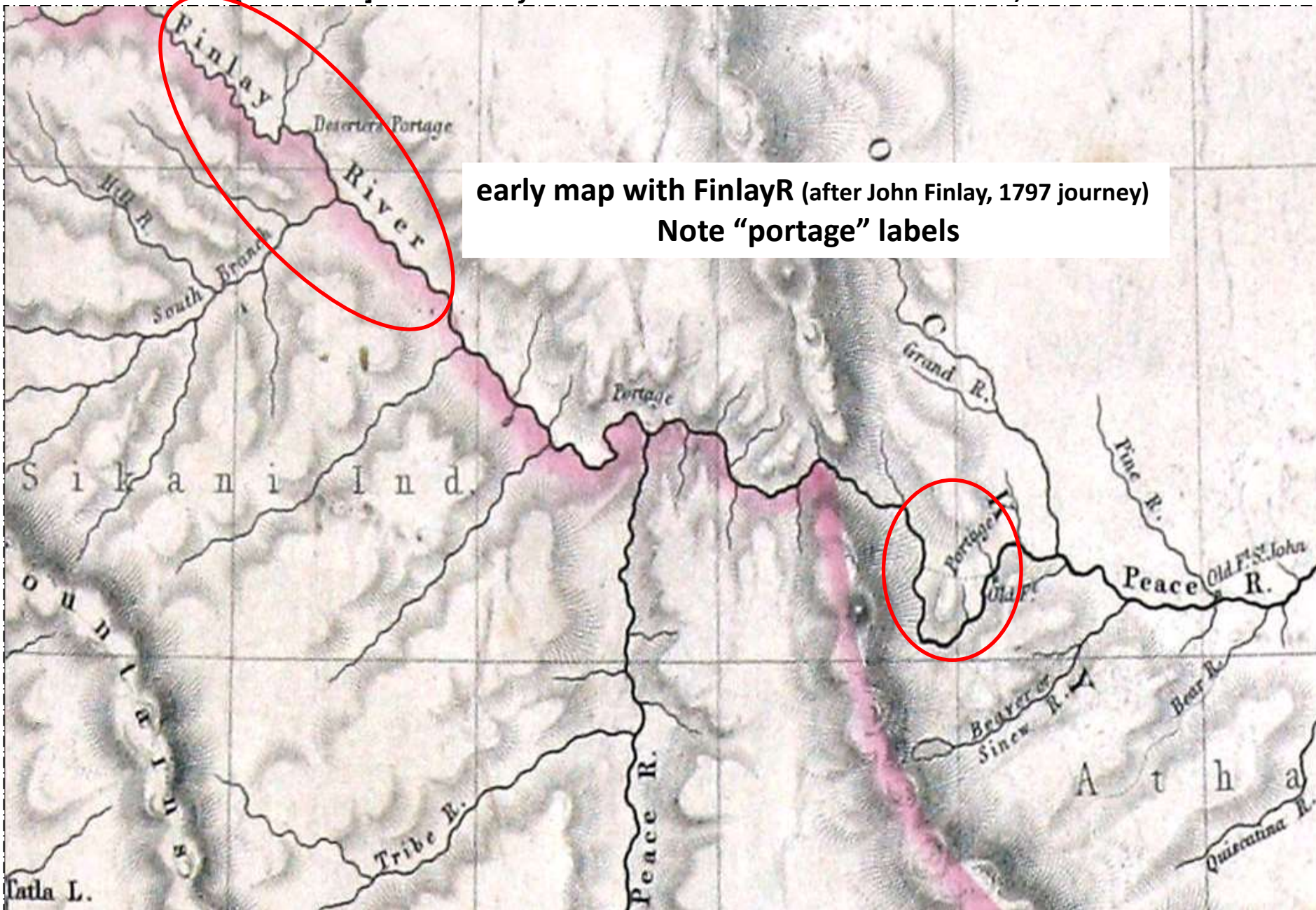
South branch labelled PeaceR

100kms

[section of] David Thompson's Map of the North West Territory of the Province of Canada, (1814), 1834

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

early map with Finlay R (after John Finlay, 1797 journey)
Note "portage" labels

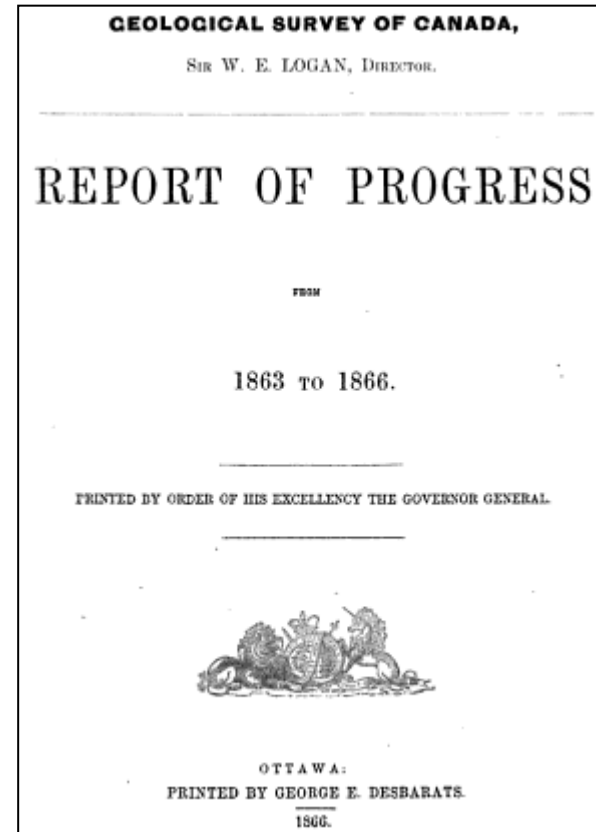


100kms

Arrowsmith, John

Canada's "water power"

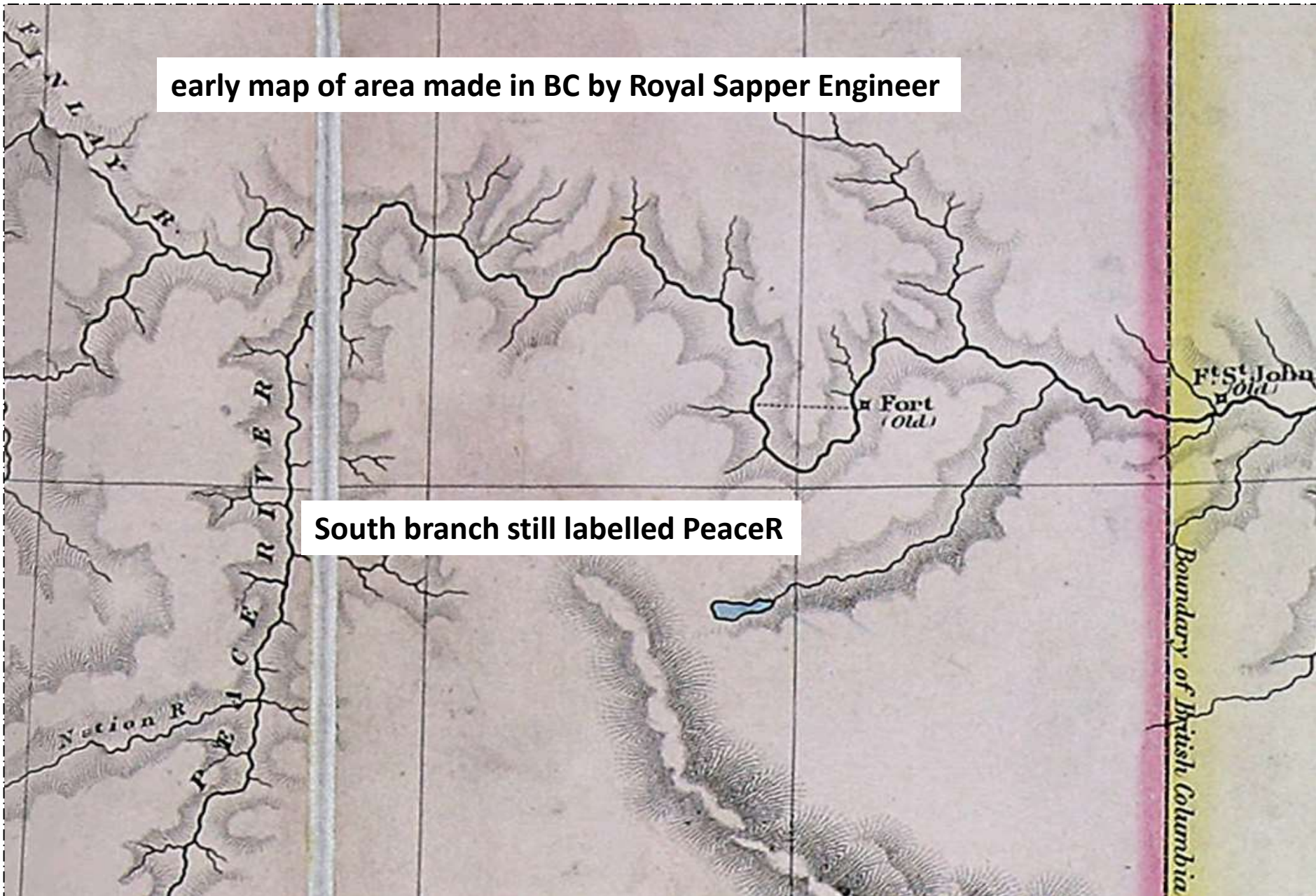
- 1866: "...there is good water power..."
[for operating mining equipment]
(p.298; Geological Survey of Canada
Report on Progress, 1863 to 1866, 1866)



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

early map of area made in BC by Royal Sapper Engineer

South branch still labelled Peace R

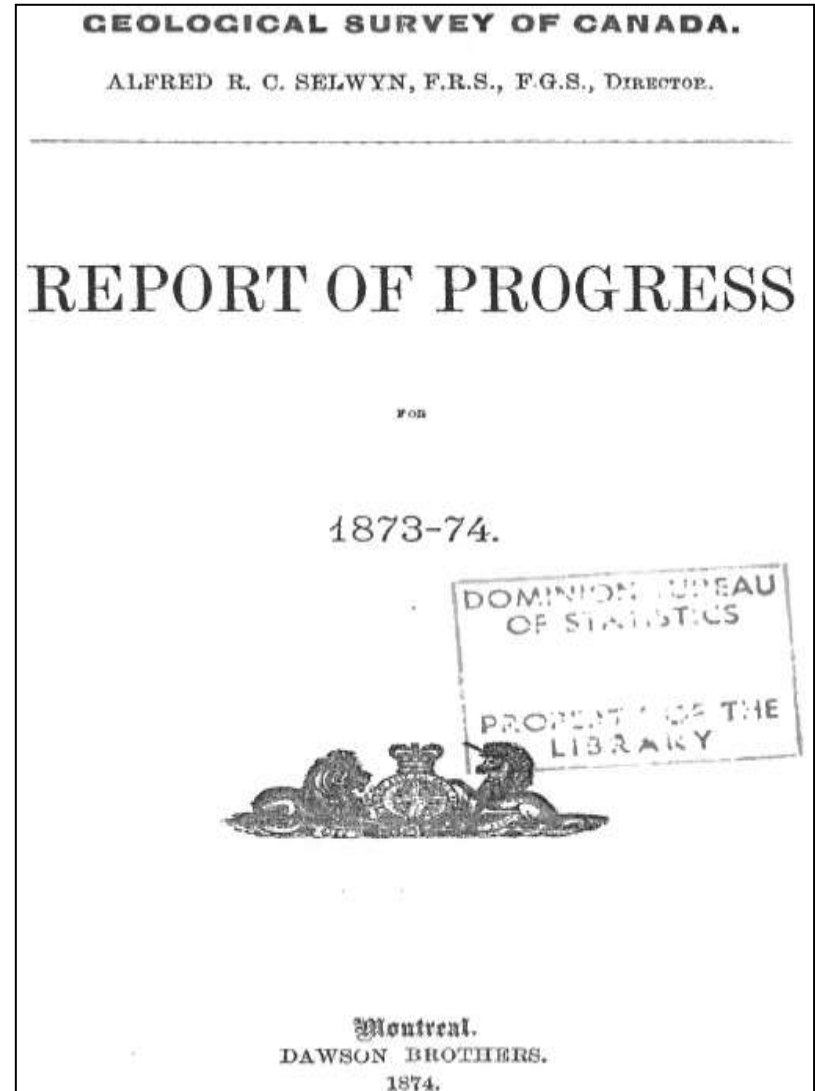


100kms

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

BC's “water power”

1874: “...the Qualicum River...would afford any amount of water power...”
(p.101; Geological Survey of Canada *Report of Progress, 1873-74, 1874*)



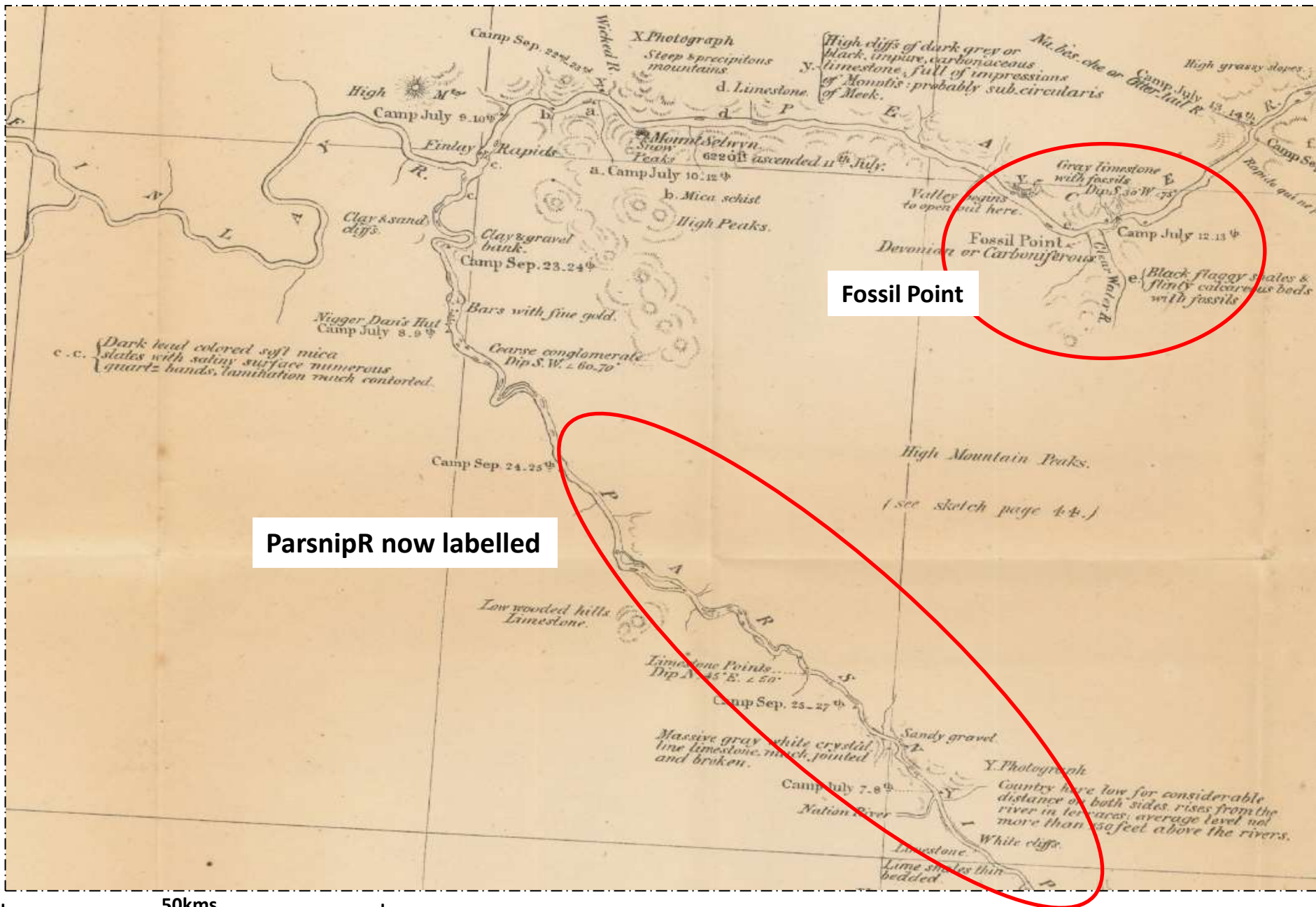
[section of] *Sketch survey of route from Quesnel mouth by Stewart and McLeod's lakes to junction of Smoky River and Peace River*



100kms

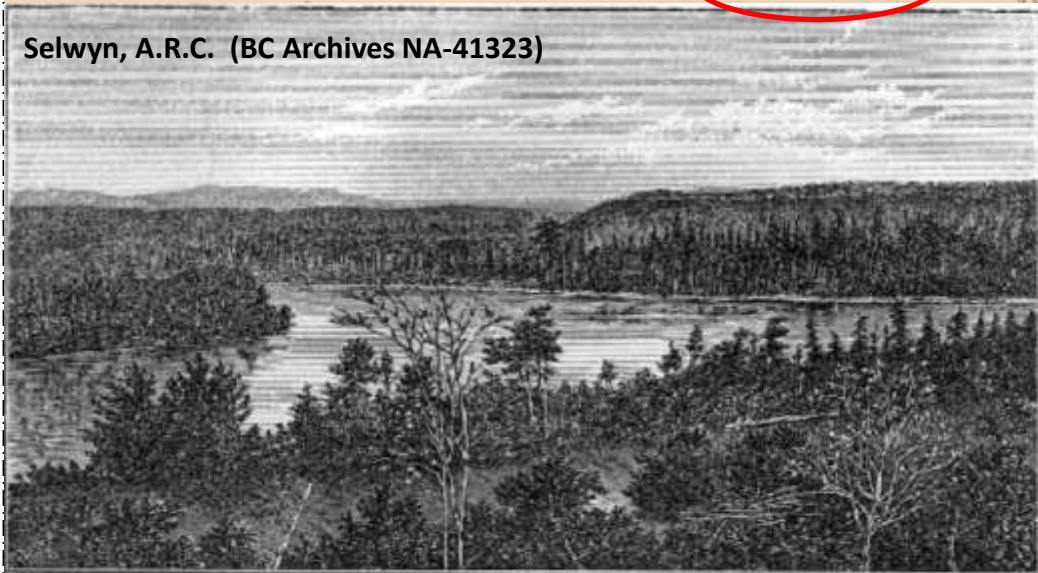
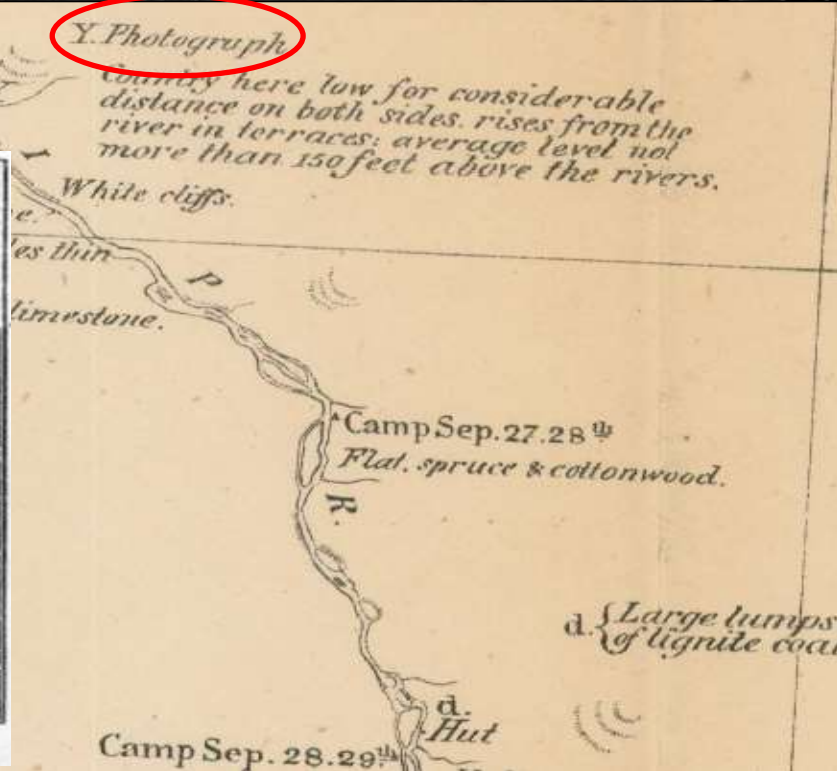
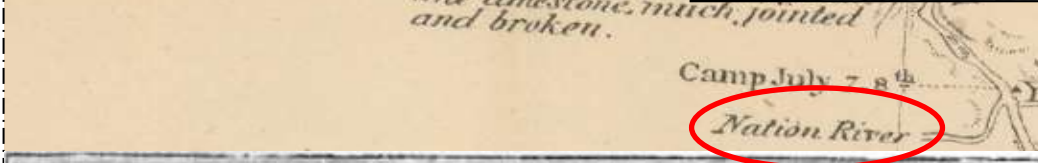
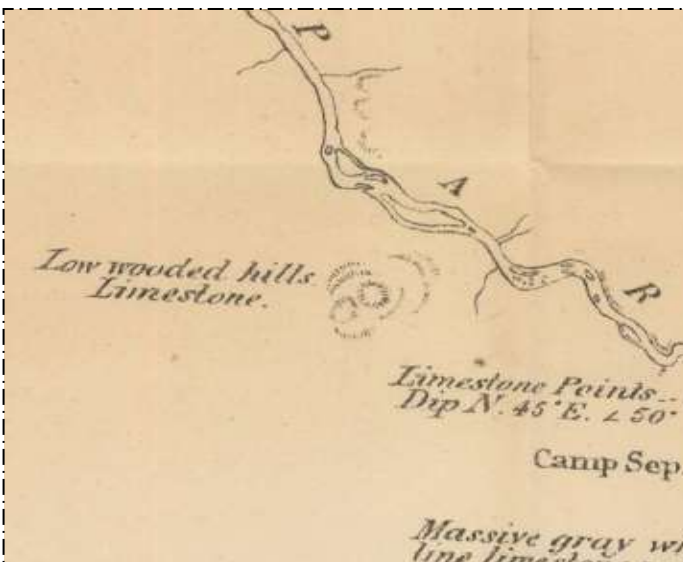
Selwyn, A.R.C. Geological Survey of Canada, Multicoloured Geological Map no. 111, 1877

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



“...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.

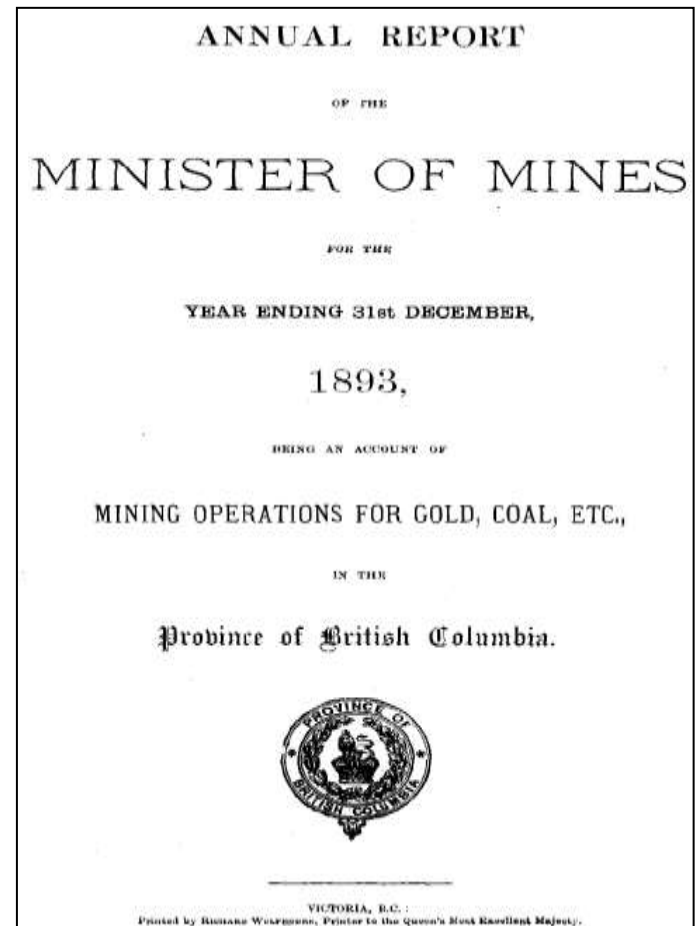
BC Minister of Mines: “water power”

1874 - onwards:

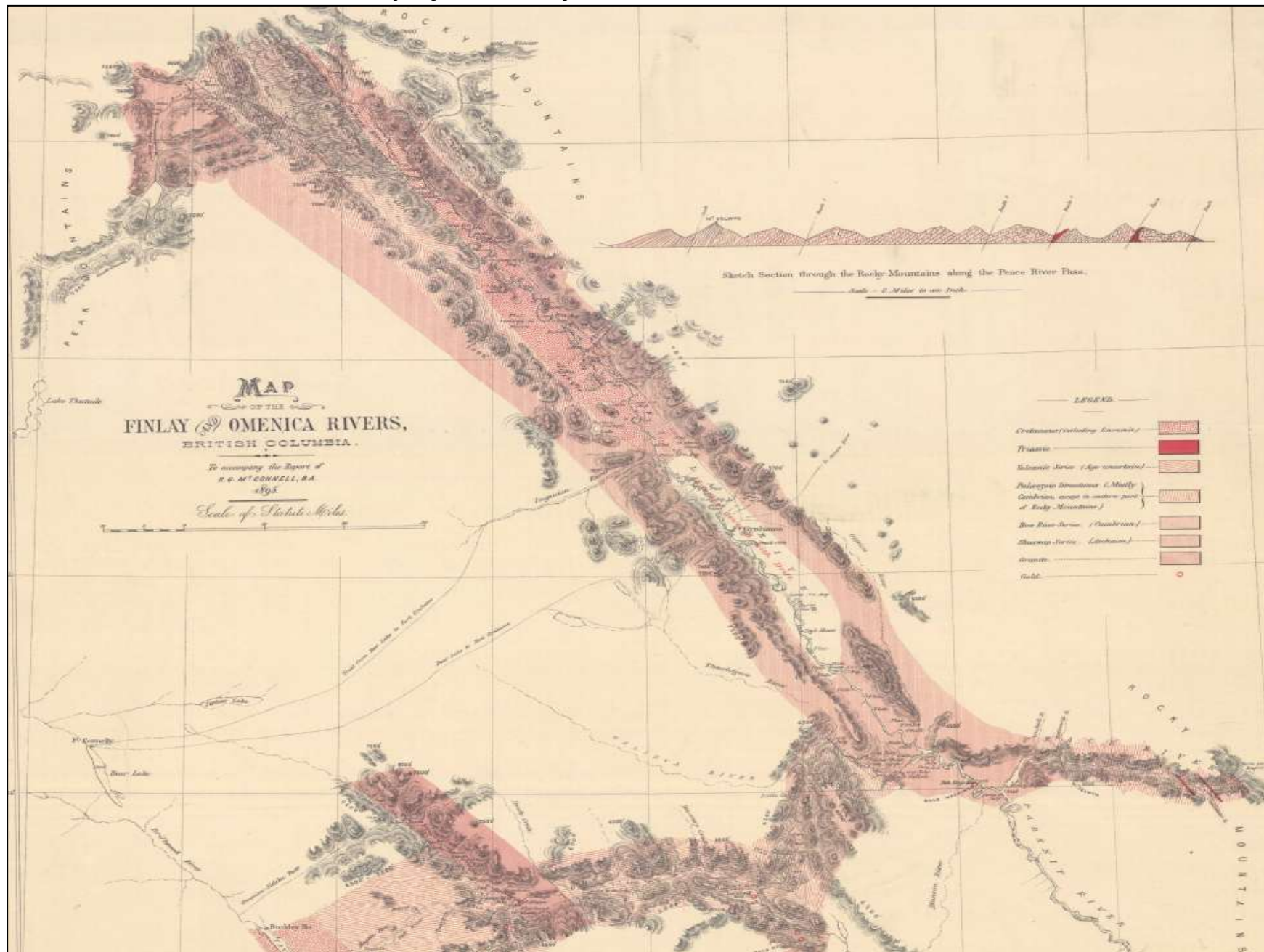
several “water power” references throughout the province
but not in reference to the Peace River...

“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



Cretaceous (including Laramie)

Triassic

Volcanic Series (Age uncertain)

Paleozoic limestones (Mostly Cambrian, except in eastern part of Rocky Mountains)

Bow River Series (Cambrian)

Shuswap Series (Archaean)

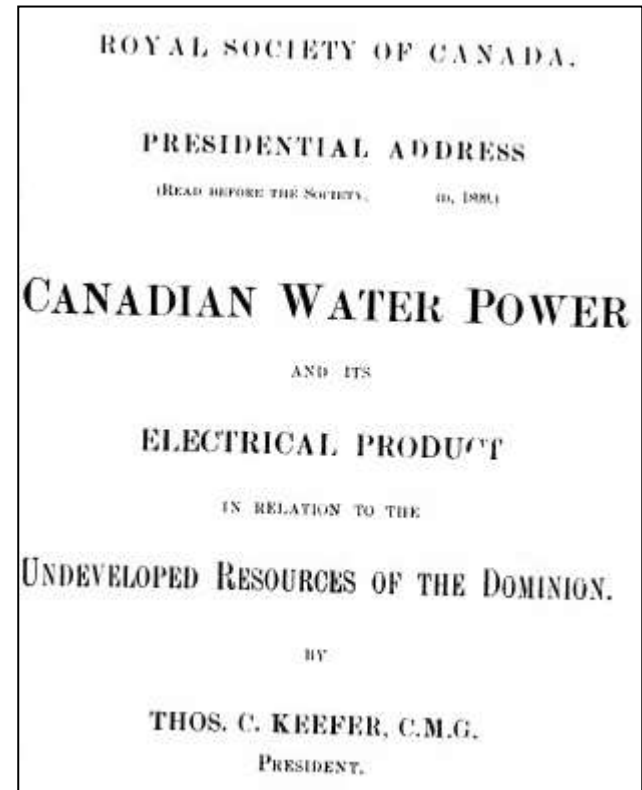
Granite

Gold

Canada's "water power"

1899:

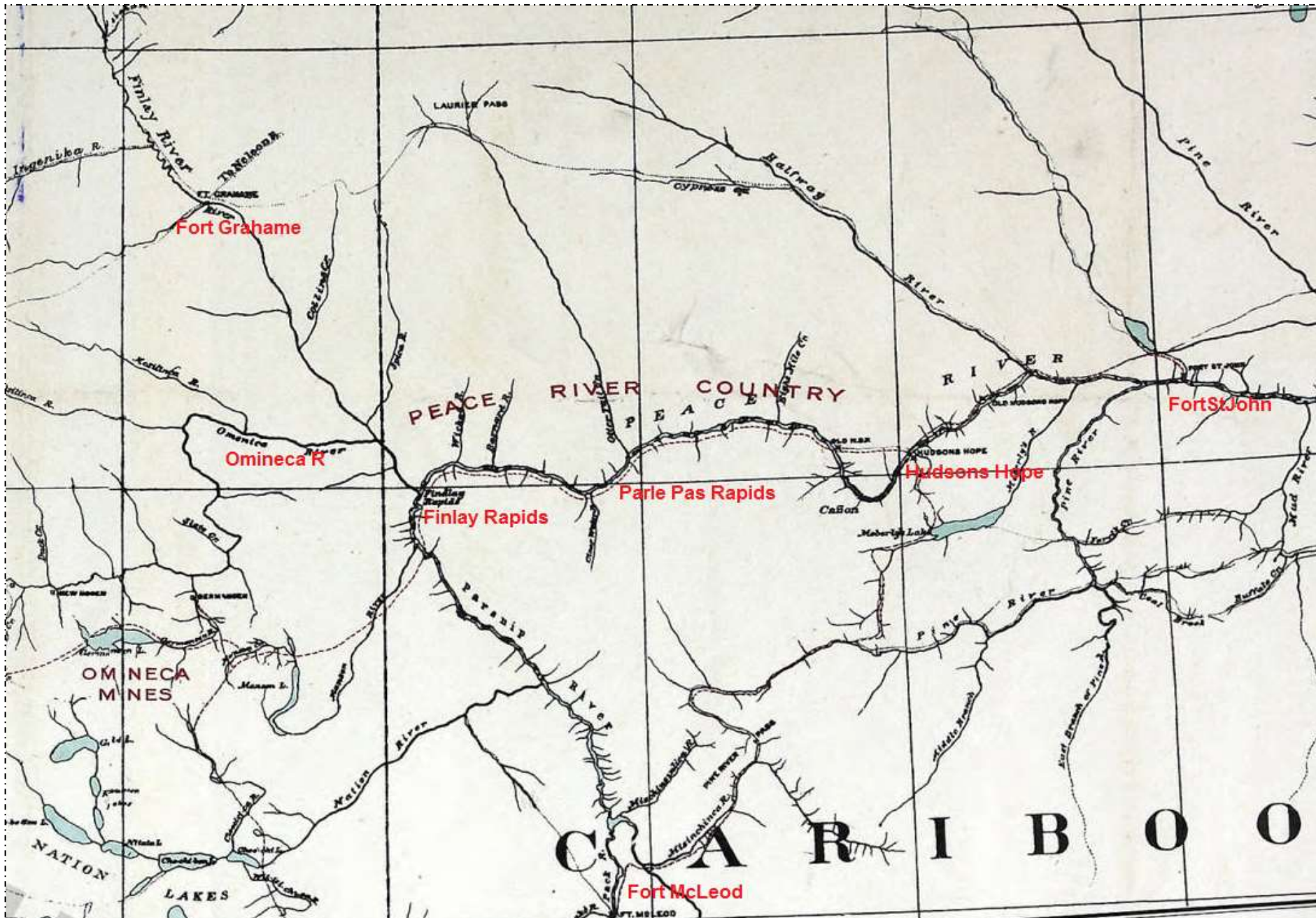
**"An examination of any good map of our broad Dominion, reveals...
an inexpensive dam will hold back the water..." (p.4)**



**"...spruce...manufactured by our water power into paper...
would yield this country ten times the value..." (p.11)**

Canadian water power and its electrical product in relation to the undeveloped resources of the Dominion , 1899

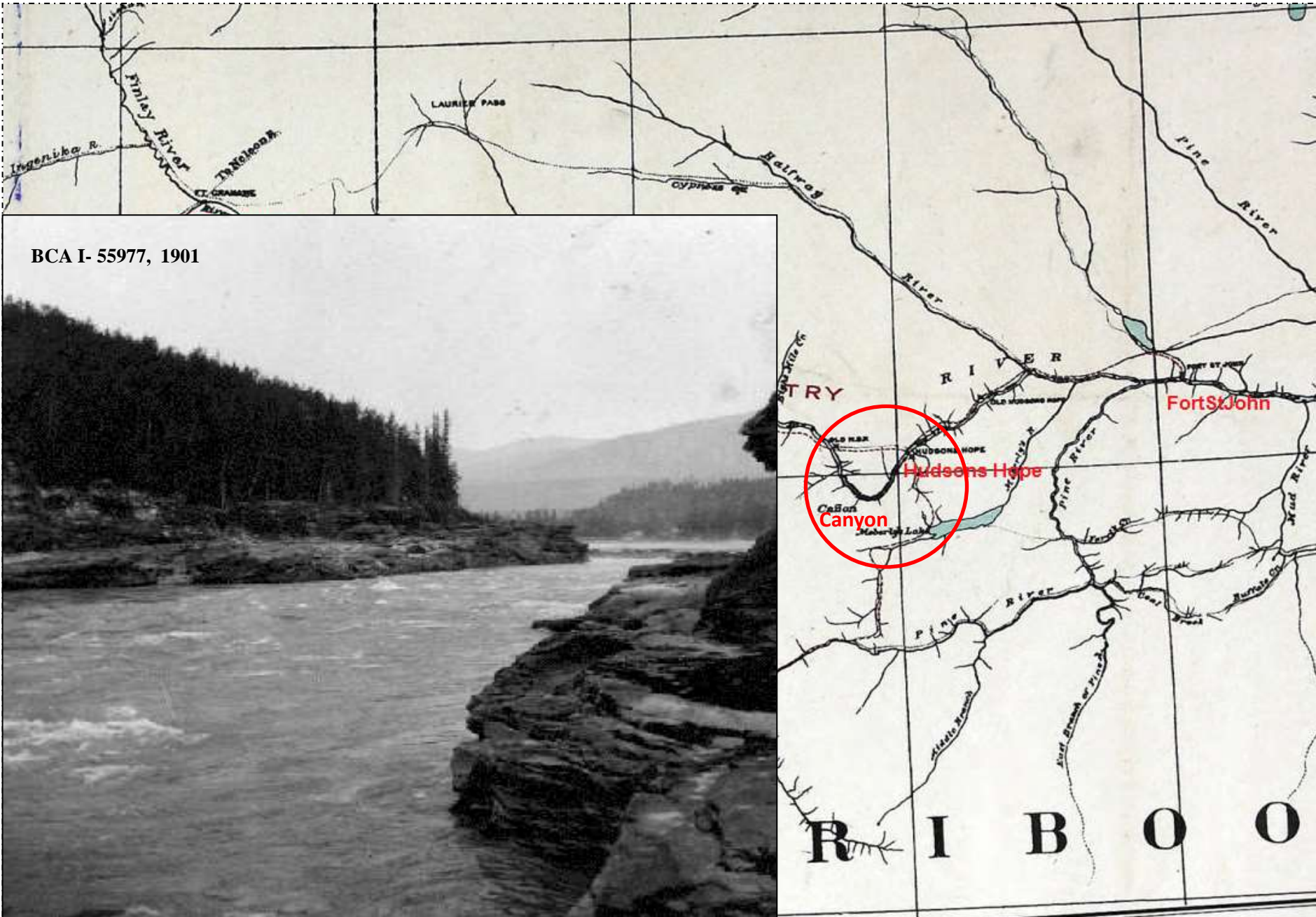
[section of] Map of the Northern Interior of British Columbia, shewing undeveloped areas



100kms

BC Provincial Bureau of Information, 1905

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



BCA I- 55977, 1901

unknown photographer

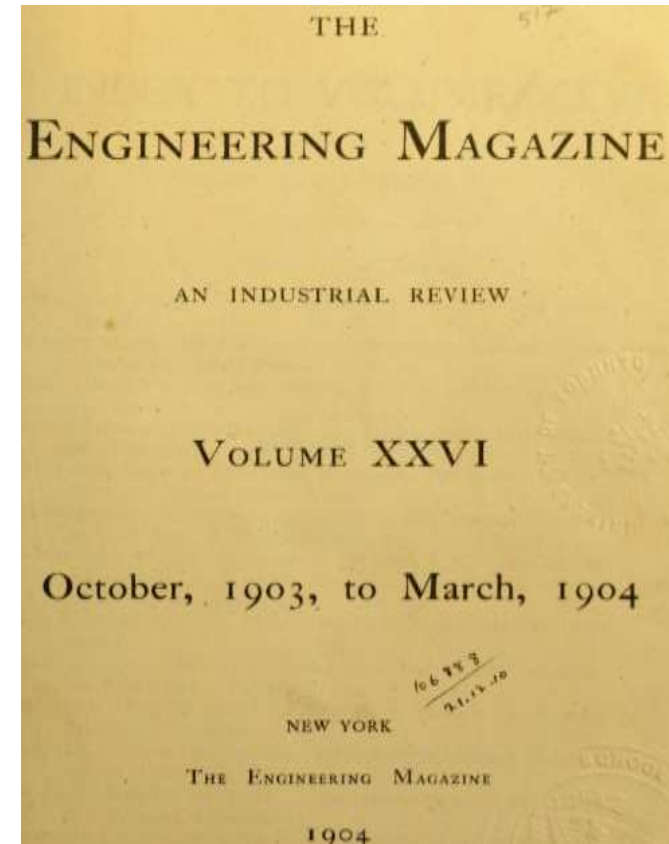
“Peace River”

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 Colombia.”

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

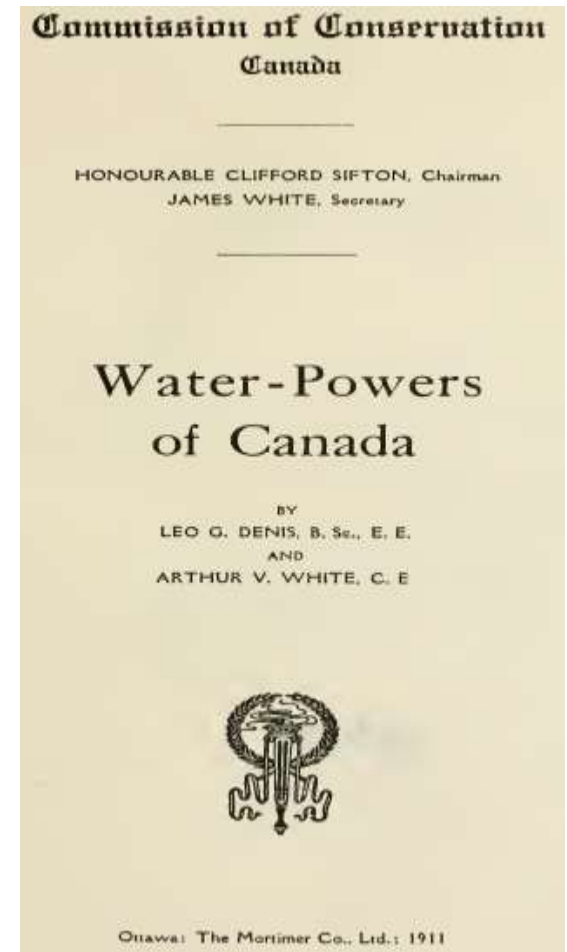


BC water powers: “Peace River”

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)

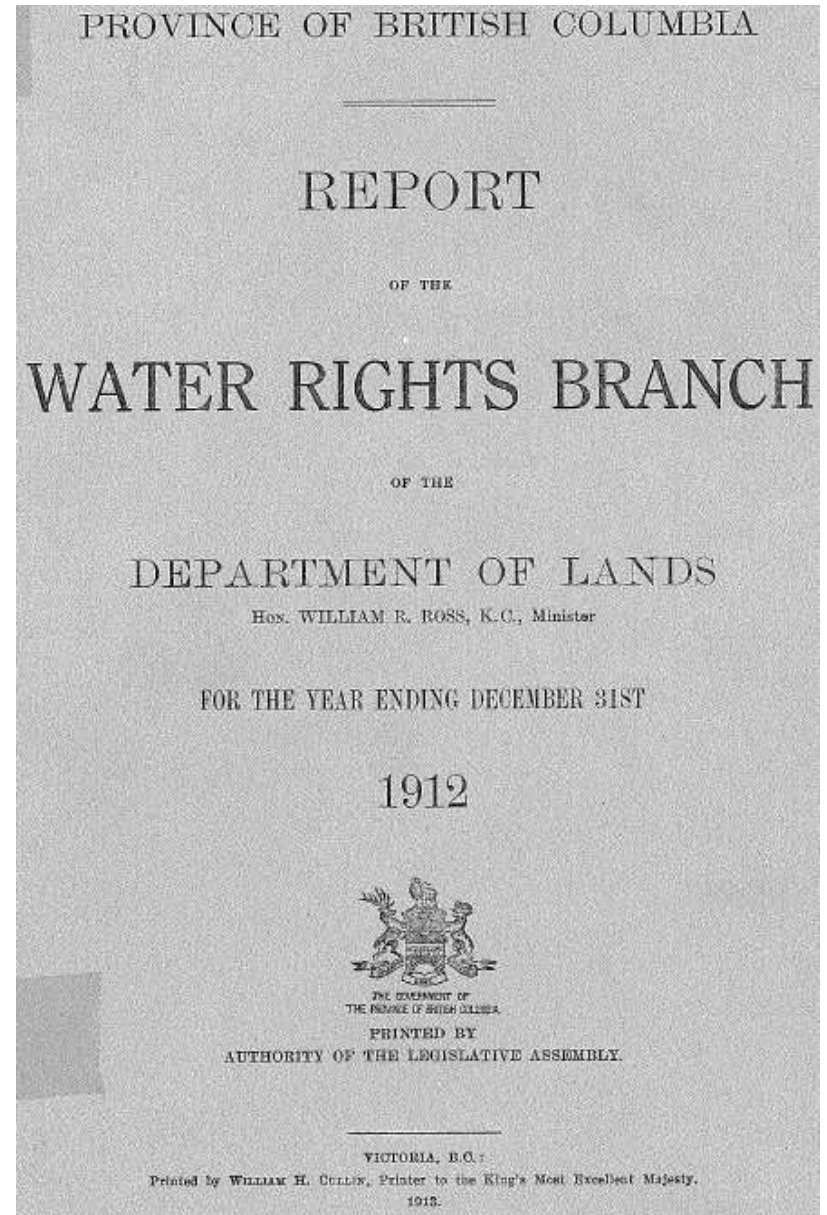


BC “water power”

1912:

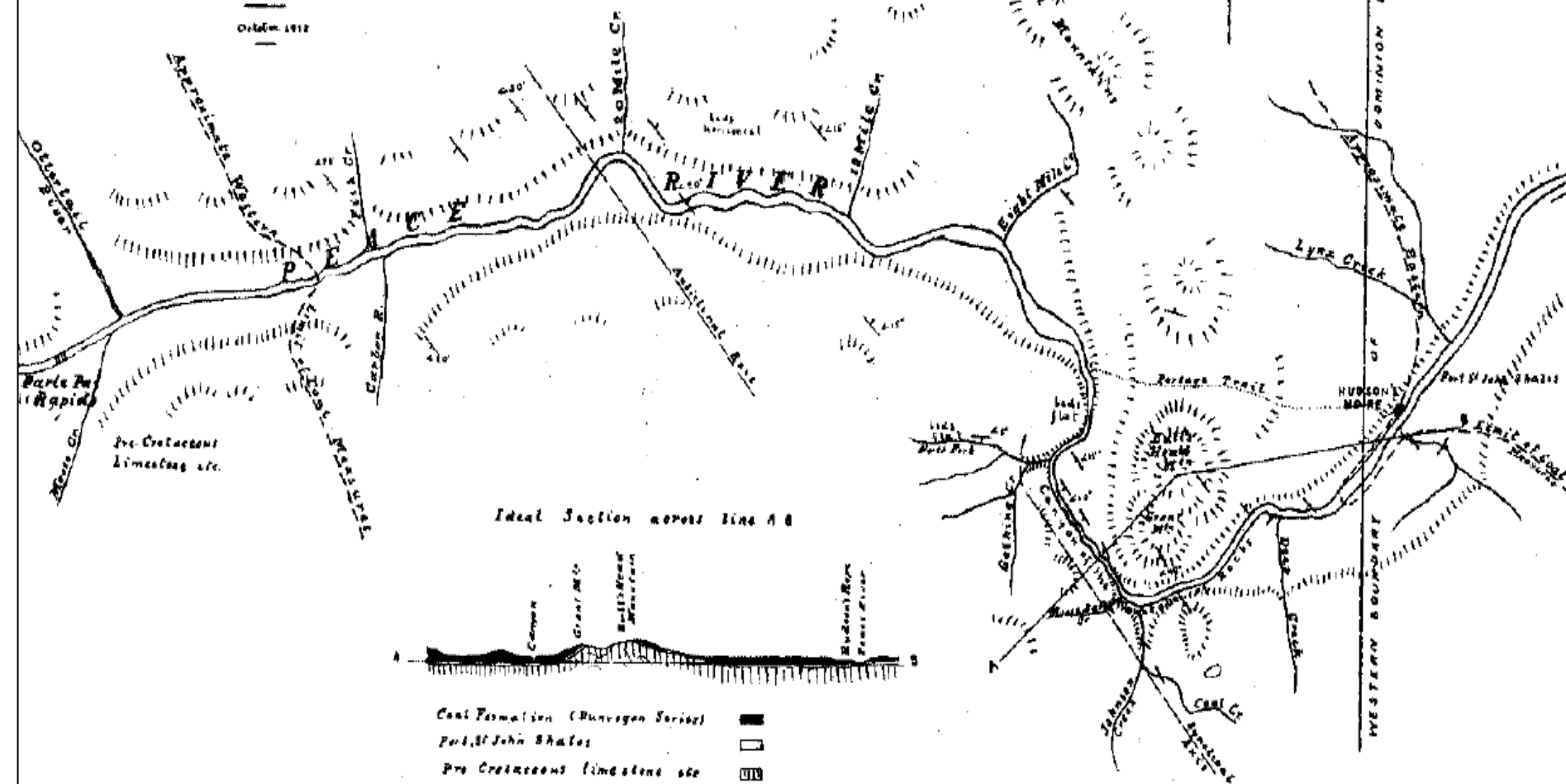
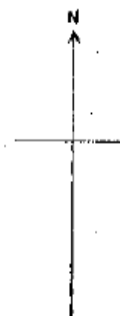
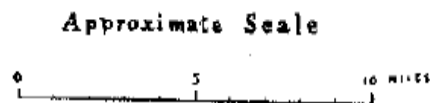
“Water Power Investigations” (p.36)

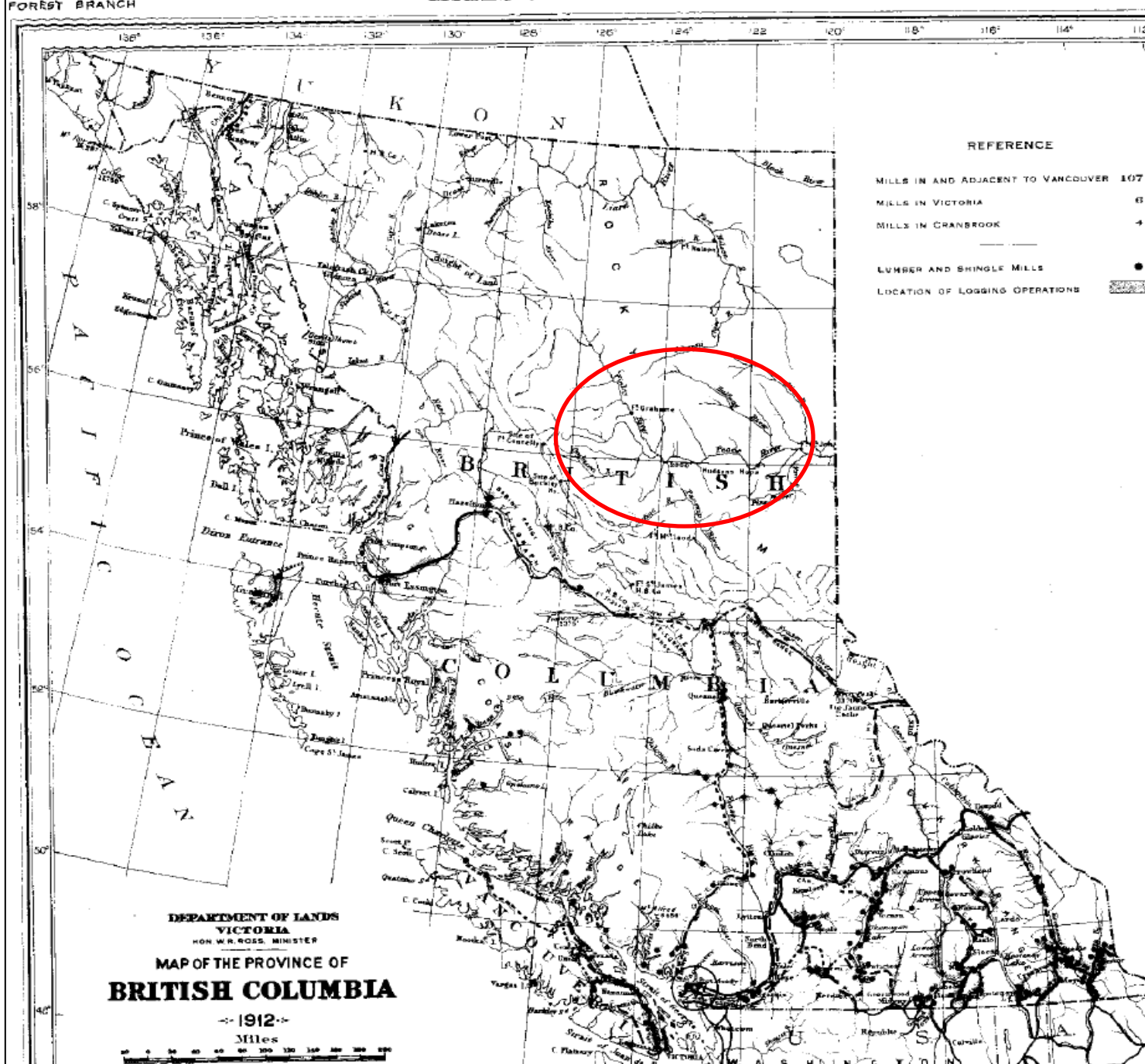
(no reference to Peace region but elsewhere)



SKETCH MAP OF PEACE RIVER COALFIELD

October 1912





(poor copy but...)
no mills in area

BC Dept. of Lands,
Forest Branch, 1912

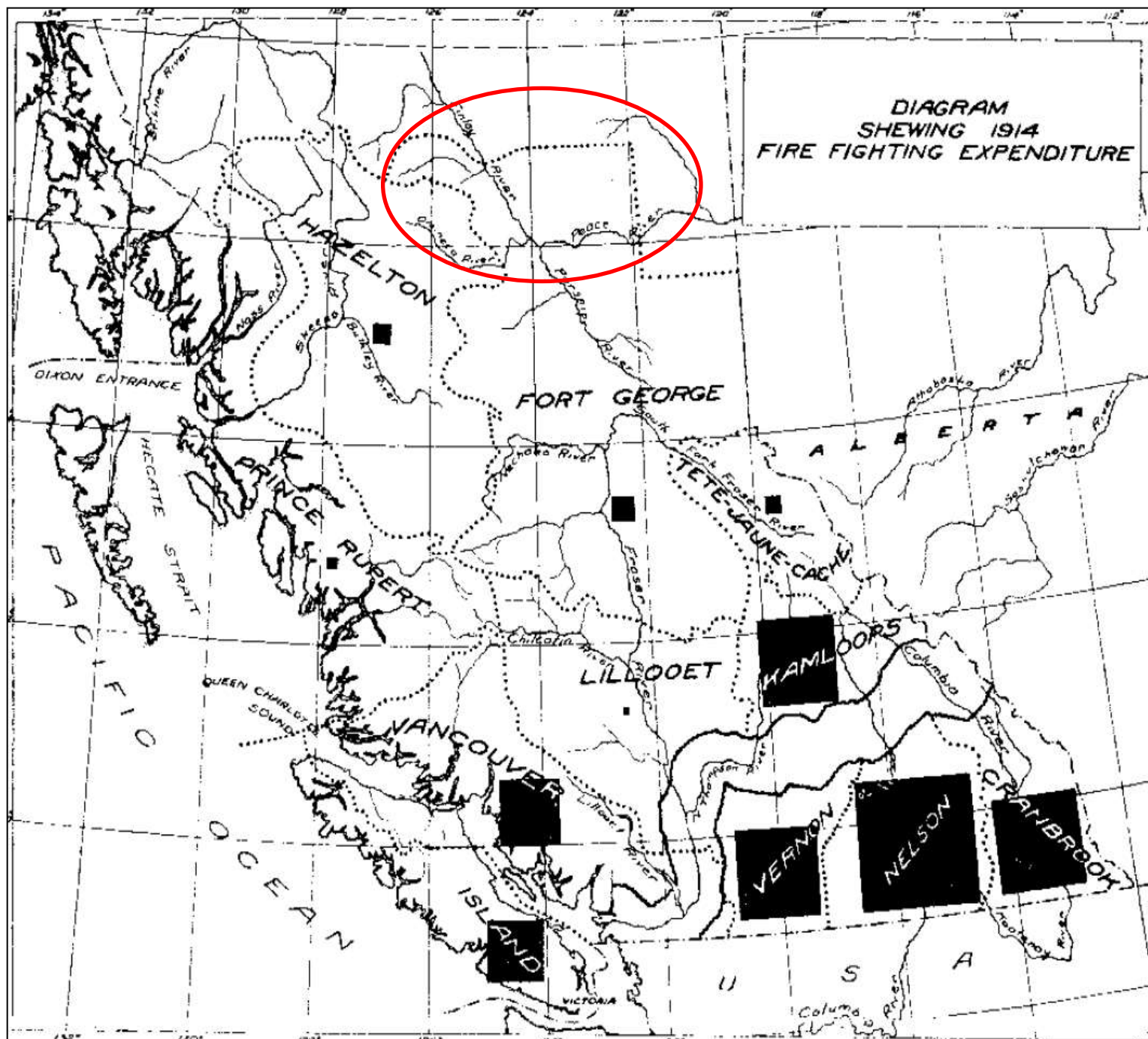
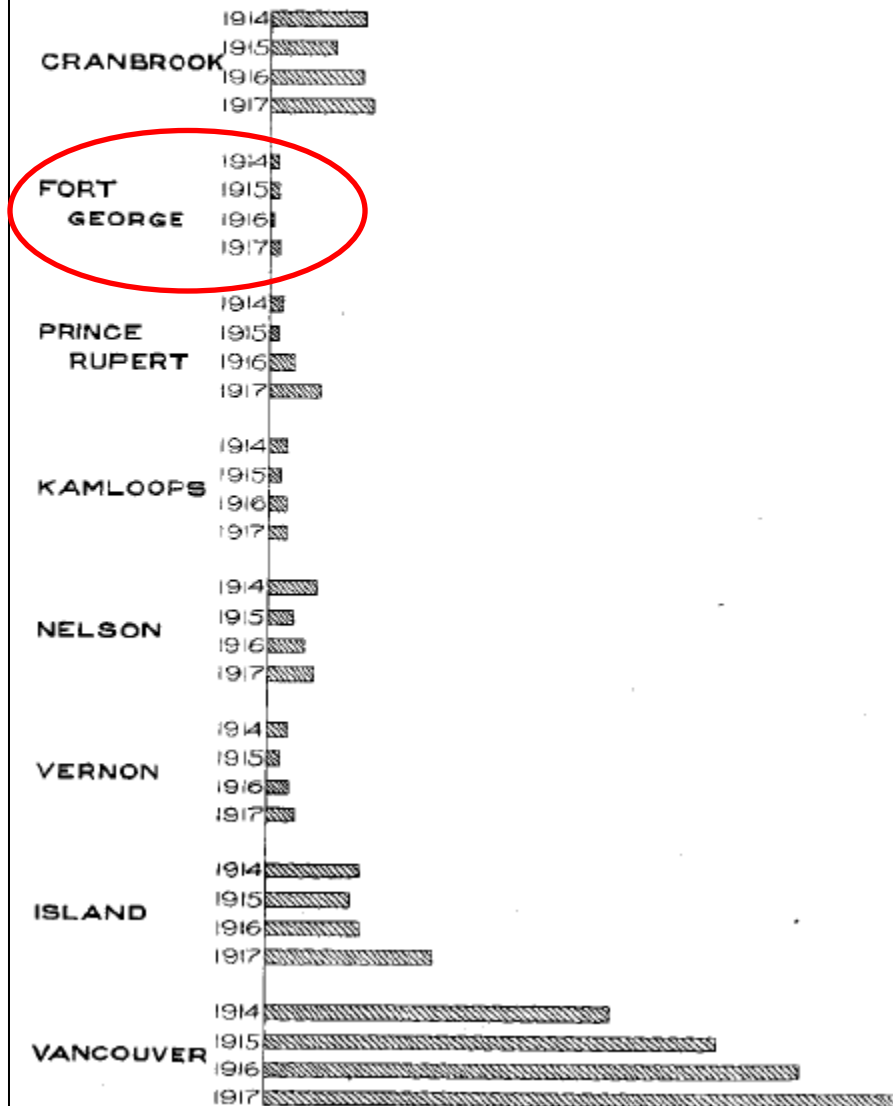


DIAGRAM
SHEWING 1914
FIRE FIGHTING EXPENDITURE

no fire fighting in
area

BC Dept. of Lands,
Forest Branch, 1914

TIMBER SCALED BY DISTRICTS

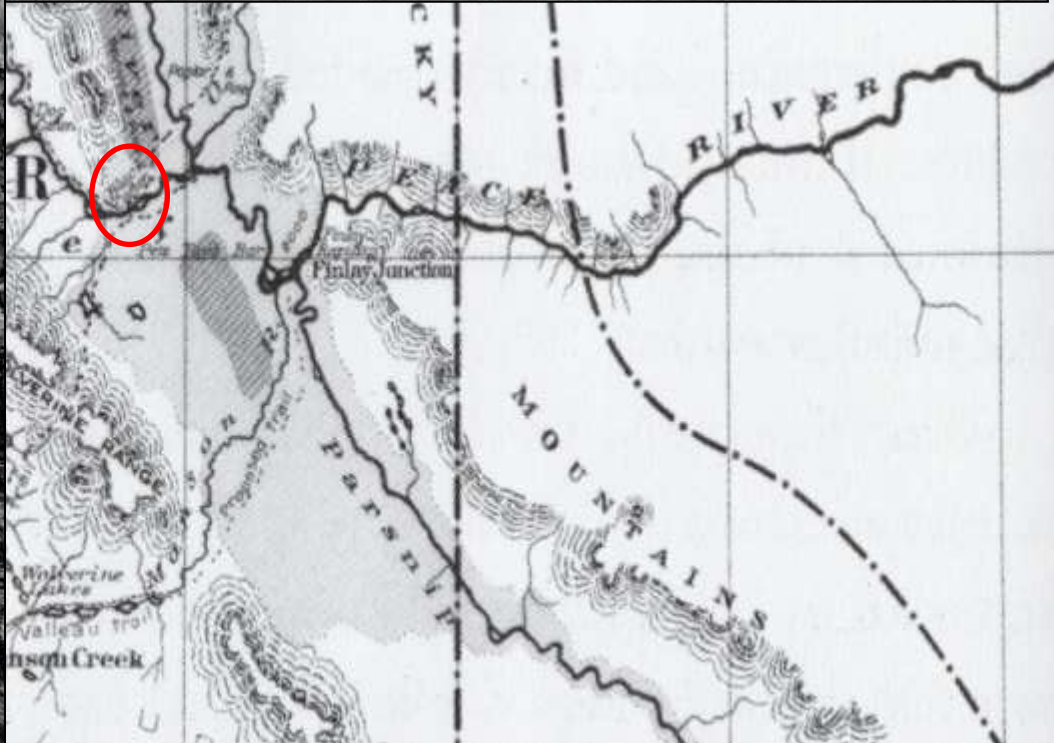
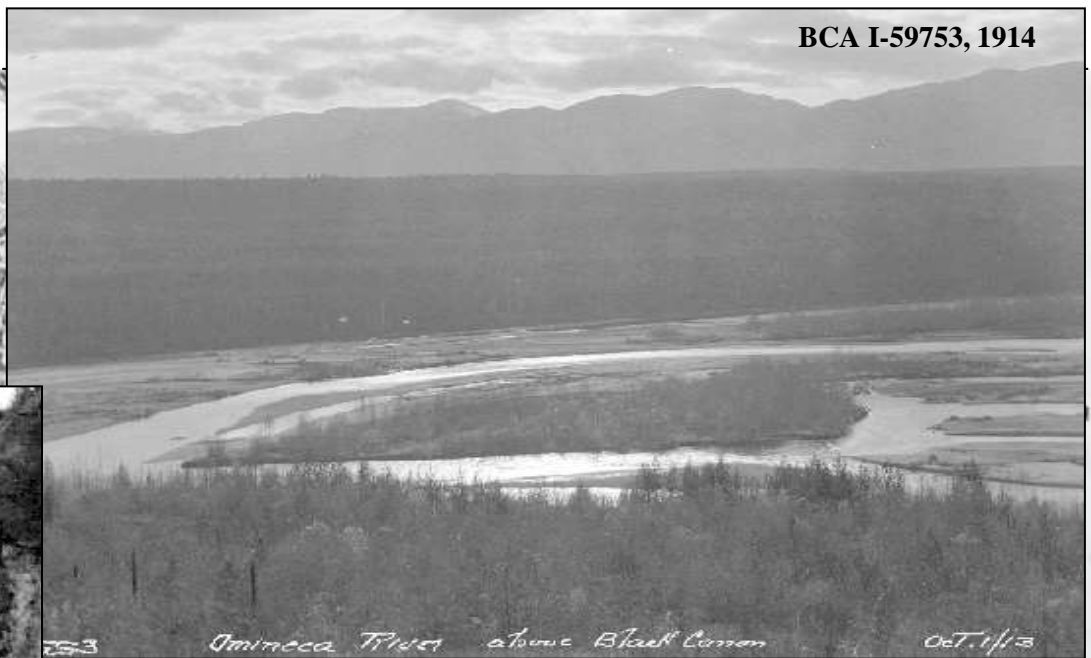


minimal timber
extraction

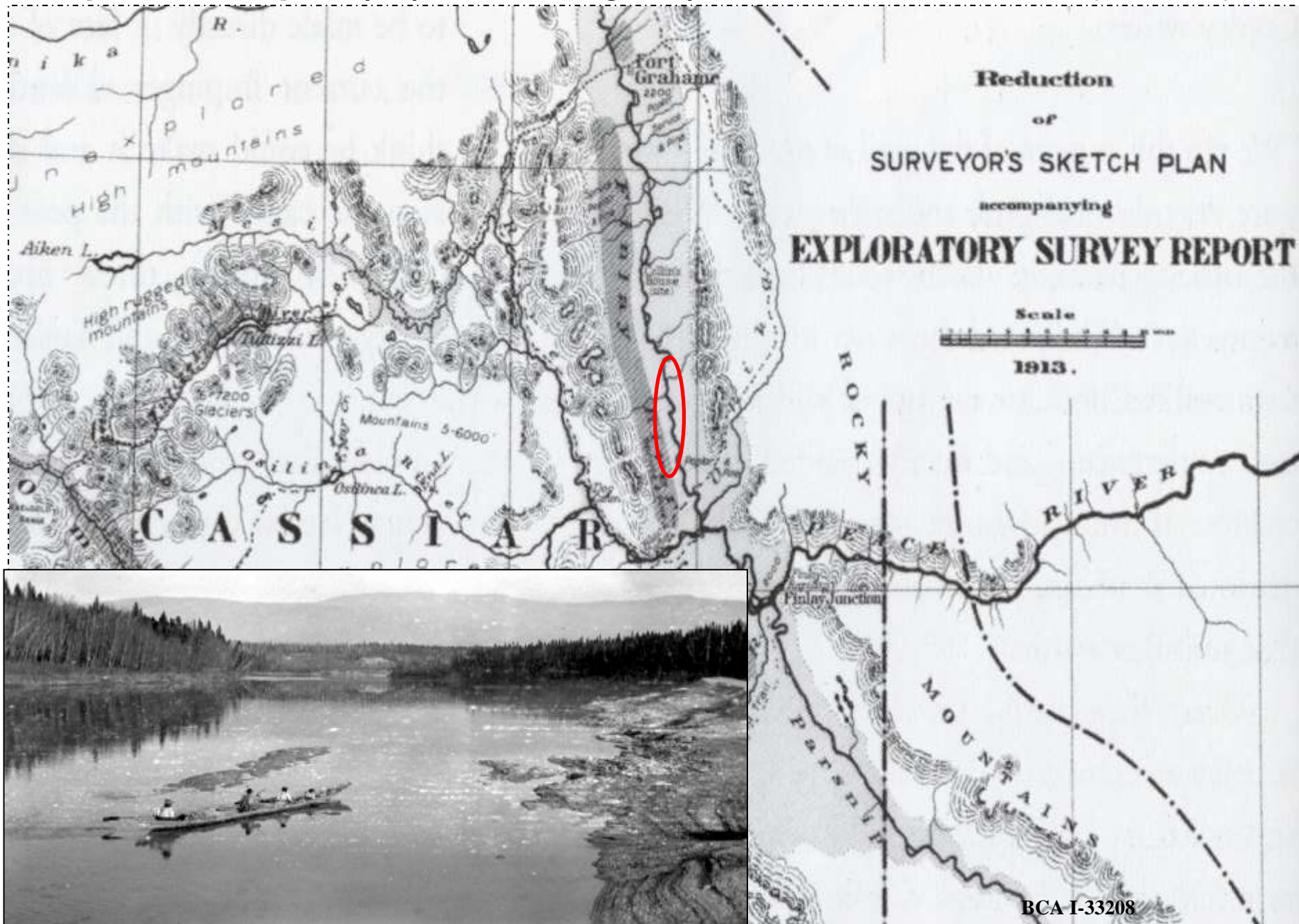
BC Dept. of Lands,
Forest Branch, 1918

Black Canyon, Omineca R

BCA I-59753, 1914



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



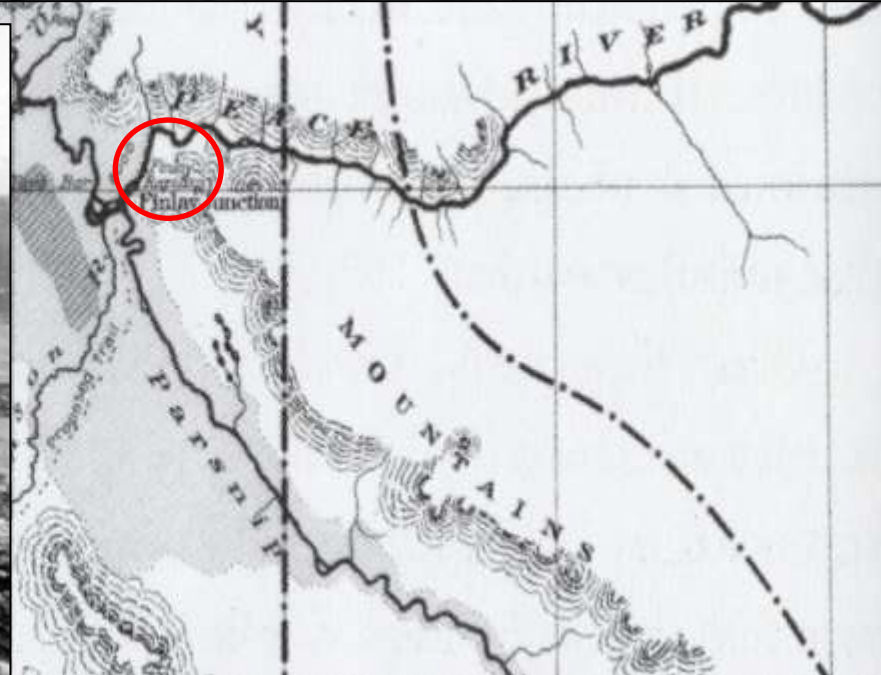
BCA I-33208

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



BCA I-59806, 1914

BCA I-59753, 1914

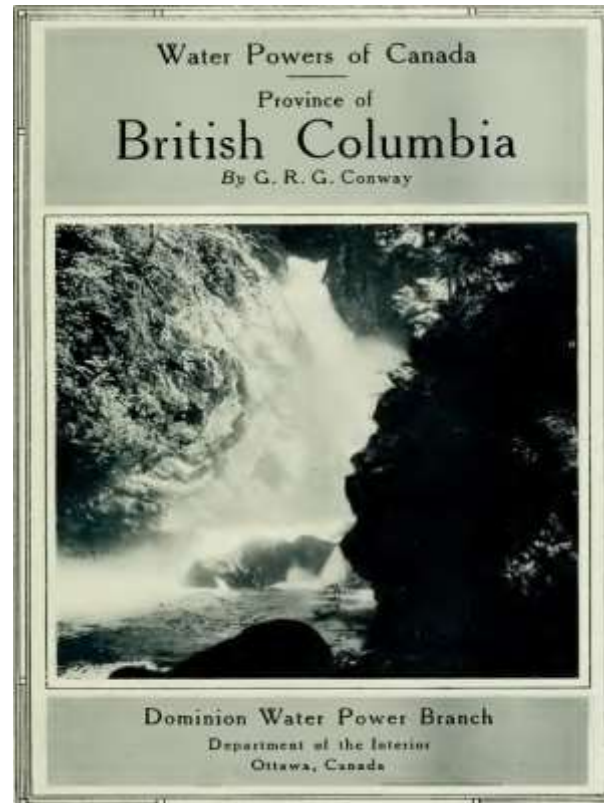


Peace River “water powers”

1915:

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

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



Peace River: Dreams and visions

1916:

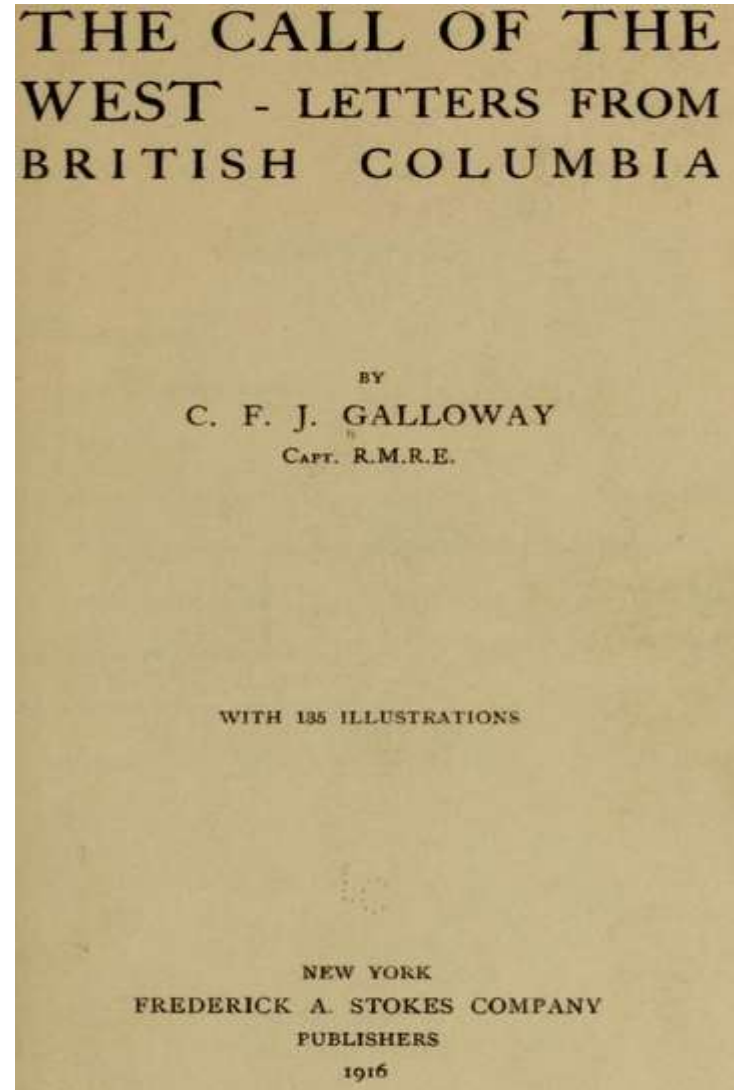
**“To the east are enormous great factories
for the immense power of the water in the canyon
has been harnessed.”**

(p.215)

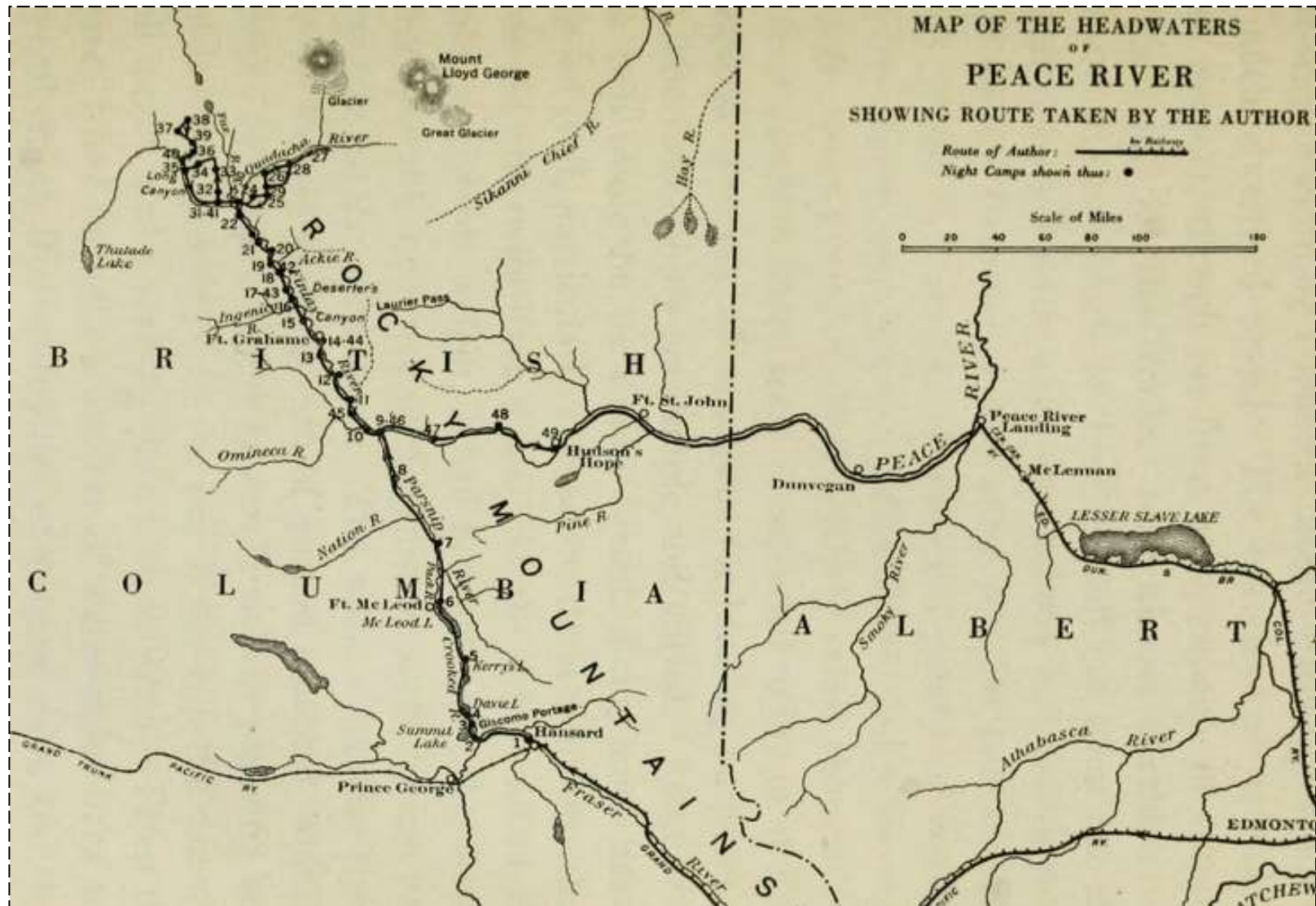
**“...Finlay, whose broad valley will afford homes
for many thousands...”**

(p.202)

Call of the West: Letter from BC, 1916)



Peace River: Dreams and visions



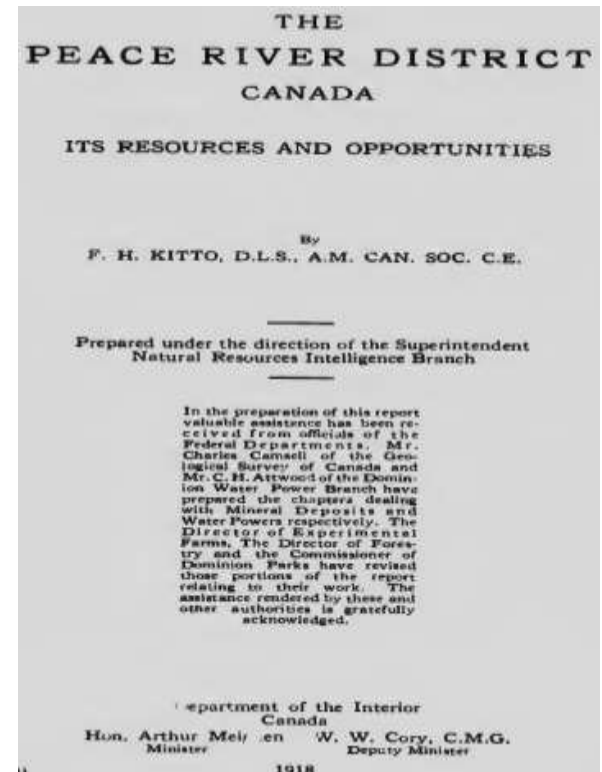
1917:
“...this canyon will be harnessed to great turbines...great manufacturing establishments...”
(p.266)
On the headwaters of the Peace River

Peace River “water powers” reality...

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)

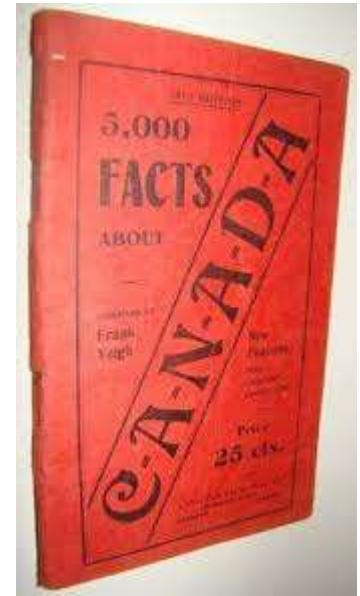


Canada's "White Coal"

1918:

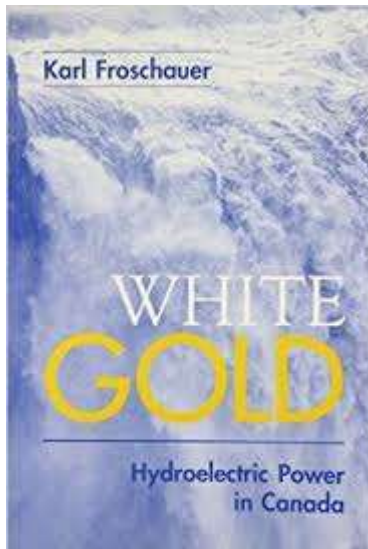
"...no country in the world is more fortunate in the extent and location of its white coal than is Canada..."

(Five thousand facts about Canada, 1918, p.70)



"Canada ...her heritage in white coal..."

(Journal of the Engineering Institute of Canada, 1918, p.445)



Froschauer, K. *White gold: Hydroelectric power in Canada*, 2011

**the writing is
on the wall...**

Water Powers of British Columbia, Ottawa, 1919

WATER POWERS

BRITISH COLUMBIA

CANADA



DEPARTMENT OF LANDS

HON. T. D. PATTULLO - - - - Minister

GEORGE R. NADEN - - - - Deputy Minister

E. A. CLEVELAND - - - - Comptroller of Water Rights

1924

A FEW OF THE IMPORTANT WATER POWERS OF BRITISH COLUMBIA 1924

- | UNDEVELOPED. | DEVELOPED. |
|-----------------------------|-------------------------------|
| 2. Pendi d'Oreille River. | 1. Bull River. |
| 3. Kootenay River. | 4. Kootenay River |
| 6. Chilliwack River. | (Bonnington Falls). |
| 7. Jones Lake. | 5. Kootenay River |
| 8. Chehalis River. | (Bonnington Falls). |
| 10. Fraser River. | 9. Similkameen River. |
| 17. Chehalis River. | 11. Jordan River. |
| 18. Nanaimo River. | 12. Goldstream. |
| 20. Stave River. | 13. Stave River. |
| 21. Ash River. | 14. Buntzen River. |
| 22. Eagle River. | 15. Britannia Creek & others. |
| 25. Similkameen River. | 16. Cedar Creek. |
| 26. Campbell River. | 19. Milstone River. |
| 27. Klamath River. | 22. Puntledge River. |
| 28. Homathko River, E. Fork | 24. Powell River. |
| 29. Homathko River, W. " | 25. Barriere River. |
| 30. Green River. | 27. Hellsheart River. |
| 31. Bridge River. | 40. Link River. |
| 32. Chiloutin River. | 48. Swanson Creek. |
| 34. Shuswap River. | 49. Cougar Lake. |
| 35. Columbia River. | 54. Woodworth Lake. |
| 36. Toby Creek. | 58. Anyox Creek. |
| 38. Kickinghorse River. | |
| 39. Columbia River. | |
| 40. Murtle River. | |
| 41. Quesset River, S. Fork. | |
| 42. Fraser River. | |
| 43. Fraser River. | |
| 44. Willow River. | |
| 45. Upper Nechako River. | |
| 47. Dean River. | |
| 50. Lowe Inlet. | |
| 51. Crab River. | |
| 52. Foch Creek. | |
| 53. Ain River. | |
| 55. Falls River. | |
| 56. Ktada River. | |
| 57. Skeena River. | |
| 59. Nass River. | |
| 60. Bulkley River. | |

Legend :

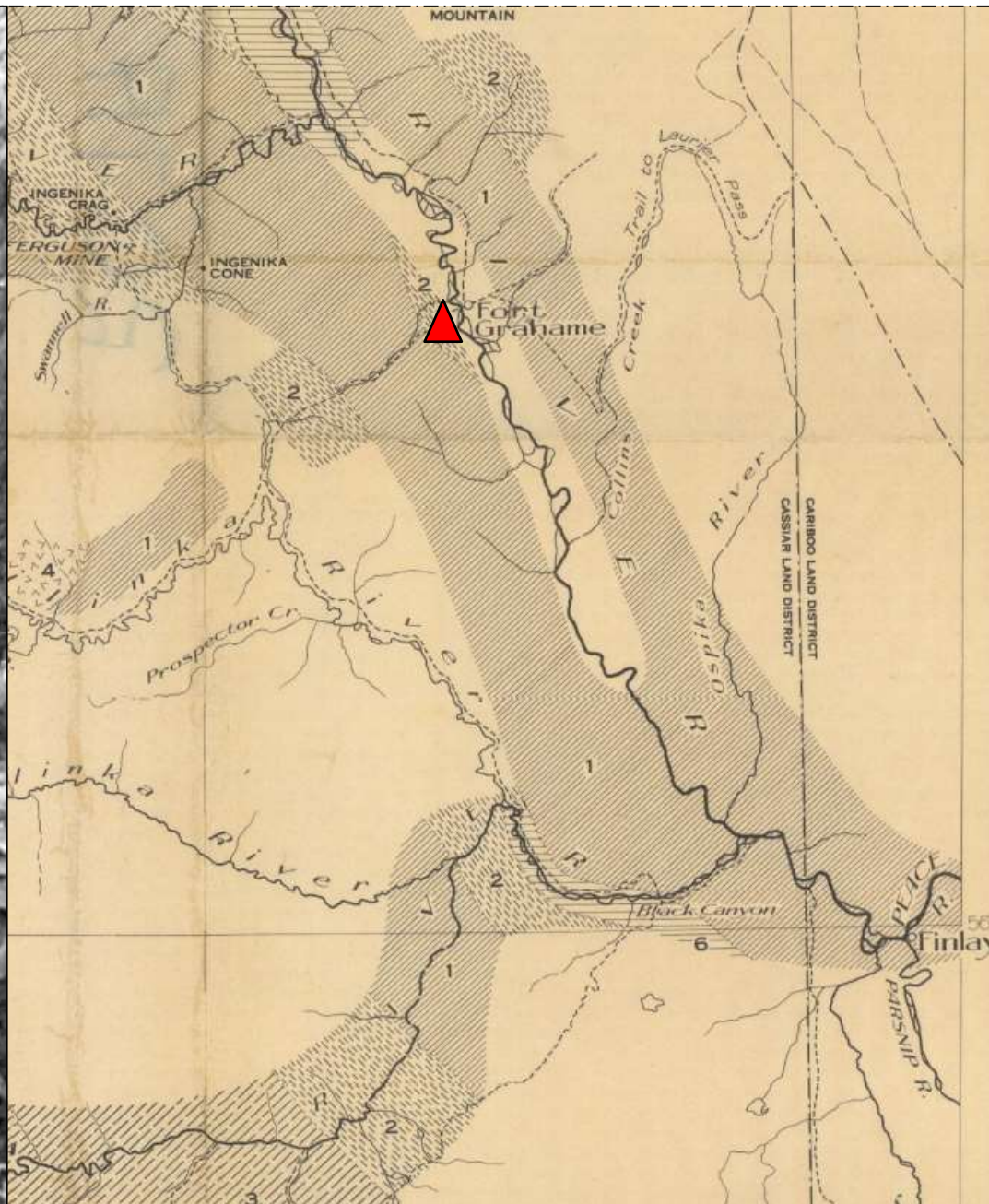
Undeveloped Power Sites shown thus ●

Developed Power Sites shown thus ■

DEPARTMENT OF LANDS
Water-Rights Branch

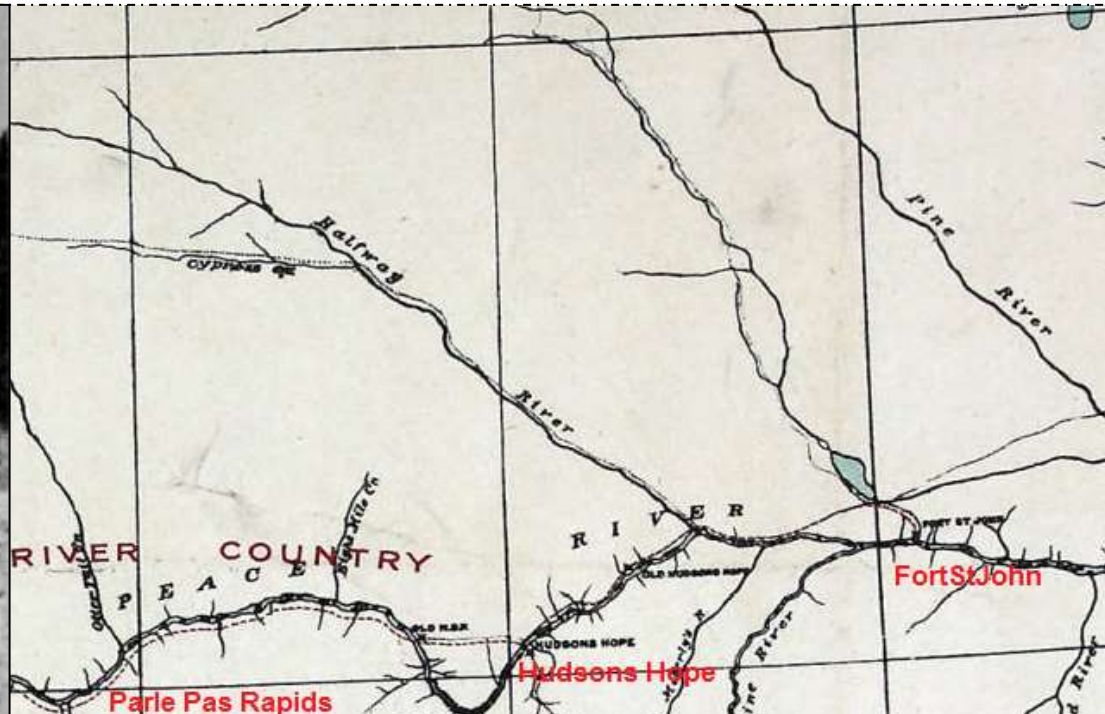
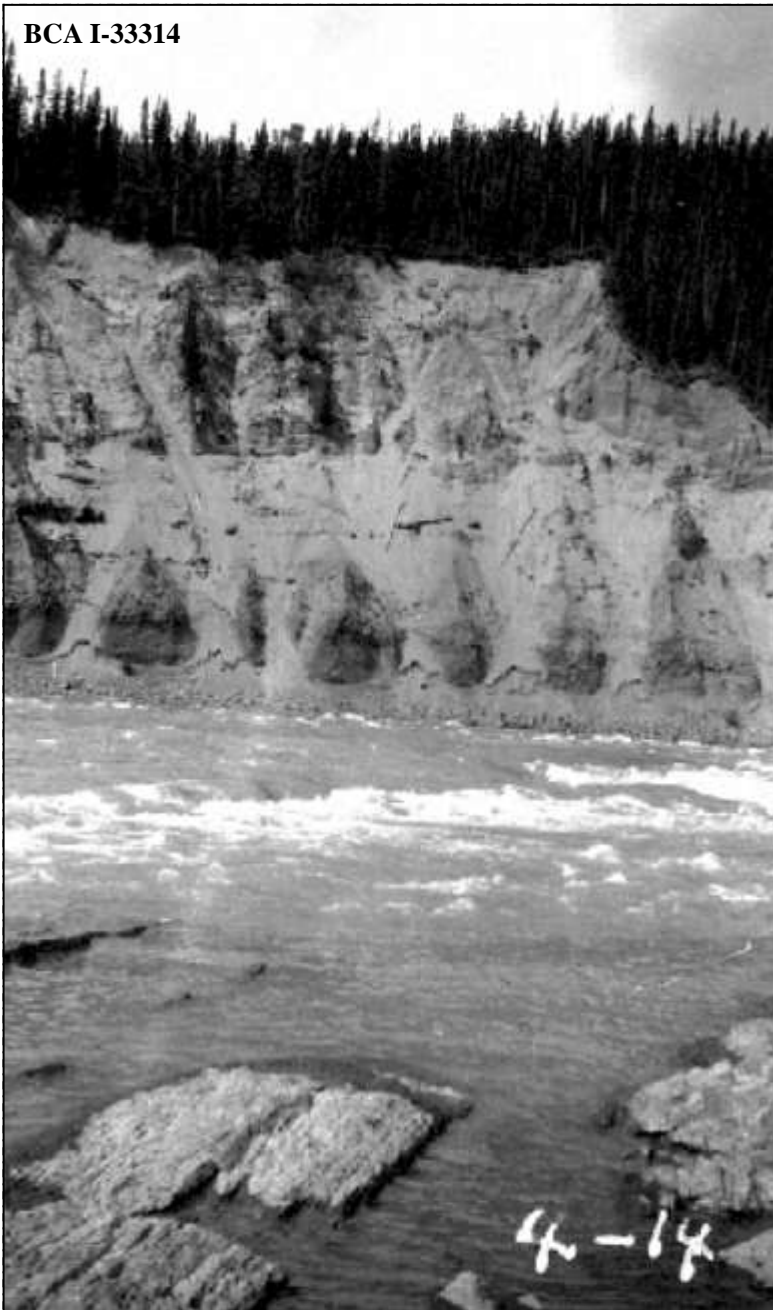
province has not
identified the Peace...
...yet...

making a dugout canoe near Fort Graham, 1927



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

BCA I-33314



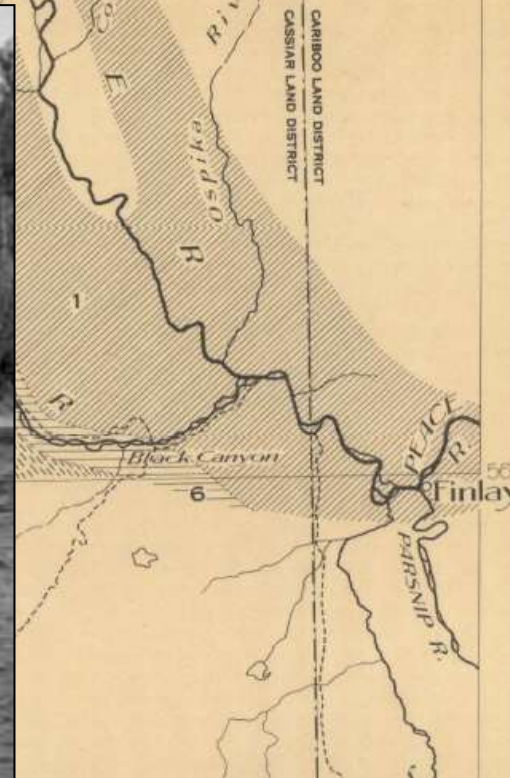
BCA I-58153

Frank Swannell, 1880-1969

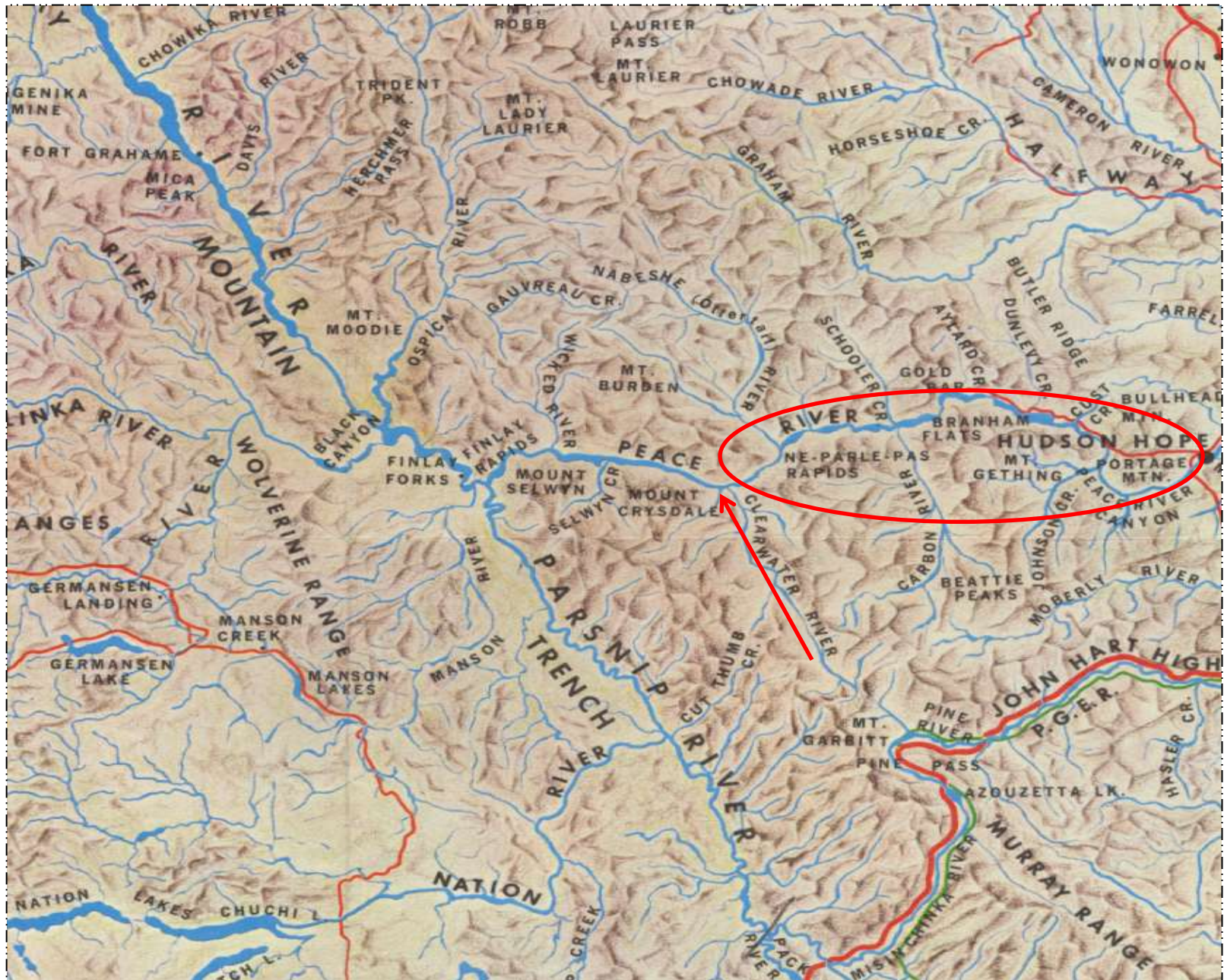
mouth of the Ingenika River (at Finlay R), Oct. 1930

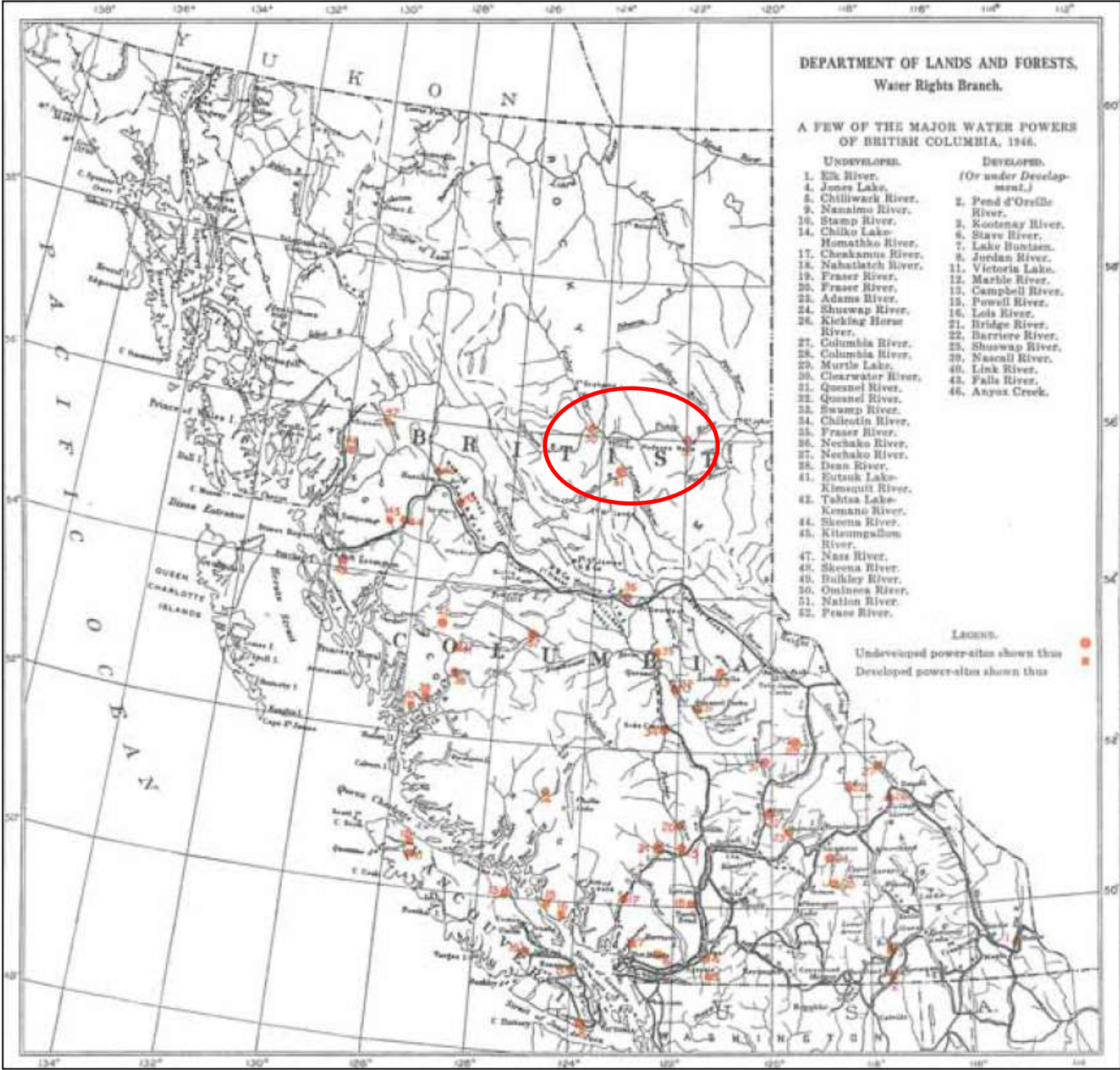


BCA I-33314
Frank Swannell, 1880-1969



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

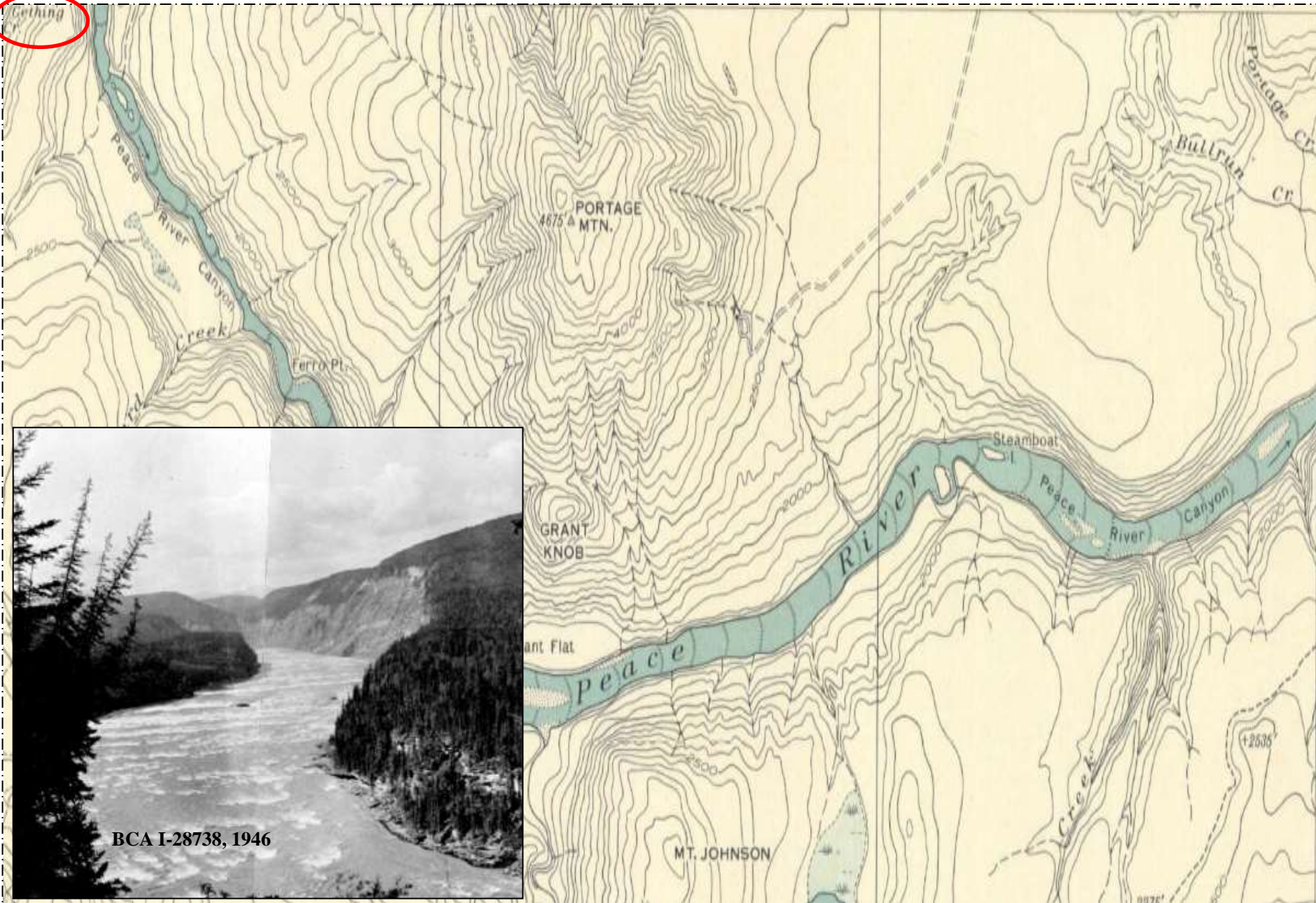




(poor copy but...)
Peace area
identified...

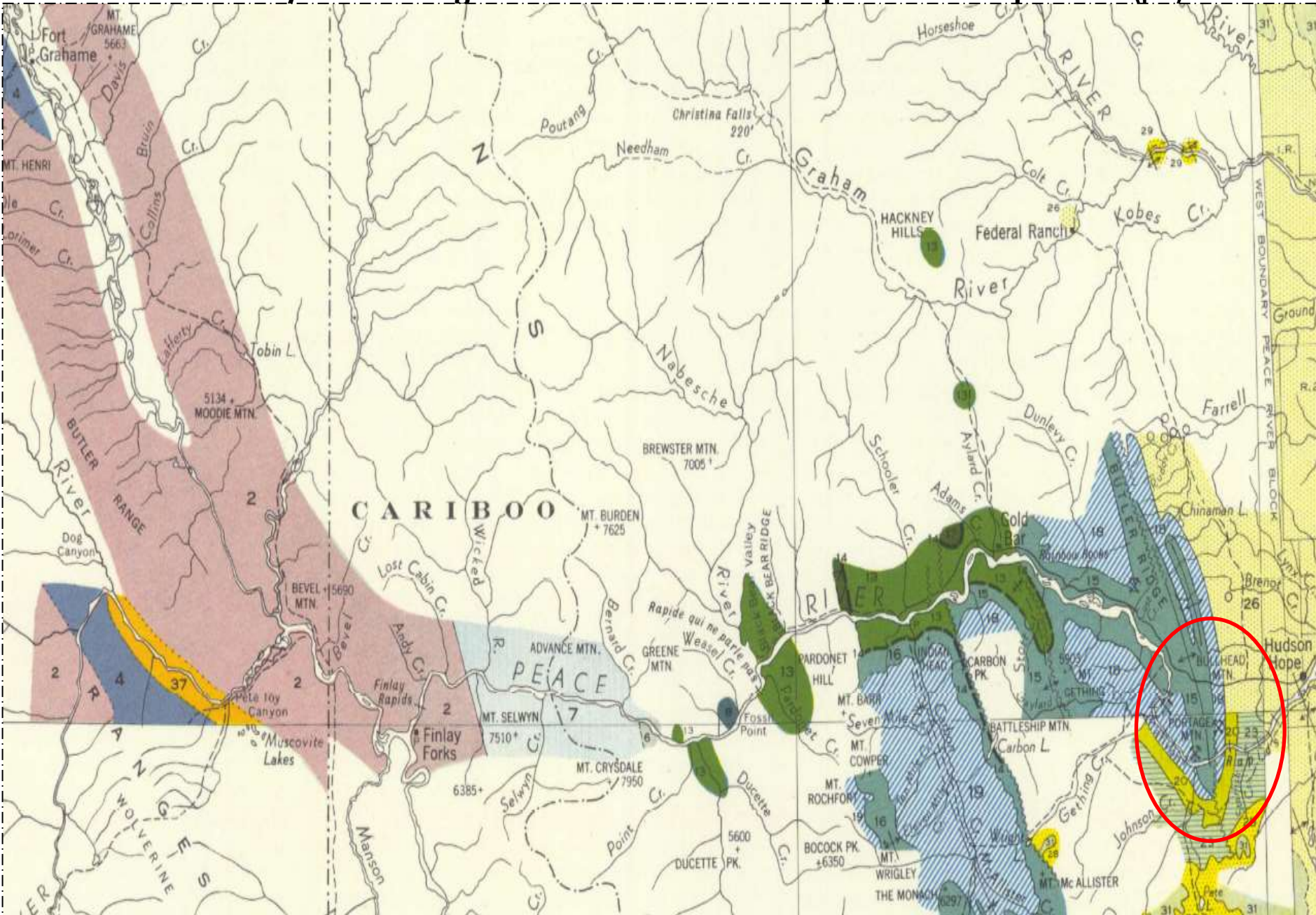
Major Water Powers, 1946
BC Minister of Lands

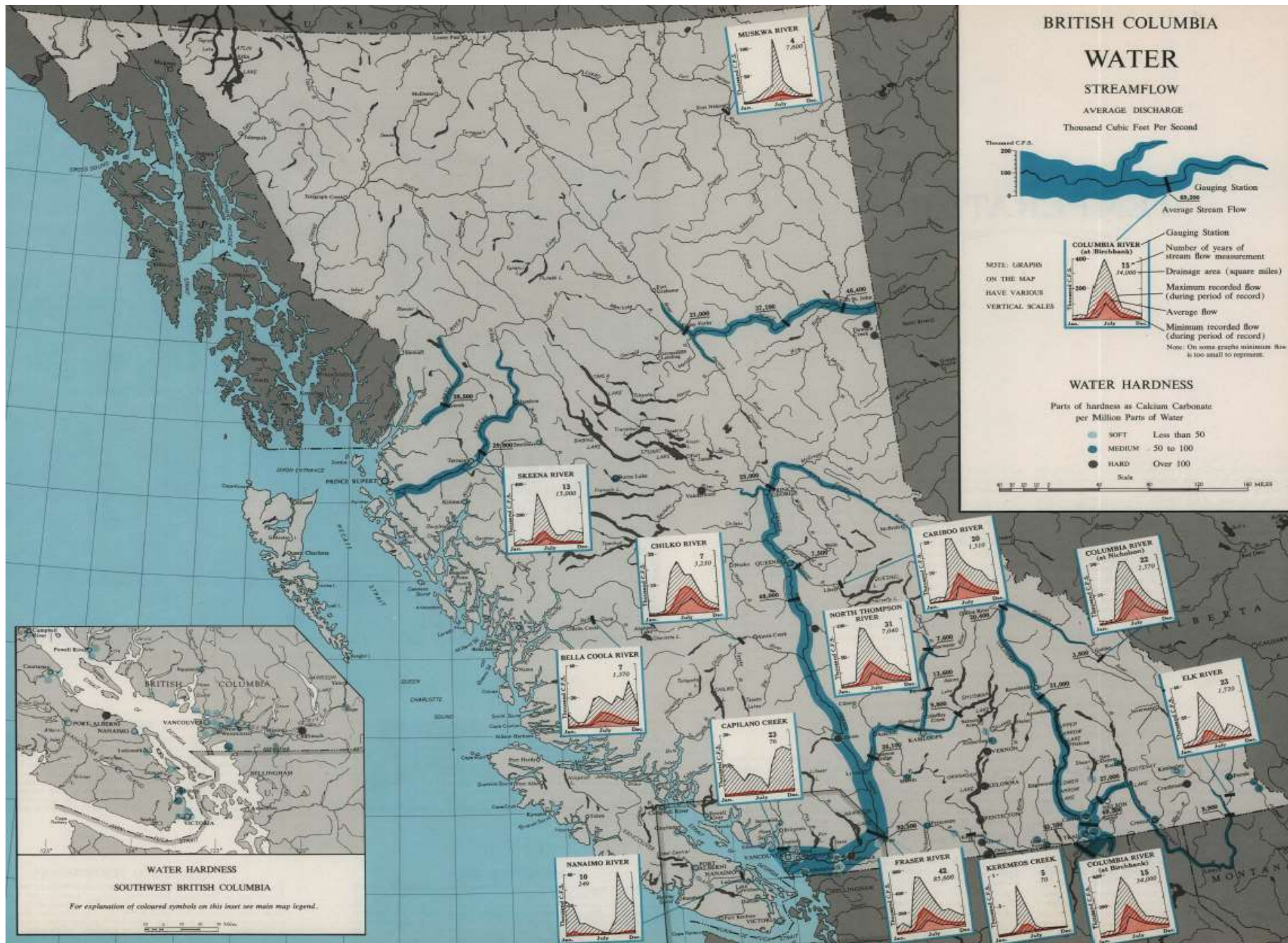
“...that’s just the place to drop a dam...1/4 million horsepower going to waste...”



[section of] GSC Map 793A, 1944

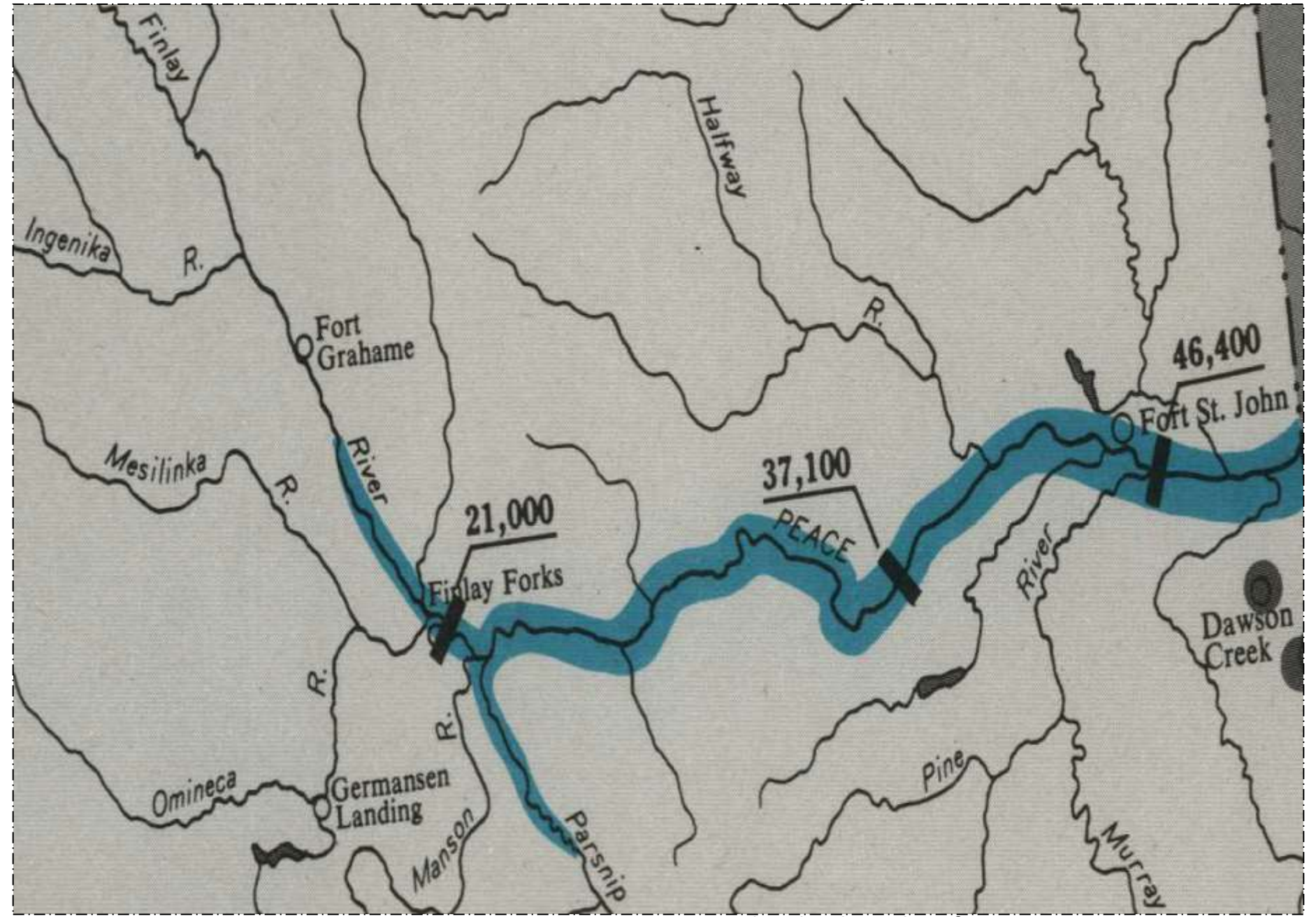
“Peace River Canyon offers a good site for future water-power development.” (p.5)





British Columbia atlas of resources, 1956

Stream flow: thousands cubic feet / second; Peace area for power now etched in stone...



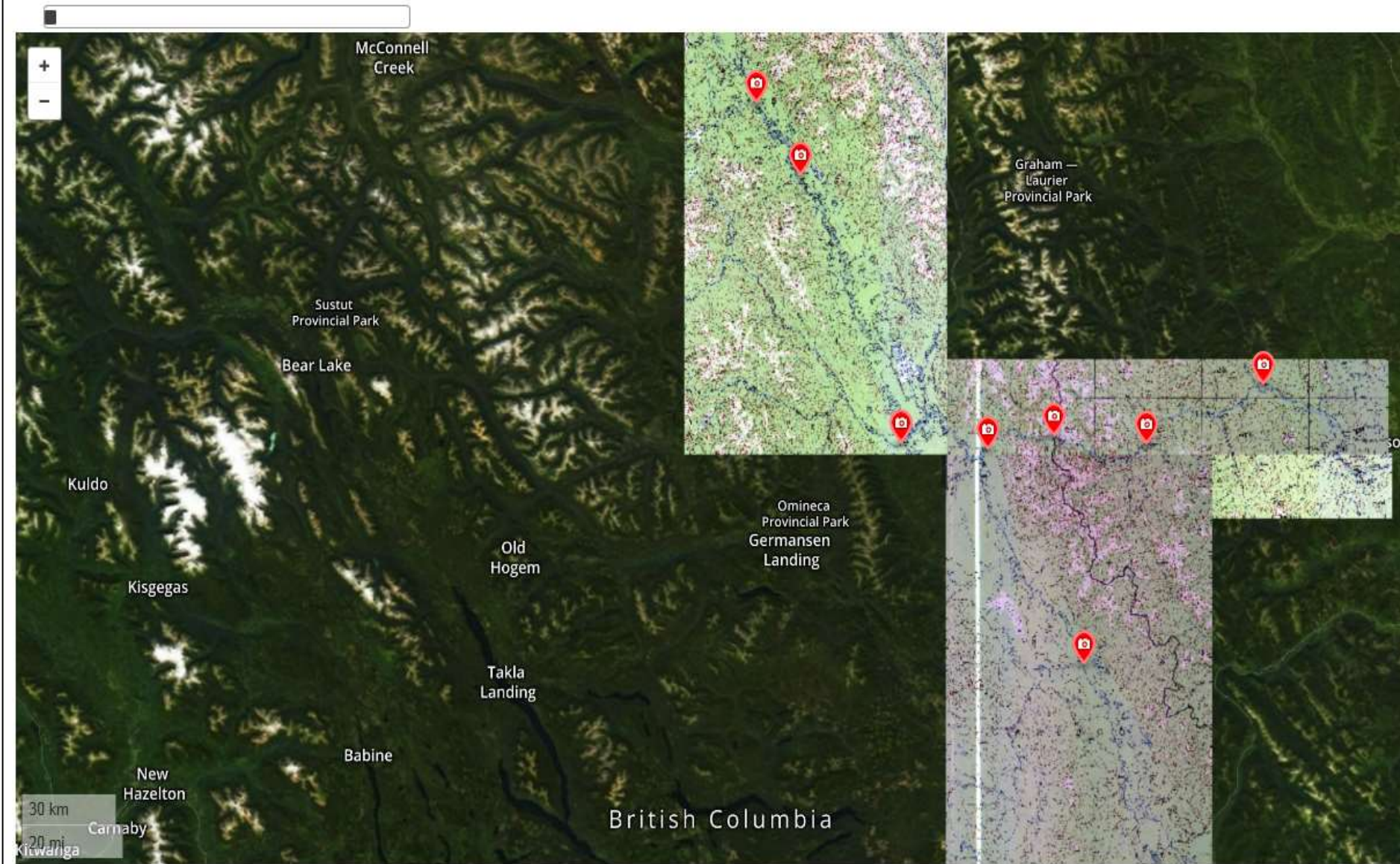
British Columbia atlas of resources, 1956

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

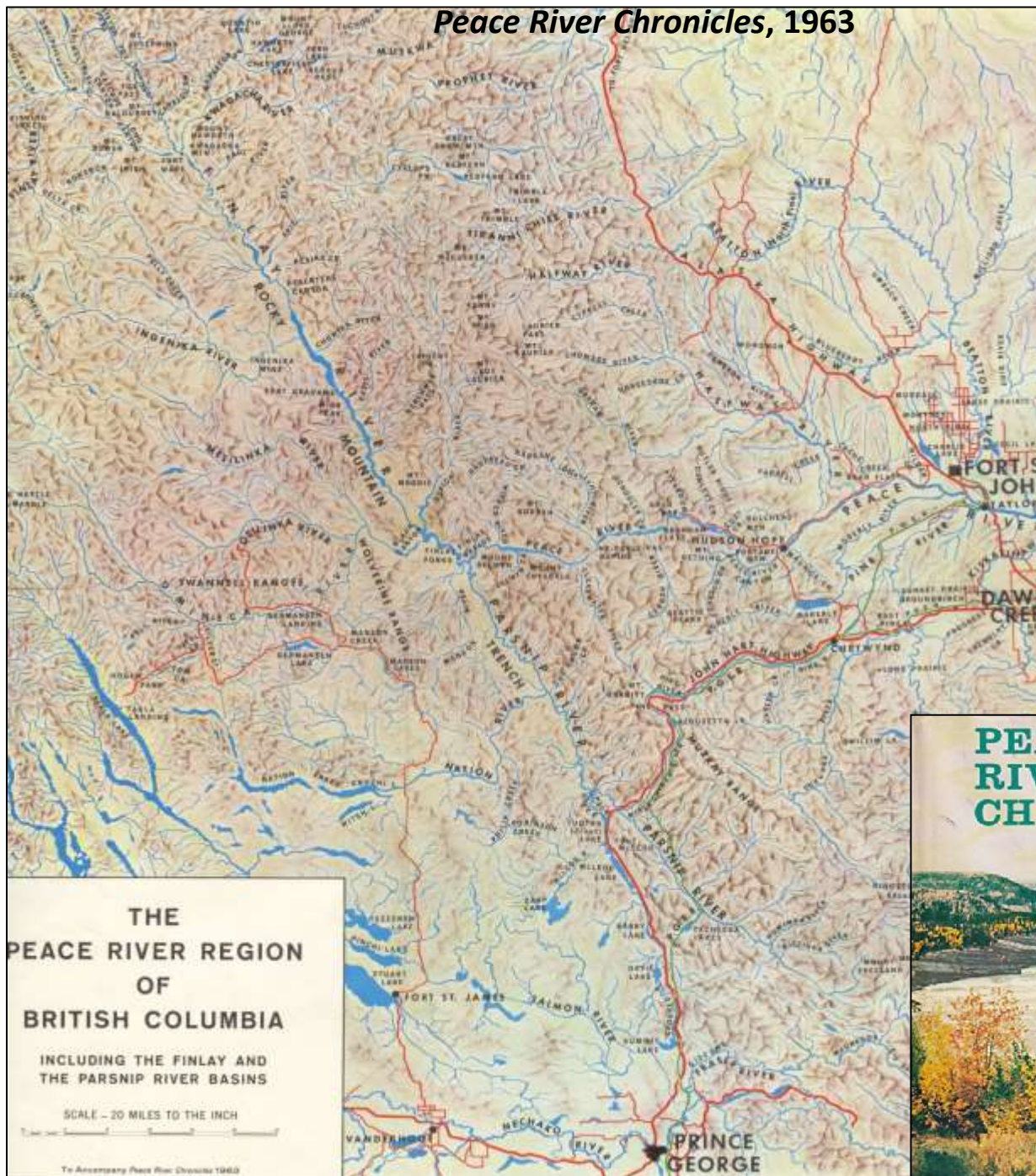
"Today's distant [electricity consumers] do not remember the Finlay, Parsnip, and pristine Peace Rivers..." (SiteC Joint Review Panel, 2014)

Zoom in to see the rivers; click markers for historic photos;

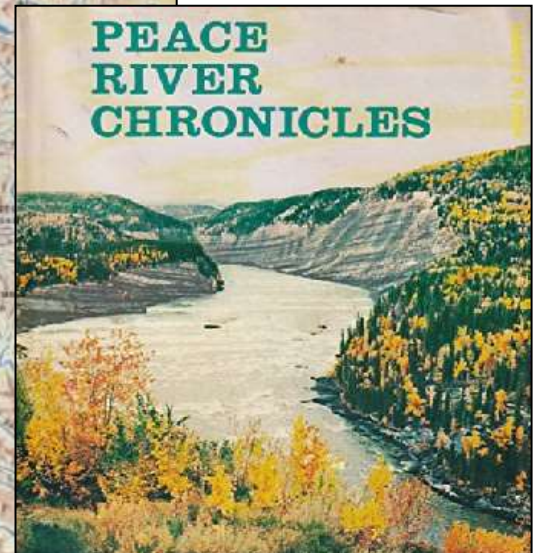
and use slider to fade out pre-Williston reservoir topographic maps.



Peace River Chronicles, 1963



further reading...

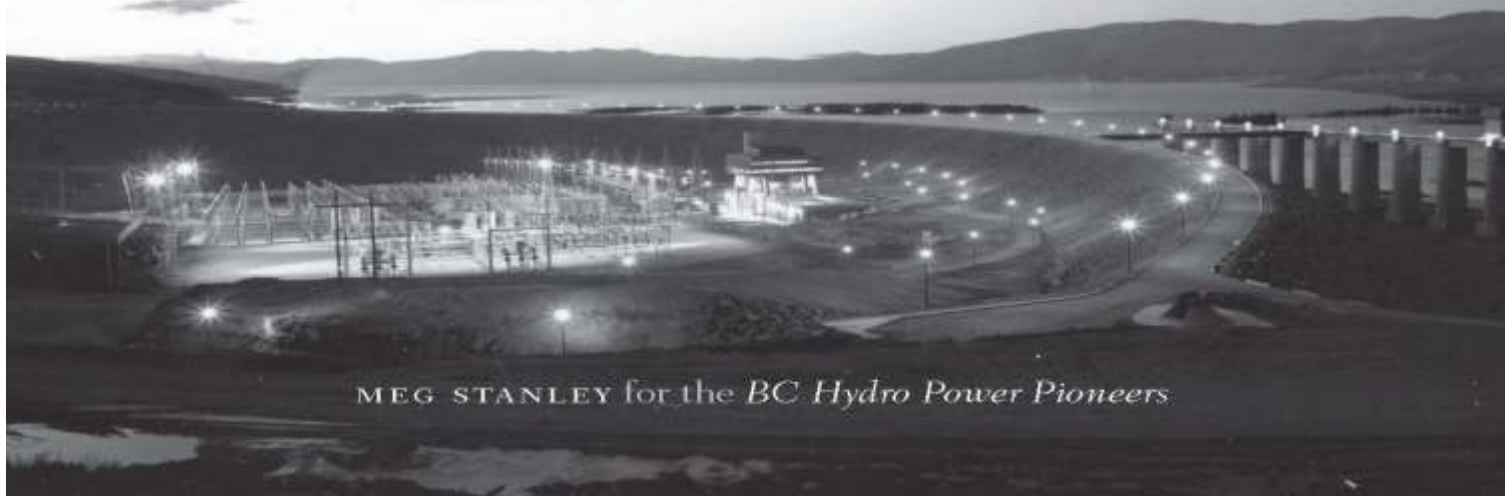




HARNESSING THE POWER

Voices from Two Rivers

OF THE PEACE AND COLUMBIA



MEG STANLEY for the *BC Hydro Power Pioneers*

further reading...

hydroelectric power reservoirs...

- **interfere and obliterate the land of:**
 - **First Peoples today and their ancestors**
 - **current dwellers and their ancestors**
- **significantly alter the physical and cultural landscape**

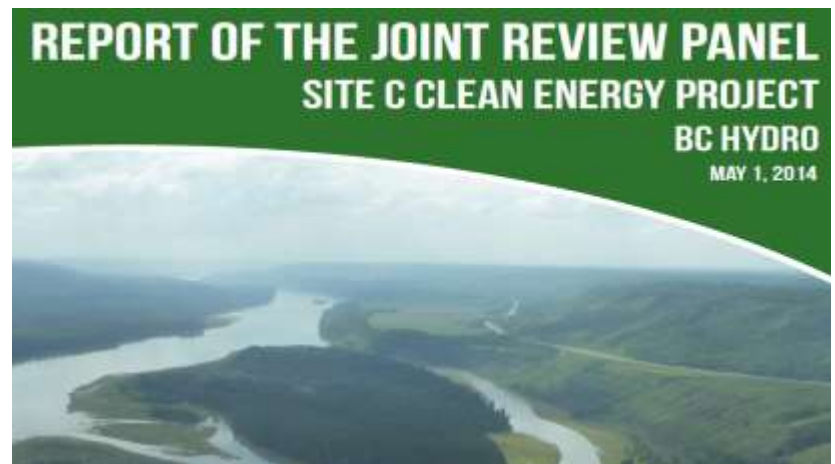
alternatives

“There are alternative sources of power available at similar or somewhat higher costs, notably geothermal power.”

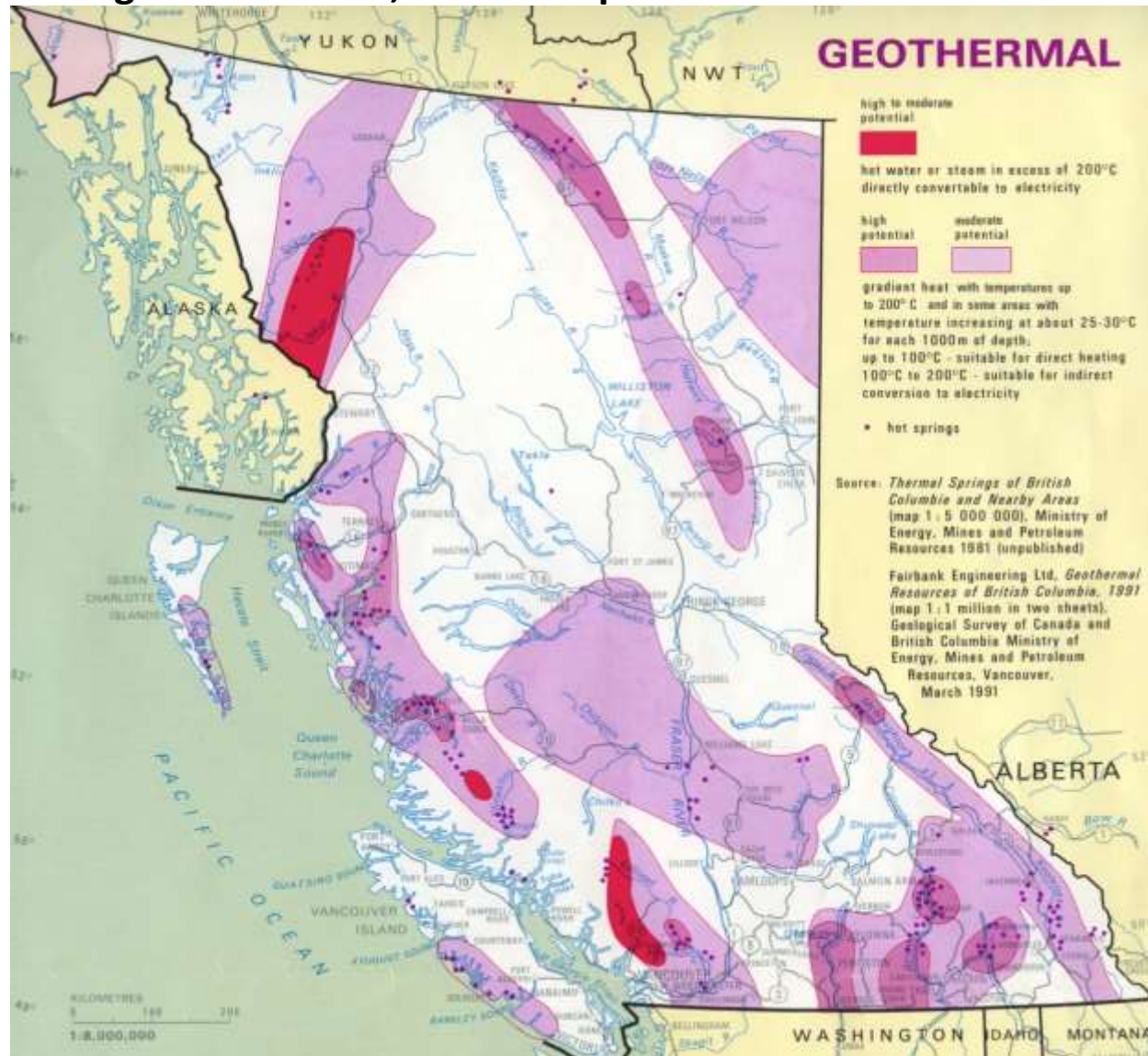
“These sources, being individually smaller than Site C, would allow supply to better follow demand...”

“...the policy constraints that the B.C. government has imposed on BC Hydro have made some other alternatives unavailable.”

(p.iv)

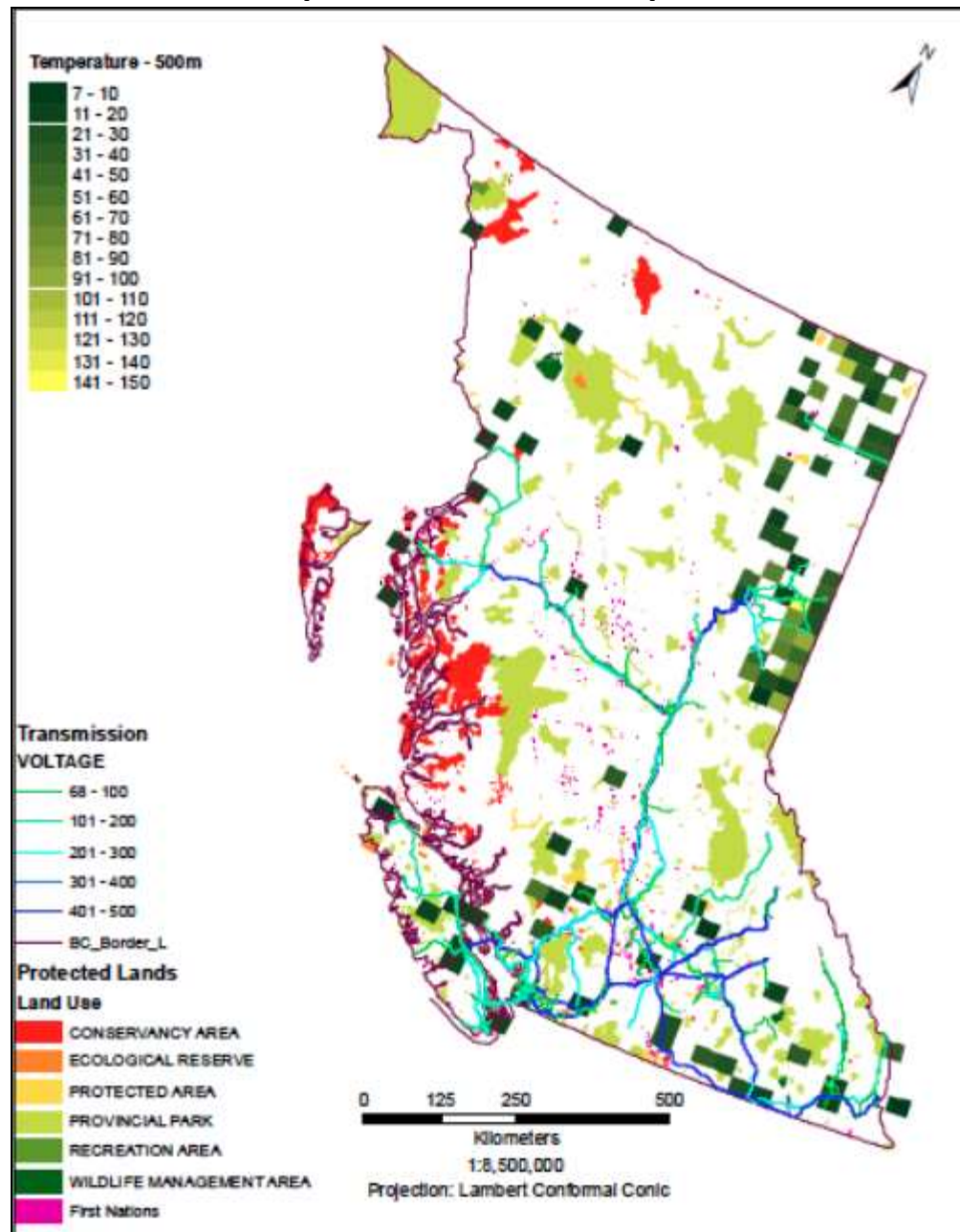


“The Panel concludes that a failure to pursue research over the last 30 years into B.C.’s geothermal resources has left BC Hydro without information about a resource that BC Hydro thinks may offer up to 700 megawatts of firm, economic power with low environmental costs.” (p.299)



[section of] *Green electricity resources in British Columbia, 2002*

Temperature at 500m depth



thousands of boreholes drilled

[illegible]

the
ent work
ad ready for

summary:

What contributed to the Findlay, Parsnip, and Peace Rivers area development that it was considered as a potential major hydroelectric site?

- **Fur trade**
- **Mineral exploration**
- **Water powers potential**

But there are alternative power options and...

...ultimately rivers will triumph...



Elwha River, “free” after 100 years!

