



GEOLOGICAL & NATURAL HISTORY SURVEY.

Alfred R. C. Selwyn L.L.D., F.R.S., Director.

MUSEUM & OFFICE, SUSSEX ST. OTTAWA.

11 Decr

1883

My dear Father
your long letter of Dec 26 reads a
correspondingly long answer, though I fear I cannot
make it so full as it should be. I should be very
glad to see any opinion on the age of the Medicine Hat beds
at present. I have been trying to find it out for the
last three years & have travelled hundreds of miles
for that special purpose. Scott & I went down to
Smith River, with R. Rogers at the risk of our scalps
to solve the question & had supposed satisfactory
solution, but found in company with this intention that
Mr. C had reached precisely opposite conclusions in
working about the Cypress Hills etc! Mr. C being
however, expressed the opinion that the questions could
be definitely settled by more thorough exam. of localities
between Medicine Hat, Ross Coulee & the W. end of the
Cypress Hills, has dispatched him up there to try,
as the matter must be settled one way or other
On the map which I hope to set out before spring.
He is also to examine into the rocks passed through in
the barrens along the line of the C.P.R. which may throw

additional light on the subject. It would take
 many pages to explain the whole matter as the
 evidence that beds are not alone, but part of a
 great formation stretching from Milk River Westward
 & Northward to Milk R. Ridge & the mouth of the
 Little Bow. Everywhere at the borders the relations
 are very obscure. That is to say in the hypothesis that
 the beds are above the Pierre (= Laramie or Judith)
 development of Science) I do not suppose that there
 was no doubt about their being below the Pierre, & on
 this hypothesis they fit in well enough. The fossils however,
 so far as they have been examined seem quite to
 contradict this. However I am almost certain
 they are of the series unadvised upon the Missouri,
 that similar beds here they are called Laramie
 & that little volume is the place or comparison
 with fossils there for that reason. We have already
 by Laramie like fossils from the beds below the
 Pierre on Peace River. White in his last report
 (Hayden's volume for 1878) makes out that the
 Bear River Laramie is quite different in fauna
 (especially) from the rest, & is probably older. I should
 not be surprised if it eventually turns out to be
 a part & perhaps part of the Cut, equivalent to



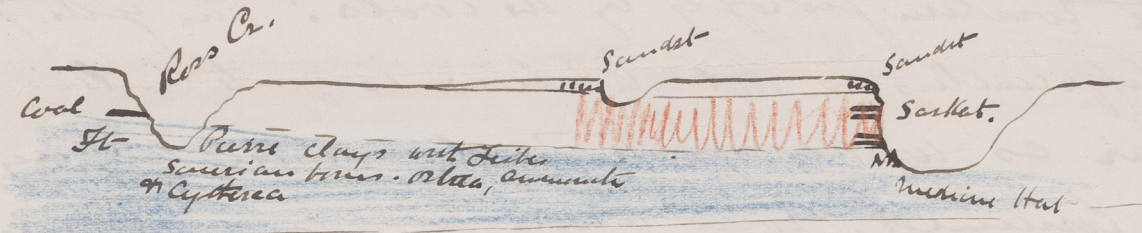
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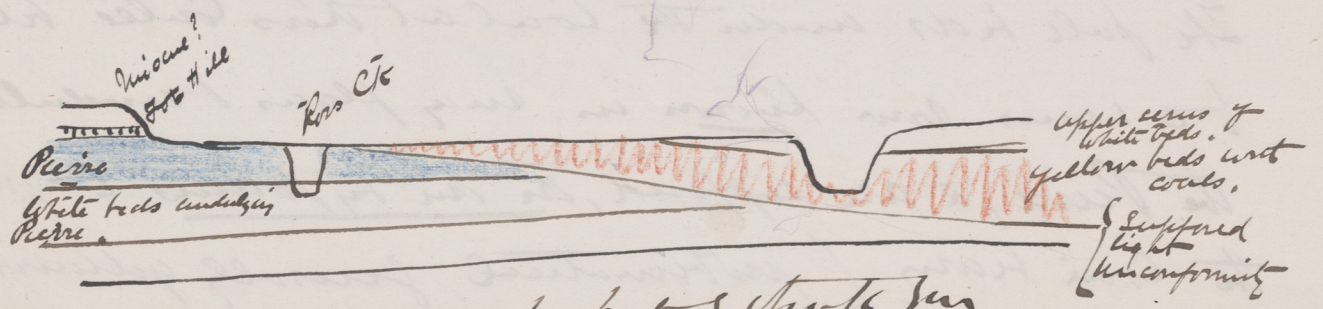
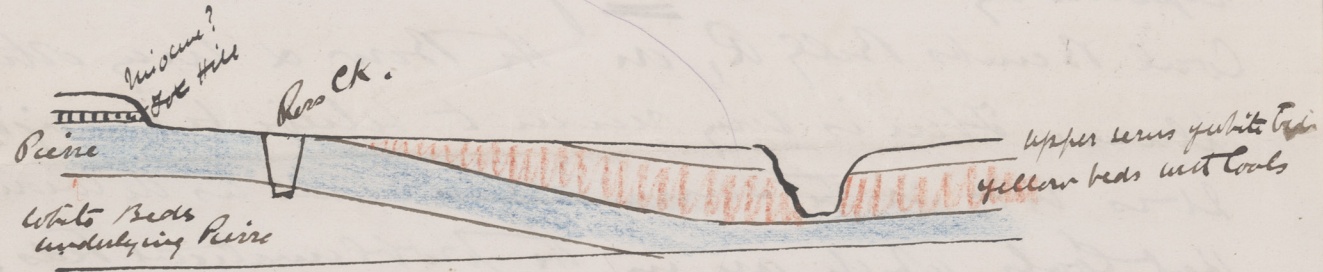
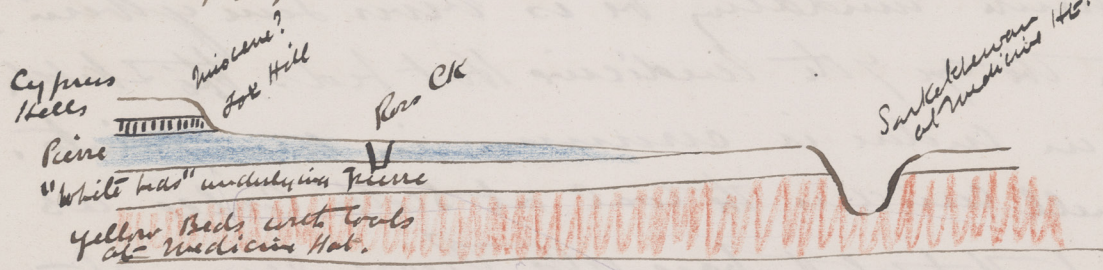
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What we have got away below the Lacarne ¹⁸⁸.
I hope you will not settle the junction by a stretch of the
pen as it involves the pulling up of the whole of
the western geology by the roots. The greatest
difficulty is that Whalen is quite unclear in so
far as working up the pencils or making any cuts
is concerned. Even when he arrives at unclarity
after infinite muddling he is never sure of them.
Whalen the eye of the Medicine Hat beds, the sketch
section in India is erroneous in some points.
McCann considers the coal at Scott's Coulee as
representing that at the base of the Pierre seen at
Coal Banks Belly R, on the Bow & many other
places. There is every reason to believe he is right.
It is not on the same horizon at all as the Medicine
Hat coals, which are in the problematical beds.
The pale beds under the coal at Ross Coulee belong
to a series now known in many places to underlie
the Pierre, & are supposed, on an hypothesis to underlie
the coal bearing (problematical, generally yellowish)
beds at ~~the~~ Medicine Hat mines, from the top of
the bank in some places. The rocks are a feet

But in the absence of continuity localities it is almost impossible to tell which rocks are above & which below. In the following sketch I put just your section as in your letter, & below it 3 hypotheses of arrangement of beds between the base of the Cypress Hills (Ross Coulee region) & Medicine Hat. —



Copy of your section.



The sections are very rough, but I think you will be able to understand them.



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The only formation in the whole region which can be treated & given its little character for a few miles is the Pierre.

In regard to the Calgary beds, I have no doubt they are Saranac, & therefore may be considered as equivalent in general way to Louis beds &c. The rocks about Calgary must lie in just about the base of the Porcupine Hill sandstones, which occupy the centre of the great synclinal which lies along both of the foot-hills of the mountains.

The only coal I know of on the line of railway or vein it, between Calgary & the mountains is about half way from ~~the~~ Calgary & Morley. It is rather thin & irregular but good coal & appears to be near the base of the Saranac, but the rocks all turned up. The Anthracite coal found in the mountains is a small area faulted & folded in some way in the genuine Cretaceous rocks apparently, but no fossils or other means of fixing their horizon.

As for the Brontotherium? I am by no means sure that the ones really belong to that animal, they are Brontotheria at any rate. I am rather keeping the find dark at present as if a hint yet reaches the

U.S. people they will be scanning the country next summer & interfere with us. It is probable that a lot of good things can be had if we get onto the ground in time next spring. Cope writes about Alvarado's bones & that he cannot do anything till next summer, but hopes then to undertake the business.

Again as to the Tropic group fossils. I ventured this in writing to you as probable. They look like quite a group (so called) of the 40th Parallel Region but I have not time to examine them properly & it is quite useless to give them to Whiteaves. Then they were only in a small bone bed & though the mount belong to the mountain region somewhere, being found on the west side, I never could find ^{where} ~~where~~ they actually were derived.

There are a few new points about height of mountains drift or which may be latitude in connection with glacial matters. I may be able to get them worked up later in the winter, & if so will send notes of them. If you could write out your notes on the western region & send them here I would go over them carefully & do what I can to add to them. It is very difficult to send a synopsis of everything because it is impossible to know just what you may require. I send with this one of my maps with a rough section showing



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relations of beds along the Bow River, &
'hypothetical' position of Medicine Hat & other
yellow beds'. (Lower Belly River series of my
preliminary note on Bow & Belly River).

I think I wrote before, though I am very not yet sure
of the letter, stating that I had to work with the in-
formation at B. Assn. meeting. As Bell & Adams
have likewise been appointed secretaries they can
run the show quite well between them. The former
will doubtless make a handle of the fact to render
apparent the necessity of his remaining in town
instead of going into the field. He is lazy & long-
winded enough to do a good deal of begging around
on the occasion.

With love to Mother & Eva

Your affectionate son

George

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Dr. M. D. Allen

Dec 1883