

of platinum thermometer & I am
getting him to let me try whether
strips of different metals alter
their resistance when radiated
upon by these rays & I ^{may} be able
to use the bolometer for
measuring their intensity.

I am inclined to think that the
air becomes conducting by these
rays, Dr Thomson does not appear
to have taken this into account.
I am trying to find out whether this
is so or not. He also says
that a phosphorescent substance
& a battery are necessary, but
Röntgen got the rays through an
Aluminum window, & Lodge
got his results with an electrodless
discharge. We worked with
an electrodless discharge here for
a good while & got fairly good results
not as good I must admit as
when we used electricity.

Yours sincerely
John Bunker.

If the electrons could be
severed from the above
would it be difficult to
a magnet in its motion

Do you not think
that rays are divided
in diffraction? The
electrons, the magnet
oppose the one or
other matter of velocity.

Owens College

Manchester

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15/2

My dear Prof Fitzgerald.

I saw an account of
some of Daly's experiments in
Nature this week, which
are ^{very} interesting. Röntgen
described in his paper which
showed ^{he thought} that irregular
reflection took place from the
surface of zinc, platinum, lead
& aluminum, & Dr Schuster
& myself when Röntgen's paper
first came out ^{thought} of trying if
we could get evidence of
regular reflection from the
surface of mercury. We
did not succeed in getting per-
fect photographs of regular

15/2

but we are going on with this amongst other experiments. I am making some experiments for Schuster as well as my own. We are getting an automatic Föppler Mercury pump which I believe is on its way home but it is taking a long time to come. I am waiting anxiously for it, as it is becoming a very expensive business for both of us ~~as~~ I break a tube nearly every day now. The first ~~one~~ we got lasted some time but I think they are getting careless about making them & ~~what~~ we get to buy now don't last any time.

Schuster's formula gives $\mu = 1$ when $\lambda = 0$ but it appears to give $\mu = \infty$ when $\lambda = \infty$. I don't know between what limits it is

supposed to work. Do you think the reasoning by which it is deduced would apply for one & not for the other?

It seems strange I think that if J. Thomson's result be right - in that an insulator can be converted into a conductor, the glass of the tube does not appear to become a conductor since the discharge still passes through the vacuum! My pinhole photographs no doubt show that the X-rays come from the part of the glass immediately opposite the cathode, but still there are some traces of them rays from other parts of the tube.

W. Harker a late Berkeley fellow has a very elaborate arrangement set up for measuring variation