

11/51

Neuerwall 69.

Hamburg. Sept 30. 1891.

Dear Sir

I do not intend to renew a correspondence which from its taking up your time, might be somewhat pressing, however interesting to me.

But there is one question I should like to put, to which I will strictly confine myself.

Maxwell in the Trug. Brit 1870 article "ether" referring to a gravitation theory by me - suggested a theory of light consisting of a "vector property" acquired by translated particles; and remarked that the equations would be the same as by the displacement theory. But he made it a condition that the ether particles never should interfere with each other's motion of translation, but were to be conceived to move equally in all directions with the velocity of light. Now as the vortex atom theory seems to me a highly practical one, - may I ask; would vortex atoms, which, it appears, have a natural proper motion at a certain rate, tend (if the

paths were adequately long, (and therefore the disturbances of encounters small) to move all at the same velocity? Second; would they of themselves control their motions equally in all directions as is inferable from the kinetic theory of gases in the case of the perfectly elastic particles (which are not postulated to be vortex molecules), which are figured in the mind as the basis of the mathematical calculations of the kinetic theory?

Now it occurs to me as possible that if the paths were adequately long (and therefore, as remarked, the disturbances of the encounters small); the natural tendency of the proper motion in the case of vortex atoms to assume a certain value might prevail and make the velocities equal - as required to explain light -; although without some tendency to a special velocity or proper motion, the velocities would certainly become unequal. An answer to this question, if it does not

involve much trouble calculation &c, would
much oblige: and possibly it may be
regarded to have an intrinsic scientific interest.

I am
Yours very truly
J Tolson Preston

P.S. I may perhaps mention the fact of having
published several - some half dozen - articles in
"The Electrician" (London), within the last six months.

"Vector properties" acquired by particles may be
important even ^{independently} ~~independently~~ of light. Thus it is
evident that if molecules are of open structure,
perfectly elastic, and some very much larger than
others: then the latter if they are in translatory
motion and fly through the former (i.e. through
the larger), will acquire "vector properties" dependent
on the (stationary) motion of the larger. Vibration can
of course increase the size of a particle: and po-
sibility of size may be a "vector property" acquired by

Prof. G. F. Fitzgerald F.R.S.

smaller particles, and rhythmically, if
the larger particle or open structure-molecules are
in rhythmic vibration & are traversed by
the smaller (minute) particles.

[Faint, mostly illegible handwriting on the right page, possibly bleed-through from the reverse side.]

11 (5)

[Faint, mostly illegible handwriting on the bottom half of the right page.]