Ic|thus instruments limited
Princesway Team Valley Estate GATESHEAD
Tyne and Wear NE11 0TU Tel. 0632-872611

27 May 1976.

Ivor Catt,
Crouch Hall,
Redbourn,
Herts.

Dear Ivor,

Your phone call last night was very exciting. I think I see the transformer now in terms of crosstalk – if current in wire 'is effect of passage of energy current then current will be induced in 'secondary' as well as 'primary' additional turns just add.

At weekend will be at Leeds 685211, just in case you try to ring me.

We must get together soon,

Dave

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I. R. Lamb CA D. S. Walton BSc(Hons) PhD
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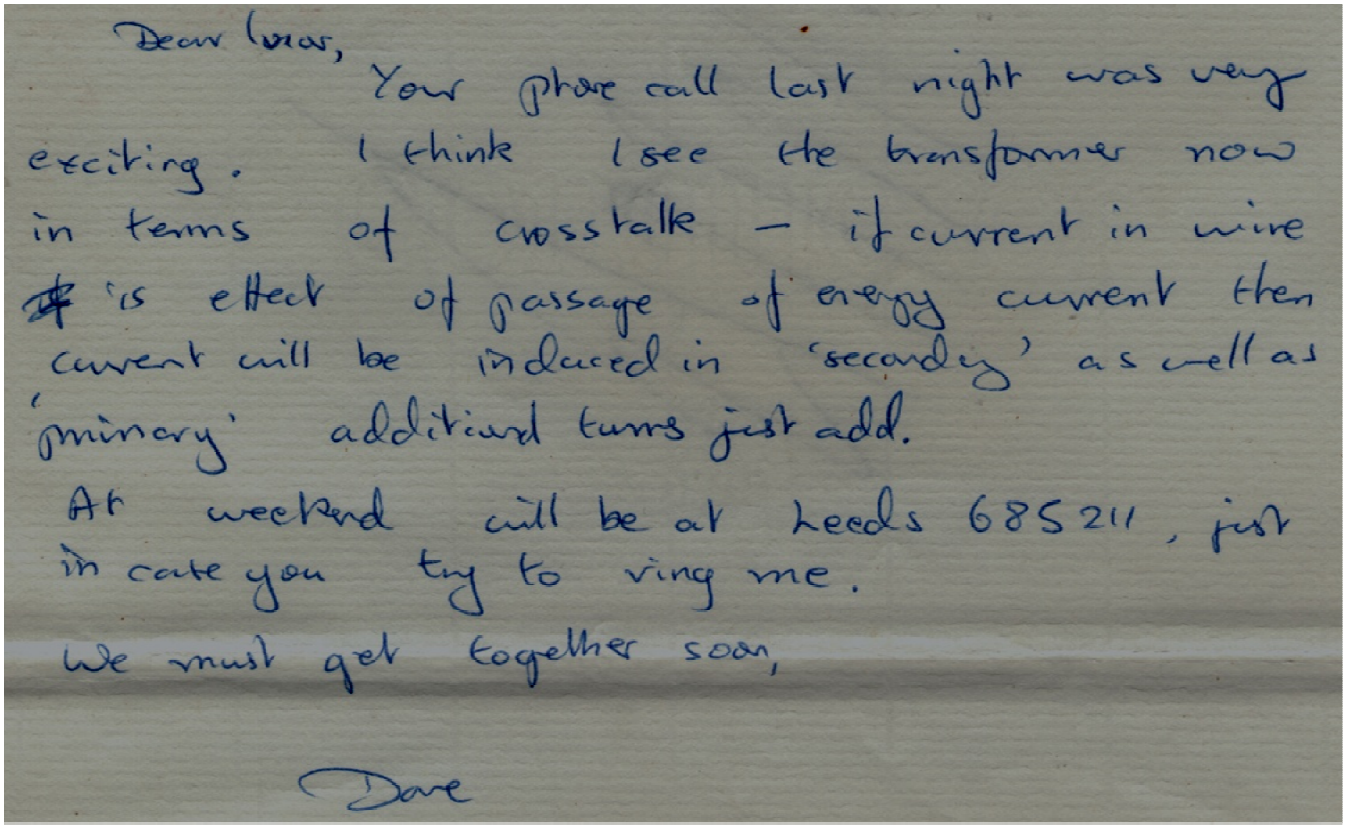

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Letter from my (later) co-author Dr. David Walton

Electromagnetic Theory

27 May 1976/1

First, a brief, hurried summary of the latest developments in the subject. Details will be filled in later.

Whereas usually the electric current is said to cause the fields within a (two wire) transmission line, Oliver Heaviside says "We reverse this"; the ~~fo~~ field (flux) travels down between the wires and causes an electric current in the wires.

We shall call the normal theory, the conventional theory, that current flows down the wires and causes the E-M field the Normal theory, or Theory N. Heaviside's theory, that the field flows down between the wires and causes current in the wires we shall call Theory H.

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The third, most recent theory is a step beyond Theory H and is called the Catt Theory, Theory C. In this theory, the field (flux) flows down between the wires and <u>there is no electric current</u>. Heaviside probably never got this far, although it will be ~~[illegible]~~ necessary to research his latest writings to confirm this. It is noticeable that Gossick (and I think also ~~Fost~~ Josephs) says that Heaviside went senile, and ~~his later writing~~ Gossick says his later writings should be dismissed. Gossick has

→ dismissed the concept of Energy Current (the essence of Theory H) and so can

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Read & understood M. F. [illegible]

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Read & understood M. F. [illegible]

I Catt
27 May 76/2

↑ Heaviside went senile, and Gossick says his later writings should be dismissed. Gossick
bis has dismissed the concept of Energy Current
↓ (the essence of Theory H) and so can safely be classified as holding to Theory N.

To a Theory N man, the assertion that there was no electric current would lead to the conclusion that the speaker (or writer) was senile.

In general, what follows will be aspects of Theory C.

Ron Whewell

Pages fitted 28th May 1976
Read & understood M.T. Saunders 2/6/76.

(1) There is no electric current.
(2) A capacitor is a transmission line.
(3) An inductor is a transmission line.
(4) A transformer is a transmission line.

The velocity of an energy current in a perfect conductor is zero. That is, energy cannot enter a perfect conductor. [$c = \frac{1}{\sqrt{\mu\epsilon}}$, and ϵ for a perfect conductor is ∞]

Capacitor

All capacitors behave as transmission lines in the manner described for parallel voltage planes in my paper, IEEE Trans. on Electronic Computers, Dec 1967, page 744. Because ϵ is very high, the outwards velocity of propagation is very slow.

ESR is the initial characteristic impedance of the transmission line.

Dec 1967 page 744; http://www.ivorcatt.org/x0312.jpg