

Rev. D. Mayne  
McLachlan

Paris & Linton

Dr. Lee

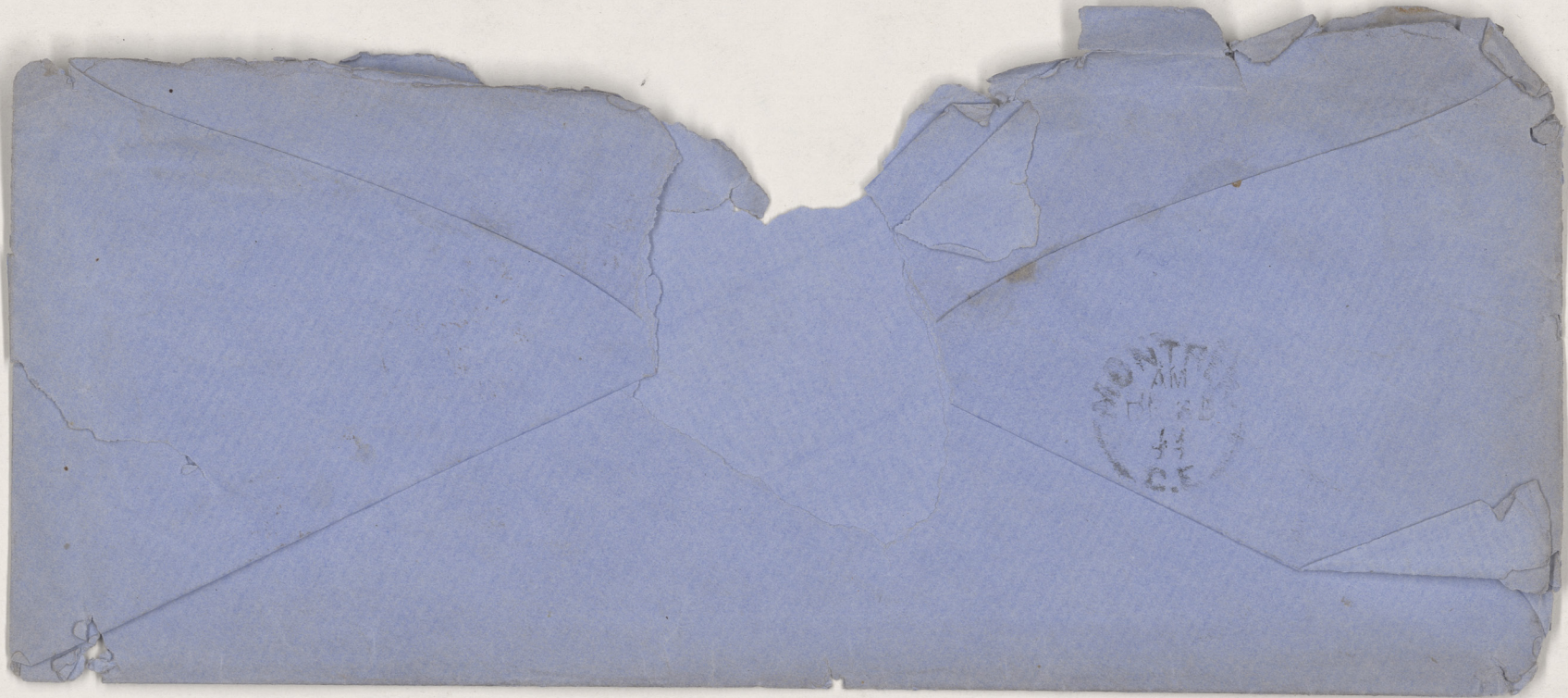
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Montreal

Canada

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Vt.



My Dear Sir

I received your letter and in reply

I send you a few additional notes.

I did not find any fossils in the Fraser Mountain limestone - I saw that the limestone included the conglomerates and that it was inclined in a direction opposite to Haliburton. That in short it seemed to me like the attitude of Haliburton as well as of Kirby's immediate opposite. Kirby tells me that having passed through strata similar to those of Haliburton section as I have already given it to you at Ray Street in the proper place Haliburton top strata - I examined several of Kirby's seams and found them all dipping in the same direction as Haliburton but at lower angles - The day I examined them was unfavorable for minute and strict examination as the day became wet and stormy but all that I examined were evidently synchronous with the Algonquin Mine measures - The only fossils that I have found with notices were a number of *Diploceras* teeth - In my greenness I regard them as *Uptonia* and gave an elaborate description of them in D. Johnston's Journal of Education. Mr. Peck shortly after I found the same teeth visited the same place - one mile from New Glasgow and collected those you have already described - I also found them up McMillan Brook at Petrick's oil coal mine at the former place

lands meeting will then be all and other, Smith  
and Council I met with a great many large  
granite rocks, and when appeared to be a base  
of a creature that I am or a less to Cor, stone  
At a pit near New Glasgow where Hall's  
was afterwards sinking I got a large stone  
and received both of which appears to be a  
Holoptychus. When I return to Antigonish I will  
send you quite a parcel each of my largest Dip  
loids, both and also of that of Holoptychus -  
and also of my large Rhynchodus both from the  
Liggins - Lastly I visited the Oriskany  
limstones of your Map & where they have been  
struck by Niagara - I found that the Oriskany  
line Niagara Co. had made considerable  
excursions and that they had accumulated  
about 6 feet of Niagara same as that of  
Troy Co. Above this limestone geologically  
are marls and a kind of limestone which  
by a process of decomposition becomes coated  
with a rich water. I will send you a specimen  
of the latter material from some that  
has been furnished for the Paris Exhibition  
above this is supposed to be a fossiliferous  
limestone and a black limestone which  
when rubbed smells like Phosphorus (Phosph.)  
Now call it a bituminous limestone - There  
are also boulders of Sulphate of Barium  
Lang tells me that some of the limestones are



By Charlie - In an excursion of these times  
at Hooper Farm near Selma River where you  
have also marked in your map Maryanese is  
also found and also in part - intermediate -

I visited Gays River Glets Field last week  
it is a very curious and interesting locality -  
I gave a paper on the Field at the Fair  
Meeting of the Assoc. Geologic Institute - it will  
see the light in the Journal about this time  
next year - I will give you the facts that  
I observed - The locality is situated on either  
side of the old Gays River Road about  $\frac{1}{2}$  way  
between Gays River & Hewitts - The mountain  
base on McKintays map indicates the position  
Approaching the locality from Gays River we  
come upon an outcrop of lower Carboniferous limestone  
on the road side with lower Carboniferous fauna  
There is nothing definite apparent on the road for a  
short distance we then come to rising ground  
with outcrop of limestone crossing the road  
Showing that we have passed into the older  
rocks we observed and red dipping are  
observed a little of the road on the left  
side we ~~then~~ <sup>still</sup> pass over a limestone outcrop  
on the road and then the dipping are seen  
immediately on the left side of the road and also  
on the right side at a little distance is a  
Mud bank on a bank with chippings that  
there is one outcrop of limestone on the road  
and we have evidently left the junction

referred to and about 2 miles farther on we find  
Plaster just on either side of the road and  
then near St. Andrews we find the first  
sandstone outcrops on the west a short distance  
from Bellings - I think the greater part of my  
time at the first digging that I referred to is  
at some short distance to the left of the road  
I found in large excavation argillite such as  
that of the Proterozoic, true Hardu (Greenish &  
greyish) at a high angle overlaid unconfor-  
mably by a coarse Conglomerate, some Carboni-  
ferous which is about 100 ft in some places  
about 30 feet thick and that in turn covered  
by a considerable thickness of drift.

The Conglomerate dips in a direction opposite  
to the argillite apparently I did not see  
either in Compass so that I did not draw  
the dip, with accuracy - The Gold ~~is~~  
is found in the argillite but not in the quartz-  
stone - but Mr. Rob. Jones of Heligoland informs me  
that veins of quartz are found elsewhere in the  
locality although not yet found in the mountains  
In the argillite under the Conglomerate it is found  
in what had been openings conforming with the  
strike of the strata having been filled with debris  
It is also found in what had been openings at  
right angles to the strike - in the latter it is  
found in greater quantities than in the former.  
Gold is also found in the Conglomerate where it



with immediately on the Argillite being obtained,  
the position through its Aspin. About -  
This is evidently seen to be the case as occurs  
in the Lower Cambrian bed - It is also worked  
out of the Argillite drift - The Concretion  
is formed of basalt, and argillite pieces of  
Quartzite and Argillite and Concretion  
quartz - and mica. Oriented with surface of  
them. There are the fossils - you can procure  
for yourself as I took occasion to do.

In regard to the reticulated fossil found  
near 4000 feet on the Common Prof. Wright  
Thomson was puzzled with it when I stated  
that I thought it was derived from the Old  
Rock. But when I suggested that not being  
found in later and near a city - it might possibly  
be Hook's Cambrian Bed - he at once concluded  
that it was a Carboniferous fossil & he said - I  
believe that this is the case - I will send you  
a piece of it and then you can judge for yourself  
I believe that as far as this goes we have not  
varied so far. than you did when you  
wrote your *Geology* - Some time ago  
I visited Mount Hancock's Great Field - We  
came upon the first round disjunct about 3 1/2 miles  
East of Mt. Hancock Station - I got no farther as  
Rev. J. Hancock & A. M. Hancock were with me -  
The bed on which they were sitting here was  
a 10 inch bed it appeared to be of Considerable

values as Agates & Gold on the deep of quartz-  
terrace the pit. were very frequent and Mr Payne  
informed me this afternoon that the presence Mr  
MacArthur, when I found the a small and  
judicious man, reports that prospect - are going  
on improving the strike of the beds here is  
N 60 E. S 20 W. The day following I examined  
the quartz beds on the Old Indian Road  
near Mt. Wincible House some of these are very  
thick especially the one with the Canitos No. 3  
which I found on measuring to be 4 feet  
These beds are a continuation of the others  
so that the prospect to the west of terrace  
of our first fault - appears to account the  
beds are found 3 miles beyond ~~where~~ the  
dipping that I visited so that the beds probably  
extend about 6 miles - The terrace in the rear  
of Mt. Wincible House near the lake -

In coloring the map seen in mine that the  
Catching of the Granite on the Indian side  
of Mount Wincible Station is about 4 miles  
wide and that the Granite extends some  
short distance to the East of the Railway -

I visited Specie's Mine <sup>at Martha Wright's</sup> ~~at Martha Wright's~~ <sup>at Martha Wright's</sup> ~~at Martha Wright's~~  
in November 1861 I found them searching  
a vein (lead) of Hematite from which the supply  
of ore was chiefly derived and also at  
a place near the Works on Goose Village River



a vein of *Stictolite* are 3 or 4 feet thick from the  
Icelandic specimens from the Expedition of 1862  
at my recent visit I found that they had  
been the *Stictolite* vein in volume & I suppose  
they have got another lot of *Hemotite* in dis-  
tinct - so that there are now the north  
and south beds the north is sometimes  
20 feet wide and sometimes <sup>zero</sup> averaging  
5 feet the south is sometimes 20 feet wide  
but zero averaging 4 feet. As you examine  
the surface of joints the line of ~~the~~ other  
of considerable width and then you see  
a ~~small~~ rock unbroken showing where the bed  
or vein is contacted - short. The two beds  
are about 20 feet apart. - The ore is generally  
amorphous and friable sometimes it is beautiful  
crystalline at the depth of 100 feet I hammered  
out masses of *Prismatic Hemotite* from  
the beds in the reef of the level at Mar-  
tin's Brook - This level penetrates the ground  
at considerable oblique cutting the strata  
obliquely it was made for the purpose  
of draining the various excavations  
Another is in process of making at  
the same Brook and some distance  
below the mouth of the other cutting the  
strata at right angles - The first level has  
made a wonderful revelation the course of the  
Iron beds is generally east and west but at  
Martin's Brook and its vicinity the beds appear  
to have been turned from their course.

to S of W. Some points - the reason of which  
was not apparent until the to Paris level  
reached the Locks when it was found that there  
had been a great slip by which the two beds  
had been cut right off at an angle of 20 degrees  
In the slipping of the top, the argillite had  
been ground up making from 2 to 3 inches of  
Clay between the upper and bottom mass and  
under the section of the body. ~~Now at the Paris~~  
Clay forms a stratum with the dip of 20 degrees  
W. (20°) S. The Managoe expects to meet the body  
again in the lower level which he is drawing  
at right angle to the strata and so then expects  
that the strike of the beds will be uniform.

You thought that the anthracite would be found  
to be the vein stone - It is only at the place  
where the Iron works are located that it is  
so it is hard to get a specimen of it at  
Martins Brook. It was tried as a flux  
but it did not answer the purpose. The Chemi-  
cal combination of substances appear to be in  
for that purpose. The lime used for a flux is got  
about 3 miles to the W. Mr Jones says that  
there the Conglomerate is missing and that  
it covers up of itself the strata possibly in  
the same manner as it holds Brook Myrtle  
it resembles in appearance McLean's limestone  
at E. N. East River and is got at 2/6 per load.  
Mr Jones has passed the beds for about 11  
miles - he has contributed to the Paris & Delicate  
Pige (broken) (See Paris's analysis of two pige)  
Bars of charcoal iron in pieces

After ride



Cast Steel in Castles, proving its tenacity  
Steel Justell's

Age made of Sp. U.S. & Steel

Quality of Cast Steel

All manufactures at the works  
They are anxious to have the quality of Springfield  
The Iron says that they have the best Coal which  
According to an analysis that they have had  
made in New Hampshire any where if  
they have the quality they intend to work at Black  
Furnaces at Springfield and to have the  
Hemlock there and work it with other ones  
where they have in the locality

I will give you a letter on the Siluria  
of the East in the beginning of the year.

Yours truly

J. M. Esch