MAR 19580005: MOUNT HEAD

Received date: May 31, 1958

Public release date: Jun 01, 1959

Mt. Head (Highland R.) file Kidd's copy (1-1)

April 8th/58

G. A. McCartney, Esq.;

Toronto, Ont.

Dear Dr. McCartney:

I just received the following analyses of your samples 61, 62, and 63 from Iron Prospecting Permit-area No 15:-

Mines Branch reported "19.20 % Fe (total)
19.20 % Fe (soluble)"

Sample No.	61	62	63
SiO_2	*12.77 %	11.44 %	14.04 %
Total Iron as Fe_2O_3	35.85	36.60	34.87
(FeO)	(29.50)	(30.80)	(27.65)
Al_2O_3	4.10	4.00	4.16
CaO	13.09	12.82	13.75
MgO	4.30	4.38	3.88
TiO_2	0.34	0.34	0.36
P_2O_5	2.80	2.75	2.72
Na_2O	0.17	0.13	0.11
K_2O	not detected	n.d	n.d
Loss on Ignition	25.67	26.15	25.50
Total	99.09 %	98.61 %	99.37 %

Some difficulty was experienced in obtaining good checks for silica in sample 61 (12.64, 13.81 and 11.40 %). Further silica determinations are to be made.

Trust this information will be useful to you.

Yours sincerely,

[redacted]

(Kidd's copy)

C
O
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Y

April 14, 1958.

Dr. G. C. McCartney,
1502 - 80 Richmond St. West,
TORONTO, Ontario.

The analysis listed in the enclosure is not complete; there is no mention of lime and alumina. As you probably know, it is customary in carbonate analyses to determine the loss on ignition first, then the silica content; next the "combined oxides" are determined and the result is listed as such. The combined oxides consist of a mixture of Al_2O_3, Fe_2O_3, TiO_2, Mn_3O_4, and P_2O_5. I wonder if the "insoluble" in that analysis refers to alumina and ferric oxide, whether hydrous or anhydrous.

Moreover, the paragraph in the enclosure on microscopic examination stated that "the carbonate matrix . . . . contains abundant limonitic stains".

The "brownspar" mentioned in the enclosure is properly an iron variety of magnesite, which itself is a magnesium carbonate. The magnesium content stated in the enclosed analysis is only 1.87 per cent (or about 3.11 per cent if as magnesia).

As I mentioned before, we determined by an X-ray diffraction method that one of the bulk samples received by us from your Mr. Norman yielded a siderite pattern.

etc

Edmonton, January 15th 1958.

Dr. D. Kidd:

Concerning sulfur analysis sample 61, 62 and 63.

After carefully checking the samples I came to the conclusion of no sulfur present in the samples. (actually, S is present. A. J. K.)

Following is a short account of the work done on the samples.

1. Dissolving the samples in HCl 1+1, oxidating with H_2O_2, separation of the R_2O_3 group, precipitation with $BaCl_2$ negative result.

2. Dissolving sample 63 in HCl 1+1, heat, collect the evolved gases in a 4% NaOH solution, potentiometric titration with $AgNO_3$.
   Result 0.25 ml. $AgNO_3$ used to reach an end-point which could not be identified as AgS.

3. Same procedure and same sample.
   Result 0.12 ml. $AgNO_3$ used to reach an end-point which could not be identified as AgS.

4. Dissolving sample 63 in HNO_3 1 + 1, heat, collected the evolved gases in a 4% NaOH solution, potentiometric titration with $AgNO_3$.
   Result. 0.25 ml. $AgNO_3$ used to reach an end-point which could not be identified as AgS.

5. Same treatment to sample 61 and 62 as under part 2.
   Result. S.61 = 0.02 ml. $AgNO_3$.
   S.62 = 0.02 ml. $AgNO_3$.
   The end-point could not be identified as AgS.

6. Dissolving 0.01 g. Na_2s in HCl 1 + 1, heat, collect the evolved gases in 4% NaOH solution, potentiometric titration with $AgNO_3$.
   End endpoint was identified as AgS.

7. Consulting Mr. C.E. Noble, Provincial Analyst, his opinion is of no sulfur present in the samples after above work done. Mr. C.E. Noble also suggested the lead acetate test which gave a negative result with the samples; a positive reaction with minute quantities of sodium sulfide A.C. grade was obtained.

[redacted]

D.K. 61

28.98 % FeO

D.K.62

24.66 % FeO
24.66 % FeO
Av.: 24.66 % FeO

D.K 63

28.55 % FeO
29.15 % FeO
Av.: 28.85 % FeO

} no. Mexico Branch's 27.75 % FeO for select lead concentrate from the same lot.

MEMORANDUM

RESEARCH COUNCIL OF ALBERTA, UNIVERSITY OF ALBERTA, EDMONTON

TO John Godfrey

FROM Donald J Kidd

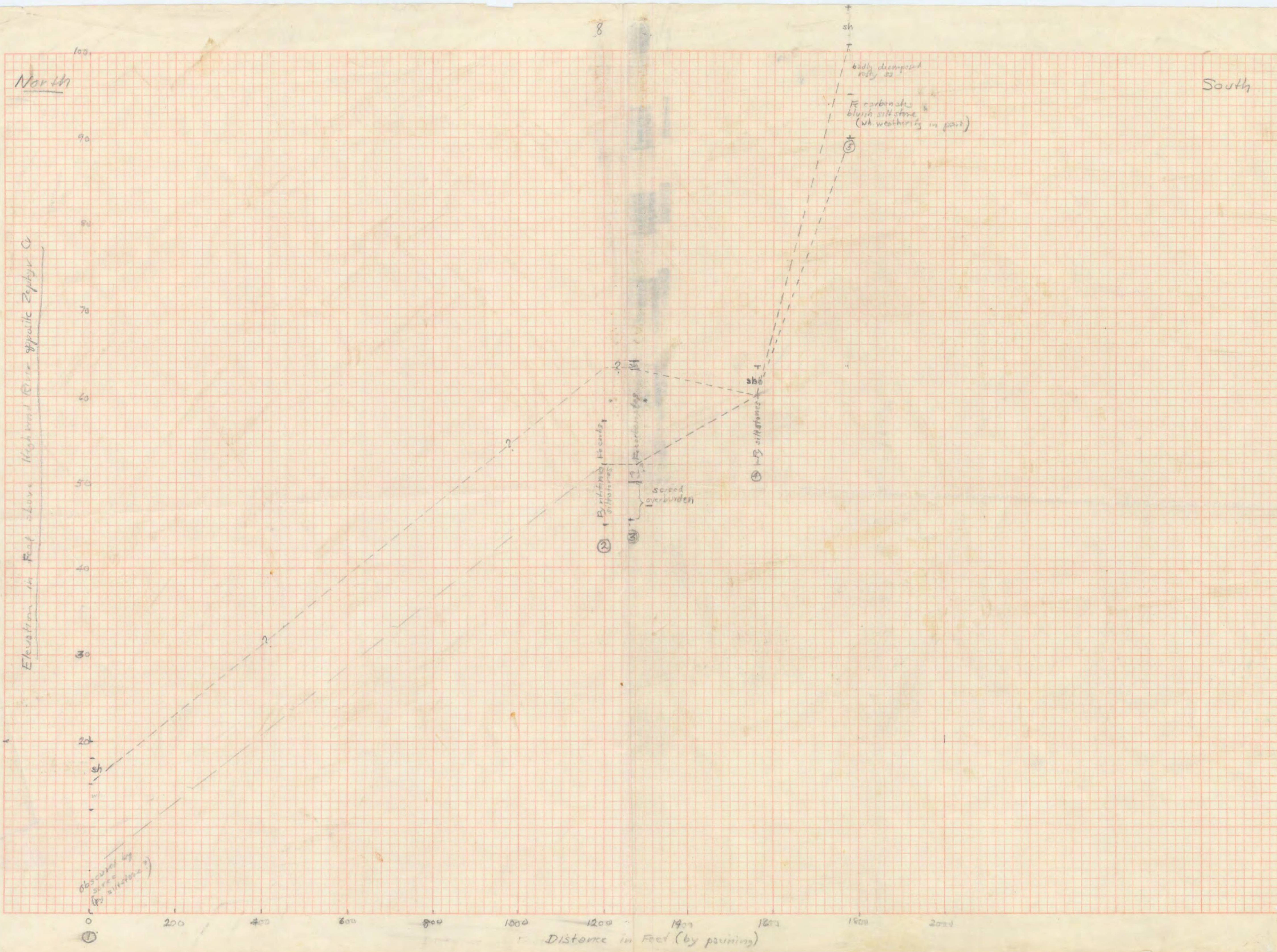
DATE 29.i.58

(a) I would like to have Samples Nos 61, 62, and 63 analyzed for Ferrous Iron;

(b) If Hank W. feels that the total iron should be repeated, I would like him to do so, and

(c) When the furnace is back, do the SiO_2 analyses

[redacted]


North
South
Elevation in Feet above Highwood River opposite Zephyr Cr
Distance in Feet (by pacing)
0
200
400
600
800
1000
1200
1400
1600
1800
2000
100
90
80
70
60
50
40
30
20
sh
badly decomposed rusty ss
Fe carbonate & bluish siltstone (wh. weathering in part)
sh
Fe carbonates
Fe carbonate
siltstones
scree overburden
obscured by scree (py siltstone?)

OK e.r.

(1-1)

June 3rd, 1958

Dept. of Mines and Technical Surveys,
Division of Mineral Dressing and Process Metallurgy,
552 Booth Street,
Ottawa, Canada.

Attention: Mr. R. W. Bruce

Dear Mr. Bruce:

Dr. G. C. McCartney of Toronto sent me a copy of your progress report dated March 18, 1958 on the composite sample of the iron material which you tested. He asked me to discuss with you two points on which your chemical and mineralogical findings ~~agree~~ differ from our data on the same material.

1) Our analyses for iron do not agree with yours. We found the following in the samples:

Sample No.	61	62	63
Total iron as Fe_2O_3	35.85 per cent.	36.60 per cent	34.87 per cent.
FeO	29.50 " "	30.80 " "	27.65 " "

Your value is 19.20 per cent metallic iron, or approximately 27.4 per cent ferric oxide.

I should be interested in knowing whether you have an explanation for this wide variation.

(2) I am curious to know your definition of brownspar. A carbonate mineral with 32 per cent iron is closer in composition to siderite than other carbonate

minerals. An x-ray diffraction pattern made here of this material showed siderite to be the main mineral. This identification is confirmed by the larger percentage of ferrous oxide, especially as magnetite is not present.

Yours very truly,

[redacted]

Biochemist

Copy to Dr. G. C. McCartney.

MEMORANDUM

RESEARCH COUNCIL OF ALBERTA, UNIVERSITY OF ALBERTA, EDMONTON

TO	Dr. D. J. Kidd, General Delivery, Hines Creek, Alberta.	FROM DATE	Robert Green July 18, 1958.

Dear Don,

Thank you for your letter and for the diagrams, which I've turned over to Jac Groot. I doubt if much drafting on these will be done before you return, as John's northeast corner work is still holding the floor there.

Your report has now been typed up in 7th draft, which I went over last night and this morning. It now reposes on Con's desk for his weekend's relaxation.

The shale samples haven't arrived yet, but I think Johnny will be interested in looking at them when they do.

As to your requests:

2. Sample DK 58-9-31
   Total iron as Fe_2O_3 - 28.35%
   Ferrous iron (as FeO) 12.11%
1. Sample DK 56-6-12
   Ferrous iron - 28.79%

(these results sent to [illegible] Calgary Aug 11th and the addition [illegible] FeO and HCl-insoluble residue (17.82%) to him on Aug. /58.)

Hank says that he is busy with the hygroscopic water analysis, but hasn't been able to attempt the CO_2 analysis yet as the absorption bottle got broken and the new one ordered hasn't arrived yet.

If sample 58-9-31 is to go in one of the tables could you tell me which table and give me an outcrop number, if necessary.

3. There is no mention of a "Trinity" well in the Schedules, nor in the Conservation Board weekly reports up to July 12, 1958. All I can suggest is the possibility of its being a "trinity" of wells (eg. Phillips A, B and C), or a well in which 3 companies went together. In any case, I can't find it.

4. I've entered <u>Gulf</u> Chinchaga 10-20 on the cross-section, as you requested.

CANADA

DEPARTMENT OF MINES AND TECHNICAL SURVEYS

GEOLOGICAL SURVEY OF CANADA

LEGEND

MESOZOIC

CRETACEOUS

UPPER CRETACEOUS

18 — *BELLY RIVER FORMATION:* crossbedded sandstone; green and grey shale; nodular limestone

17 — *WAPIABI (Upper Alberta) FORMATION:* dark grey silty shale; fine-grained, grey sandstone

16 — *BIGHORN (Cardium) FORMATION:* fine- to coarse-grained sandstone; silty shale

15 — *BLACKSTONE (Lower Alberta) FORMATION:* dark grey, silty and concretionary shale; grey sandstone; basal chert-conglomerate

LOWER CRETACEOUS

14 — BLAIRMORE GROUP: green and grey sandstone; green, grey, maroon, and carbonaceous shale; conglomerate

13 — *KOOTENAY FORMATION: undivided*

12 — *KOOTENAY FORMATION (Upper Part): massive-bedded, coarse-grained, black sandstone; grey and carbonaceous shale; conglomerate*

11 — *KOOTENAY FORMATION (Lower Part): thin-bedded, fine-grained, grey and brown sandstone; grey and carbonaceous shale; coal; basal, coarse-grained black sandstone*

JURASSIC

10 — FERNIE GROUP: *dark grey shale; grey and brown sandstone*

TRIASSIC

9 — *SPRAY RIVER-FORMATION: arenaceous dolomite and limestone; dark grey shale and sandstone; black chert-conglomerate*

PENNSYLVANIAN (?)

8 — *ROCKY MOUNTAIN FORMATION: arenaceous dolomite and sandstone; dolomite; massive chert*

PALÆOZOIC

MISSISSIPPIAN AND (?) PENNSYLVANIAN

7 — *RUNDLE FORMATION (Member D): Bluff and grey dolomite and limestone; green shale; arenaceous limestone and dolomite*

6 — *RUNDLE FORMATION (Member C): dark grey and brown, fine- to medium-grained limestone; black, calcareous shale; grey, fine-grained dolomite*

5 — *RUNDLE FORMATION (Member B): limestone and dolomite; green shale; arenaceous dolomite and sandstone; breccia*

4 — *RUNDLE FORMATION: (Member A): massive-bedded, coarse-grained, grey limestone and fine-grained, cherty, grey limestone and dolomite*

3 — *BANFF FORMATION: thin-bedded, argillaceous and cherty limestone; cherty and arenaceous dolomite*

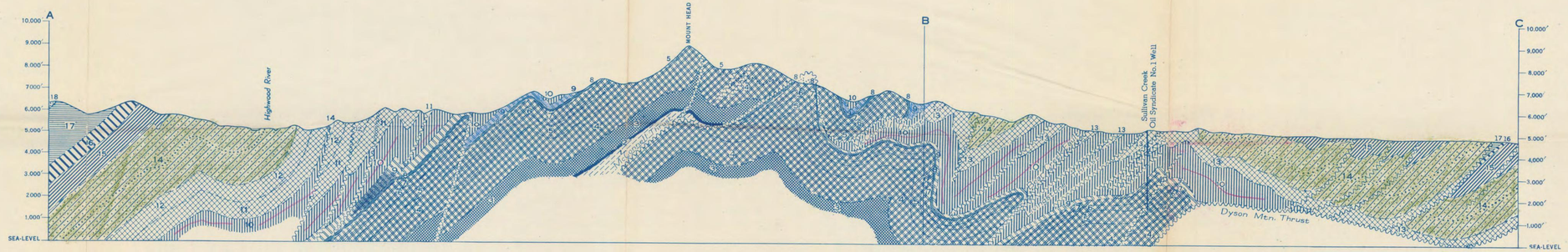
DEVONIAN

2 — *EXSHAW FORMATION: black, fissile shale; argillaceous limestone*

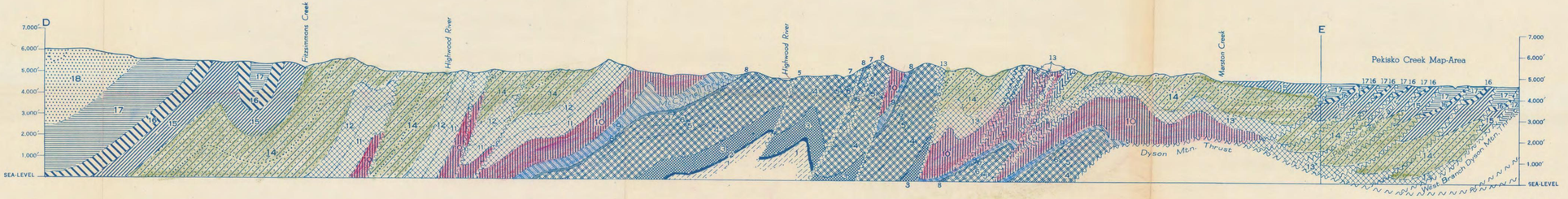
1 — *PALLISER FORMATION: massive-bedded, mottled limestone and dolomite; laminated dolomite; breccia*

Geology by R. J. W. Douglas, 1947, 1948

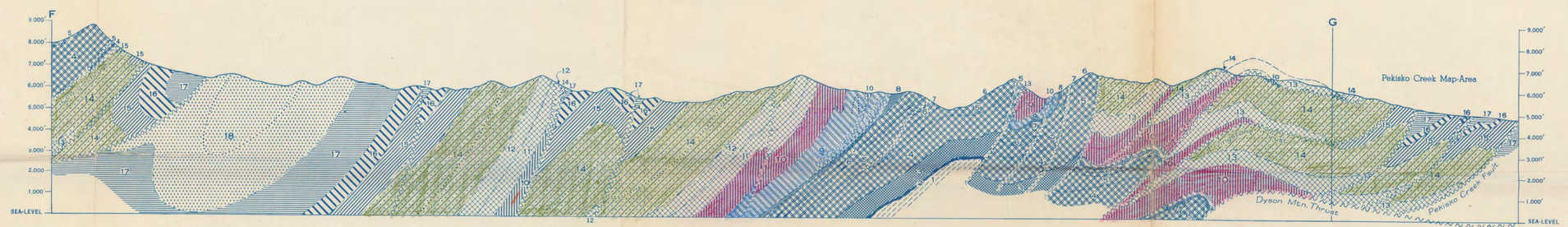
Cartography by the Geological Mapping Division 1950



STRUCTURE-SECTIONS ALONG LINES, A-B AND B-C



STRUCTURE-SECTION ALONG LINE D-E



STRUCTURE-SECTION ALONG LINE F-G

VERTICAL SCALE 1 INCH TO ½ MILE

STRUCTURE-SECTIONS

TO ACCOMPANY PRELIMINARY MAP 50-8

MOUNT HEAD

ALBERTA

Scale: 1 inch to ½ mile = 1/31,680

1 ½ 0 1 2 Miles