

WIRELESS WORLD SEPTEMBER 1983

DEATH OF ELECTRIC CURRENT

I believe Ivor Catt bases his theory on Heaviside's "the current in the wire is set up by the energy transmitted through the medium around it."

Chapter ten of Hertz's book 'Electric Waves' is a reprint of his paper 'On the Propagation of Electric Waves by Means of Wires' first published in 1889, a year after the experiments which made him famous. The purpose behind the experiments described in this later paper was to test Heaviside's and Poynting's theory that, as Hertz wrote, "the electric force which determines the current is not propagated in the wire itself, but under all circumstances penetrates from without into the wire. . . ." Hertz went on to say "As a matter of fact the theory was found to be confirmed by the experiments which are now to be described; and it will be seen that these few experiments are amply sufficient to support the conception introduced by Messrs Heaviside and Poynting."

Hertz then described a set of experiments which used his invention of the coaxial cable and the balanced feeder or transmission line, and concluded his paper, "On studying the experiments above described, the mode in which we have interpreted them, and the explanations of the investigators referred to in the introduction, one difference will be found especially striking between the conception here advocated and the usually accepted view. (Weber's theory of electricity carried by charged particles acting instantaneously at a distance.) In the latter, conductors appear as the only bodies which take part in the propagation of electrical disturbances — non-conductors as bodies which oppose this propagation. According to our conception, on the other hand, all propagation of electrical disturbances takes place through non-conductors; and conductors oppose this propagation with a resistance which, in the case of rapid alterna-

tions, is insuperable. We might almost feel inclined to agree to the statement that conductors and non-conductors should, according to this conception, have their names interchanged . . . ”

Hertz was even more specific in his Supplementary Note No. 24. “By the experiments in the following paper it is pretty plainly proved that in the case of rapid variations of current the changes penetrate from without into the wire. It is thereby made probable that in the case of a steady current as well, the disturbance in the wire itself is not, as has hitherto been assumed, the cause of the phenomena in its neighbourhood; but that, on the contrary, the disturbances in the neighbourhood of the wire are the cause of the phenomena inside it.”

Catt’s critics have a choice: either Hertz was a crank and a crackpot, or he was, as an experimenter and detective, in the same class as Faraday. If Hertz’s diagnosis of his experiments with a transmission line is correct, the effect we call a current is caused by “the disturbances in the neighbourhood of the wire,” what, in the neighbourhood of the wire, is being disturbed? Maxwell’s ether?

M. G. Wellard
Kenley Surrey

WAVES IN SPACE

I refer to the correspondence in the August issue concerning Catt’s “Waves in Space”, (March, 1983).

Ivor Catt has, for some years, been proposing new explanations of electrical phenomena which many regard as already fully explained by classical e-m theory; theory which unfortunately has become dogma because few have bothered to question its tenets in those areas where its teachings give rise to curious and unexplained paradoxes.

Correspondents who try to put Catt down generally throw up a dogmatic smokescreen whilst often failing competely to address themselves to the apparently paradoxical events he has attempted to explain. The latest correspondence concerning “Waves in Space” is no exception. R. T. Lamb’s letter gives no real expla-

nation of the phenomena that Catt discussed and simply fluffs the issue of pulse duration with a remark about the charged line being an energy storage device rather than a source of e.m.f.

Timothy C. Webb’s letter puts a finger on one important issue when he asks why Catt’s contra-moving waves are not destroyed by line losses, but he fails to ask whether conventional energy dissipation due to line loss applies to these contra-moving waves. I suspect Catt thinks otherwise and it would be interesting to have his views.

In other respects Mr Webb’s letter falls into the dogma trap. There is a resounding bit about

“The great body of scientific and engineering knowledge that has amply demonstrated . . . ” etc., etc. Dr Catt has quite reasonably asserted that the great body of scientific and engineering knowledge has singularly failed amply to demonstrate some of the things it purports to explain! At the end of his letter Webb gives what I found to be an incomprehensible explanation of the pulse duration problem and then rounds this off with a remark about the “pleasing aspect of this argument . . . ” etc. I was not very pleased because I could not make head nor tail of it!

Hodge’s letter is perhaps more thoughtful but again it does not seem to explain the phenomena which Catt discussed in his article.

Catt’s theories may be wrong but he is certainly right to shine lights into some of the dark and deceiving corners of classical e.m. theory. One would like to see more reasoned arguments advanced in refutation and less reliance on the “dogma must be right” approach which, incidentally, rather neatly mirrors the discussion on the “closed loop arguments”, (said to be used to support relativistic dogma), given in an unrelated letter from A. H. Winterflood in the same issue of *Wireless World*.

Anyone who thinks he knows all about electricity should also read Professor Jennison’s article on making a charge from a radio wave!

M. G. T. Hewlett
Midhurst
W. Sussex

C.A.M.

121

Wireless World September 1983

“ We might almost feel inclined to agree to the statement that conductors and non-conductors should, according to this conception, have their names interchanged “ – H Hertz

Heaviside said the same thing,

leading to his concept of “Energy Current” <http://www.ivorcatt.org/digihwdesignp65.htm>

<http://www.forrestbishop.4t.com/DEDV2/DEDV2p324-5.jpg>

<http://www.forrestbishop.4t.com/DEDV2/DEDV2p322-3.jpg>