

CANADA LANDS SURVEYS RECORDS  
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Alberta - British Columbia Boundary  
Review of the Recorded Locations of the  
Boundary at Coleman Collieries signed  
by W.V. Blackie, 83-03-16.

Report:  
5 pages.

CANADA LANDS SURVEYS RECORDS  
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## Alberta-British Columbia Boundary

### Review of the recorded locations of the Boundary at Coleman Collieries

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#### A. The original height-of-land survey, 1914, by R.W. Cautley.

R.W. Cautley, representing Alberta (and later the Dominion as well), was one of the 3 original Commissioners appointed to survey this boundary.

Cautley traversed the line of watershed atop Tent Mountain Ridge in 1914, monumenting the higher elevations of the ridge from 81F to 89F "which, between the points named is naturally defined". (p. 67, Report Part I and p. 40, FB14707 C.L.S.R.). This monumented line of the watershed is shown as the boundary on map-sheets 4 and 4A, Atlas Part I. The traversing also served to connect his survey from Tent Pass to Ptolemy Pass. Since the ridge (then) was for the most part a sharp natural feature, it was probably deemed unnecessary to fix the boundary by a series of straight lines.

Cautley seems to have very thoroughly tied in the actual line of watershed in his traverse 81F-82F-83F-84F-85F-86F-87F-89F with numerous offsets to points on the sinuous line. All the F stations lie on the actual line of watershed but only the underlined station numbers were monumented. This work is meticulously detailed in his (sworn) field books (14707, 14708 C.L.S.R.) from which one could plot quite precisely the sinuous line of watershed (or even reconstruct it on the ground). A copy of this plot by us is attached at a scale 1:5000.

As early as 1914 the Commissioners noted that coal prospecting was in progress in the vicinity but there is no evidence in their Report or field notes that any excavations had occurred as yet on the line of watershed.

Page 9 of the Report Part I clearly states that the returns of these surveys (includes field notes) were to be made in triplicate, one set for each of the 3 governments involved. Presumably then both provinces were provided with a master set of each, similar to our set of field books in C.L.S.R. However, from correspondence on file (volume 2), a letter from A.H. Ralfs dated Dec. 16, 1971 requested an estimate of cost from us for microfiche copies of all the field books since apparently some of his were missing. Our office estimated, then, that this would involve some 160 field books at an approximate cost of \$48. Nothing apparently ever came of this request.

Cautley's survey was the first official survey by the Commission of this part of the original height-of-land and undoubtedly represents the boundary that in its entirety was still a natural feature. This boundary as surveyed by the Commission had been accepted by both provinces and ratified by The Alberta-British Columbia Boundary Act, 1932.

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B. The 1952 height-of-land survey (traverse) by G.C. Emerson.

This is the only other height-of-land survey of record since 1914 for this part of the boundary.

A copy of G.S. Andrews' instructions to Emerson dated October 24, 1952 were included in Emerson's field book, a copy of which is recorded in Ottawa as 23465 C.L.S.R. These instructions state "... the legal boundary in this section has been defined as the existing height of land" and "that an accurate traverse be made from 85F to 89F following all the sinuousities so that if and when the existing topography is disturbed this traverse can be deemed to be the Boundary between these Provinces".

The traverse was to follow "as closely as possible all the irregularities of the ridge" with the hubs to be set such that the lines joining them would not fall more than 20 feet off the sinuous height-of-land. Emerson was also instructed to remove bolt 87F after having referenced it. Coleman Collieries were to pay for the survey.

Besides a copy of the above field book of Emerson's, we have paper print copies of 2 plans of his in C.L.S.R. (41596 and 41597). Plan 41597 shows only his traversing and bears his affidavit. The other has no affidavit and shows his traversing together with that of Cautley. Both plans are at a scale of 1"=1 chain but Emerson's field book mentions one plan was drawn at a scale of 1"=2 chains. Either this was a typographical error or perhaps there was a third plan which is not of record here.

Emerson's survey was carried out in an unfavourable season (Oct. 28 to Nov. 3) and he mentioned inclement weather with heavy winds, cold, sleet, and on one afternoon a snowfall of 4 inches.

In his field book he also mentions prospecting as being carried out all along the ridge from 81F to beyond 89F and that a 200 foot deep canyon near 89F was apparently the result of mining prior to Coleman Collieries (p.p. 17, 65). His plan (41597) also shows mining near 87F.

His field book indicates doubt as to what constitutes the legal boundary - "does the present boundary consist of a series of straight lines joining these points of offset on the original height of land or does the existing height of land as referenced by this original survey constitute the true boundary" (p.2).

His traverse stations consisted of wooden stakes because he felt that continuing mining operations would endanger permanent markers. He tied in Cautley's monuments to his traversing then removed the brass bolt at 87F (but did not set reference monuments for this station).

His traversing as shown on plan 41597 indicates "height of land" with a symbol on some stretches but not throughout. Where it is not shown might mean the natural feature follows his traverse lines completely but this is not explained. Both his plans are difficult to interpret. A plot of his traversing prepared here (similar to that of Cautley) is attached.

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C. Summary.

By superimposing one plot above the other on a light table, a visual comparison can be made of the height-of-land locations between Cautley and Emerson. The differences are significant enough in several areas, the greatest deviation being about 30 m near 85F and some at 10 to 20 m between 87F - 89F, while in other parts the height-of-land locations coincide.

There appear to be several aspects of comparison that would favour the 1914 original survey over that of Emerson and these are tabulated below.

LINE OF WATERSHED, 81F - 89F	
R.W. CAUTLEY, 1914	G.C. EMERSON, 1952
1. Boundary survey official and ratified by 1932 Act.	1. There was apparently no formal adoption by the Commission of the survey.
2. Natural feature was still undisturbed.	2. Feature in parts no longer in place.
3. Clear intent as to what constituted the boundary.	3. Some doubt as to the boundary feature.
4. Favourable season (Aug. 10-Aug. 13)	4. Unfavourable weather (Oct. 28-Nov. 3)
5. All offsets to sinuous line shown in F.B.	5. No offsets shown in FB 23465 C.L.S.R.
6. Coleman Collieries now use Cautley traverse.	6. Do not appear to use Emerson's.
7. Referencing, etc., 1974, 1978, 1981 perpetuate Cautley's mons.	7. No one indicates finding Emerson's hubs.

D. Conclusions.

Cautley's is the original survey of the natural feature and was made in his official capacity as a Commissioner. The boundary as surveyed was agreed to by both provinces and ratified by Parliament. Cautley's positioning exists yet, either as original monuments, as referenced in 1974, 1978 or as re-established in 1981. (A summary of this work is attached.)

There is no indication that this portion of Cautley's boundary is in dispute or that it needs alteration, conventionalizing or densification of points. It is an official portrayal of the legal boundary and should be perpetuated unless future circumstances warrant otherwise.

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E. Recommendations.

1. It is recommended that the Commission continue to recognize the portrayal of this boundary by Cautley as official and to continue to perpetuate his monuments (or monument positions), bearing in mind that the boundary is legally the original natural feature between his monuments as he located it, not the existing (or eventual) man-made feature. The Commission could in future conventionalize this portion of boundary when all mining has ceased and all rights adjoining the boundary have been abandoned if it becomes necessary to have a clearly marked boundary in the area.
2. It is also recommended that with the referencing and work done in 1974, 1978, and 1981, no other action is necessary for now, but that the Commission should consider visiting the site and asking Coleman Collieries to keep the Commission periodically informed.

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83-03-16.

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ALBERTA-BRITISH COLUMBIA BOUNDARY  
REVIEW OF REFERENCING, ETC., AT COLEMAN COLLIERIES

In 1952, Emerson found Cautley's monuments 81F to 89F which he traversed and after tying in 87F to his traverse hubs (wooden stakes), he removed 87F.

In 1974, Mortimer referenced 85F by 6 reference posts then removed 85F. He found 81F, 83F and 89F in good condition.

In 1978, Asher referenced 89F by trilateration to monuments 95F and 100F. He did not remove 89F because Coleman Collieries thought it might escape destruction.

In 1981, Engler and Robinson found 81F and 83F in good condition. 85F was re-established with a concrete and bolt monument from Mortimer's nearest 1974 reference posts. 87F would fall in a deep excavation containing water and so could not be re-established. 89F location was lowered about 15m and due to threat of future mining, it was also not re-established nor referenced in 1981 but a calculated tie is shown on the plan from a nearby local control point which was tied in by Engler/Robinson. 91F was found in good condition, but both 93F and 95F were in poor condition.

The above is summarized in the table below.

MON #	FOUND	REPLACED	REFERENCED	CONDITION
81F	1952, 1981			Good
83F	1952, -74, -81			Good
85F	1952, 1974	1981	1974	New (1981)
87F	1952		Never Ref.	Removed 1952
89F	1952, -74, -78		1978	Missing (1981)
91F	1981			Good
93F	1981			Poor
95F	1981			Poor

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