14/29

Bradley View
Newton Abbot
July 6. 97.

Dear Fitzgerald, Yours 4th. A copy of Searle's paper was sent me the day before meeting, & I sent a Note off at once. But I sent it to Sec'y City Road, so I expect it wasn't read. I was aware of ∞ness of energy at speed of light. I have pointed out that any distrib^{n} of el^{ty} set moving all same way at speed of light makes plane waves. So the energy is ∞ exactly in those cases in 2 dimensions where electrostatic energy is ∞, or magnetic energy. E.g. the inductance of a solitary straight wire per unit length is ∞; etc etc.

But I pointed out in my Note my entire disagreement with Searle's conclusion that it was impossible to set a body moving at speed of light. First, instead of true Conductor in ether, use two, one + the other −. The ∞ness then disappears! This is a more practical case.

Secondly, & much more importantly, I assert that with only one charged body set in motion, it may be round about anywhere, at any speed, from 0 to any number of times the speed of light, without any ∞ness of resisting force or of energy. Because the ether is elastically yielding, & it takes time to set up the steady state approximately. Say $u = \mathfrak{V}$, = Light speed is produced, from $u = 0$, in 1 second. Then and to the distance 30^{10} centim. is there any disturbance of the original distrib^{n} of the displacement.

Wait as long as you like & you will never get an

∞ amt of energy. You are only engaged in setting up the
steady state at a distance (approximately). The energy
comes from the force that must be applied to keep the
body moving at speed of Light. There is a pull back
due to asymmetry of lines of force. When $u < v$ this
tends to disappear. When $u > v$ it never does. It
is always in evidence. The wave is conical, (from
a point charge) & the pull back of course can never
cease. But $u > v$, the cone is being constantly enlarged
at its apex, fresh portions of the carried wave generated.

I send the email to Mr Searle, Don't be afraid of

∞.

As regards Stoney, Preston matter. The matter is in such
an indistinct state that all I can say definitely (beyond
what I said before) is I don't see exactly what Stoney's
theorem is, in analysis; and it doesn't seem to me to
be expressed by Preston's theorem, which I know before. It
is in old Books, (Diff. Eqns.) in another form, however, exponentially
expressed, & an integral sign. But the principle is the
same. I should be glad if you could put it down
definitely in symbols what it is you understand by
Stoney's theorem. Or give an example!

Yours sincerely
Oliver Heaviside

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P.S. Old croaker gone away. Sad loss.
He left one night when piano was played, & blinds up. Couldn't
stand noise. Besides there were three suns visible! So he went
off twist to the wood, & then was lost altogether. Jubilee was
bad enough, guns firing & bonfires; but he only stopped working
temporarily then.