

Friday, April 14. 1871.

Exams.

Starting of new Medical School

Much about Aurora - very interesting

Dear George

I find that all the thin note paper is done, so I am obliged to take this eccentric kind in order not to make the letter too heavy. We are now in the midst of our examinations or exams as they are generally called for brevity. We have passed the Mathematics & classics, and have to pass French, English literature & Chemistry. I suppose you can sympathize with me in these horrors, although they are such trifling concerns compared to yours, yet they are rather formidable to me; at least the classics was. I did rather better in them than I expected, but I don't know how I stand, as none of the results are to be up till the end of the month.

I suppose you have been told about the site at length decided on for the new Medical School. The foundation is now being dug, and is getting on very rapidly considering the kind of ground it is.

You ask in your last letter how the mirror works. I am highly satisfied with it. The definition with it is better than that with the direct eyepiece for this reason; you remember the spot that was melted on the dark glass? Well

by turning the mirror a little to one side, the light ~~may be~~ can be made to pass on one side of the spot and prevent the obscurity arising from it. I always use the diaphragm on the front of the telescope, but I almost think it is unnecessary at least for the preservation of the mirror. For I find, as I said ~~if~~ before, that the mirror is not heated at all, or rather it only gets ^{very} slightly warmed by the light falling upon it; & it reflects all the heat, & therefore the eyepiece is as much in danger as before. I will continue to use the diaphragm, however, in case of accidents.

I observed the most curious ~~and~~ aurora on Sunday the 9th inst. It began by a dull arch in the south. Gradually this became more vivid, and streamers began to shoot ~~up~~ up from it. These became longer & brighter till they extended laterally from the S.E. to the S.W., and met in the zenith. (All this time there was not the faintest trace of aurora in the north, whereas the south was all in a blaze.) Then, after the streamers met in the zenith, they began to radiate out toward the northern horizon, till the whole sky was covered. Then it gradually faded away, and then returned after ~~about~~ half a short time and continued to return & ~~at~~ fade away at irregular intervals, each time becoming more & more faint, till there was nothing left worth looking at, or rather

till I went to bed. When the southern (3)
portion of the sky was covered, as I before mentioned,
I noticed a few patches of red ~~where~~ at the
northern edge. The red seems to occur where the
electric action ~~is~~ (if such it be) is weak, for I
never see ~~the~~ bright ~~see~~ streamers of red flashing
about, but always dull patches. On the following
day I looked at the sun, as I ~~was~~ usually do
when such things occur, to see if I could see anything
there corresponding to what I have before observed, and
I found that a large group of spots, apparently in
active commotion, had just come round. By
the way there are some very curious spots on the sun
~~at~~ just now. Now for a little theorizing. I notice
in "Nature" a letter by Proctor, in which it is mentioned
that ~~the spectrum~~ some lines in the spectrum of

the aurora are found to correspond with those (4)
in the spectrum of air in a vacuum tube,
~~under a small~~ when subjected to a weak current.
Well, I think that it would be very interesting to
take the spectrum of air at different temperatures,
and different humidities, for I observe notice that
the aurora never appears to have been in the sky
and ~~to~~ to be rendered visible by the going down of
the sun, but it ~~seems~~ seems to begin after
sunset; as if the heat of the sun on the atmosphere,
~~to~~ or some other cause of that kind, kept prevented
the developement of the aurora. I also noticed in "Nature"
a letter from some one stating that he had observed the
aurora in the daytime. I observed it last winter
at six o'clock, but that was after sunset, & began
by being red. I think that if these very brilliant auroras
had come in the daytime that they would have been visible. In the
auroras of the 14th Oct. last, did you notice if the aurora in
different parts of the world came on successively at sunset?
I will try to find this out. Yours truly, William