

86 Boul<sup>d</sup> de Port Royal

March 30, 1876.

Acc. 276

Further inventions  
models of bridges sent to  
Expo - (Philadelphia?)

My dear George,

I received your interesting letter of Feb 6, about ten days ago. I do not know whether it would be possible to let <sup>here</sup> what you speak of in the way of a pocket book for observations, but perhaps when I am in London I may succeed in doing so.

Your idea of a self-acting instrument for working out latitude & departure also occurred to me, but I at first thought it impracticable; but since you wrote, I have been thinking of it again. It certainly would be a very important invention if such a thing could be got to work efficiently. The principal difficulty is in the mobility of the needle, & the care with which such an apparatus would have



to be carried. If it were necessary to stop, to effect the observations, an ordinary compass might as well be used. The apparatus I have thought of would only be serviceable on a river steamer or some very steady kind of transport, ~~as~~ I enclose a diagram which I think will be intelligible. This kind of arrangement necessitates a battery & induction coil to give the sparks. I cannot see how any mechanical means of registering could be used with a compass needle without deranging it. The only other method I could think of was to inclose the needle in a dark box, & let in a ray of light which would produce an impression on the sensitive paper with which the box would be lined by means of a reflector attached to the compass.

I am now intending to leave for home as soon as our examinations are over. The last will be on Monday the 22<sup>nd</sup> May, & I will probably be able to sail from Liverpool the following Thursday. I will not need to take



all my things with me. I am expecting to get some big or other work for the summer; but if I do not succeed in doing so, I may return here before the session commences & go on a "mission" to see some work in construction somewhere in France. I do not know of any thing special which is being carried out this year; & so think I will probably do better on the other side.

Anna's wedding is to be early in May it would seem, & I will therefore arrive just about the time she returns from her trip.

Our exams commence about the middle of next month, & continue till toward the end of May. Before they commence, we are to go for three days to the Bois de Vincennes where we are to make a survey. Also we are going to visit the Paris drains & inspect the Work-shop where they have apparatus for testing the strength of materials, &c. We are now having a course



of three lectures on City drainage, from a professor who lectures to the upper years.

They have been packing up some ~~models~~ models for the Phil: Ex: lately. Among other things, there were a couple of bridges each about 15 feet long. They were each built of iron, in a single arch. ~~I think~~ every-thing was represented exactly as in reality down to the last rivet, and parts of the abutments could be detached to show sections of the interior. ~~They~~ I should think such models would cost an appreciable percentage of the actual cost of construction of the bridges in question. They were packed in the hall of the School, & have been furnished matter of speculation as to how they were ever going to be removed, & got out of the hall; but this problem was successfully resolved to-day. We are having extremely changeable weather. It has rained every day this month so far as I remember, but on the whole there is more fine weather than rain.

Believe me your affectionate brother  
William.

April 10.

P.S. I just happened  
to notice yesterday, this letter lying  
among some papers. I was under the  
delusion that I had mailed it, but  
I will not forget to do so tomorrow.  
I hope you will excuse the oversight.

Ernest Harris was here the other  
day on his way back to England  
from Italy, & he happened to mention  
that his brother Carr Harris ~~with~~  
whom I met on the Intercolonial is  
now in Victoria. He is on the C.P.R.  
Survey. Perhaps you remember his



being in Montreal one winter, having  
come to espound the working of a won-  
derfull kind of snow-plow to Mr. Bridges  
that worked by means of large screws. I  
think you would like to know more of  
him. If you see him please remember  
me to him.

I have received the "Colonist" you sent  
with the notice of your lecture. It is fully  
as large as the average of the papers here  
in Paris, and contains <sup>as much</sup> ~~more~~ European  
news. It would cost three cents here. You  
might tell them this if you like; they might  
feel flattered, & I say it without exaggeration.  
Yours affectionately, William.