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ST. JAMES'S STREET,  
S.W.

Review of Cambridge "Proc  
Camb. Phil Soc" last Easter Term  
~~it was~~ found that phosphorescent  
gases became very markedly  
opaque during phosphorescent  
~~discharge~~ of electrodeless discharge  
in them. ~~and that's all I can say~~

The increased opacity would  
account for or rather get over  
the difficulty - the Nebulae  
theory. If the ~~other~~ sun is  
surrounded by a fluorescent  
mass <sup>this</sup> will not be a coincidence

at least as an  
effect as an opposing non-conducting  
layer. Its transparency is largely  
an illusion, & the top of the  
atmosphere will be very much higher  
than the radiation it emits will  
lead us to suppose & this likely  
never will account for it  
not going out in a few years  
as Bell <sup>says</sup> it should do if its  
radiation were due merely to  
its contraction & to molecular friction  
with it. The most thing which  
of course is to analyze the theory  
more fully. But do you think it  
is a plausible explanation & that  
it will over come difficulty  
with nebulae theory of the universe  
*Very sincerely yours John Bulla.*

15/8, Maxwell in his article on  
the atom tells of how the  
light of the Sun may be informed  
from measurements on the width  
of the hydrogen lines is due to  
Doppler effect. I forgot what  
it comes out, but will look  
it up when I get back to  
Newarkton tonight.

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D B

15/8 I hope you will not find  
it extremely difficult to read  
my writing in some parts often  
letters; but I had no much to  
say that I was obliged to make  
faster than I can write clearly.



ST. JAMES'S STREET,  
S.W.

Wiedemann took me round,  
but I am not sure whether it  
would not be a more suit-  
able place than Cambridge.

Schuster will not advise me  
to go to Cambridge. I don't think  
he would mind my going to  
work with Lord Rayleigh for a  
while if I agree to go back  
there, when he gets his new  
laboratory, if I can. He has  
a high ideal about - this new  
laboratory destined to make it the  
head of scientific work in England  
but he will learn & chat a  
little more if he meets people

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18<sup>th</sup> Dec 1897

My dear Dr Fitzgerald

I have received your  
letter of the 13<sup>th</sup>. There is no  
hurry at all about the inter-  
mediate scheme. It is only  
the proof of my report which I  
should like to send back, as soon  
as possible, if you think it is  
all right; & that my language  
is not too vehement & likely to  
rouse up the indignation of the

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popular delusion of crummers &  
to which I am opposed & intend to  
wage a perpetual warfare. But  
I think Newton's Third law of  
motion, or some fair analogy  
thereto, holds in the Social as  
well as in the Physical world,  
& consequently there is no use in  
trying to avoid an equal oppo-  
sition if we want to take action.  
Hence provided my view is right  
I don't care a brass farthing what  
such people may think or say.  
I would like to arrive having  
this feeling as much as possible  
& I would like you to say what

you think I am likely to do  
that to any large extent. I  
should have said I was afraid  
of running them in danger  
risk of creating resentment  
if I have said anything which  
is unfair about them.

I came up to town with Lees  
& Wilson of Owens College, both  
of whom had papers before the  
Royal Society - on Thursday. My  
chief reason is coming up next  
Wednesday to see Faraday, to see  
whether I would derive a new  
experience by working there. Tom  
Ryleigh was away. My friend

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ST. JAMES'S STREET,  
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On the "Nebular Theory" as  
here the separation of the Sun is  
maintained. He suggests that  
material falling into the sun  
might do it, but says the effect  
thus produced would be  
insufficient. On this is the  
attraction due to the mutual  
attraction of its particles but  
this also is insufficient.

I worked out an explanation in  
the train the other day which  
seems to me to get over the  
difficulty. An effect similar  
(which I obtain) with ordinary  
fluorescent, has been observed

considerable extent was because  
the energy comes at random  
& Langley did not seem to  
have seen the same, as well  
as I remember, as those from an  
incandescent body. The sun  
appears to be too efficient in  
luminosity. The estimate of  
Wilson & my ~~said~~ showed ~~the~~  
certainly that the effective heat  
was, I think 5000, or something like  
that, But A. Michelson Phillips  
(1887 or '88) making certain assumptions

Calculated

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~~Absorbed~~, and  $\lambda = \frac{\text{const}}{\sqrt{\theta}}$

where  $\theta = \text{absolute temp}$  &  $\lambda = \text{wavelength of maximum intensity}.$   
This we for a black body, assuming  
the sun to be such, he deduced  
its temp to be 5700°. The  
radiation it then <sup>would then</sup>  
be enormous greater than before.  
Gibbs' estimation is about 10 times  
If the effective temp we as they  
inferred & that electron occurs  
as indicated by Langley's results, then  
I think the temp must be lower  
than Wilson & Gibbs' effective temp

is the radiation would consist of  
two parts, as in fig. 

You suggested sometime ago, that if we knew the  
average velocity of the molecule  
we could deduce the temp & hence  
separate the ~~to~~ radiation due  
to the two different ~~of~~ sources, if  
I might so call them.

There was another point I had  
in my mind when I wrote my  
last part and that which I could  
not say anything about. It was  
the difficulty - reported to by  
Sir A. Eddington in his article in  
the Encyclopædia Britannica

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The Union's objection is that where there are a lot of students the work has to be done, but the Union's answer is, that, where there are a lot of students they can't be taught & the currency has to be gone through as the Chinese go through ~~this~~ project by turning a ~~wheel~~ wheel; the efficiency of the project being ~~the~~ represented by the mechanical equivalent of the effort used.

With reference to the luminous of the sun; the reason why I thought luminous existed on my side

to work with him. I think that like most professors he has too much to do ~~but~~ a lot of time in looking after a lot of elementary students. I often

say that if <sup>as</sup> Socrates had had as much to do, he never would have inspired Plato.

Of course I know you won't repeat this, though this is nothing in what I have said which I think Socrates wouldn't like though his talk better ~~the less~~ is ~~not~~ always true at least,

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very general & kind. There are certainly great advantages to be derived from living in London.  
Lies will probably be a candidate for the Queen's Professorship in University College which is being vacated by Lucy Foster, & I would probably get his place in Manufacture, if I applied, though I have rather the reputation of being an authority about classes & class students. I think the method of getting students to direct them which are all written out for them, & they have nothing

to do but - just a fee is the short & everything is done most magnificently for them, & <sup>nothing</sup> they do away ~~and~~ deeply impressed with the excellency of the teaching if they have any sense, or thinking they are likely to be the philosophers of their generation if they are fools. I believe in the method adopted, - I take for instance, when the professor (yourself) often demonstrates talk to the students & discuss questions interest them with them. One is teaching the other is examining & disquiring. I believe other Sciences must be taught after the same method of the mathematician.