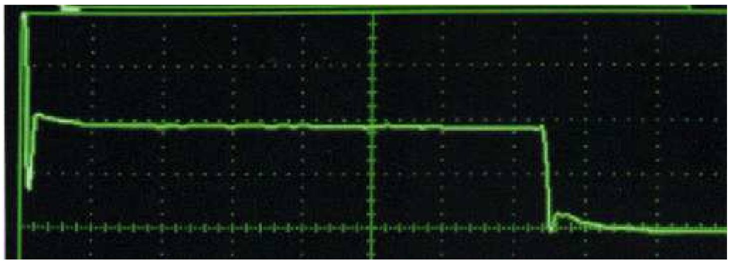
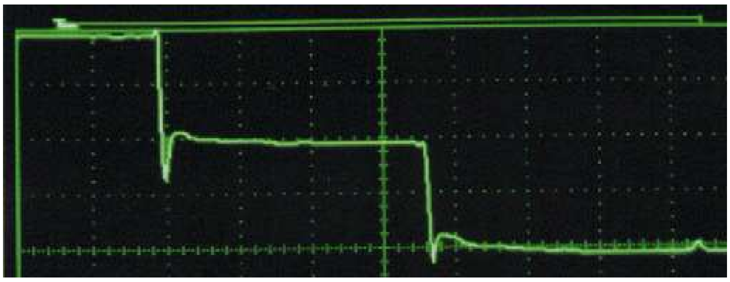
Comparison of the oscilloscope pictures in http://www.ivorcatt.co.uk/x34.pdf

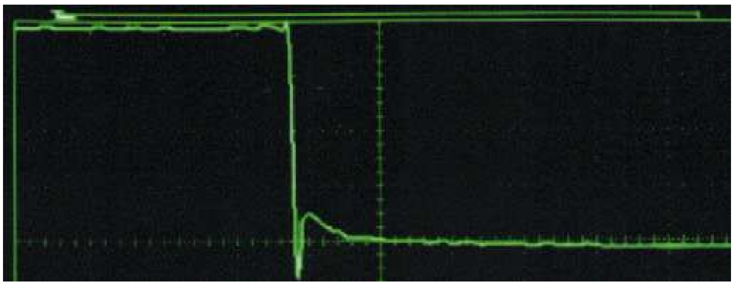
At the right hand end.



50% towards the left.



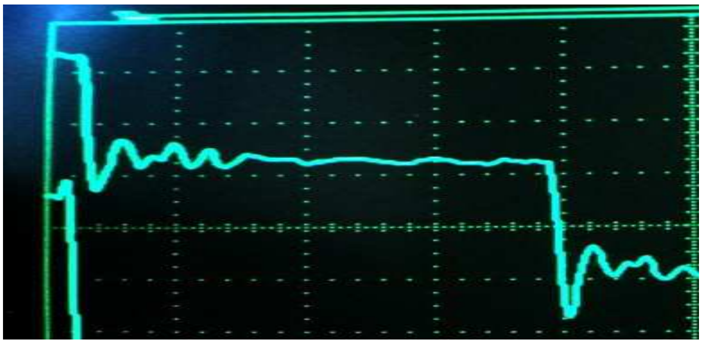
At the left.



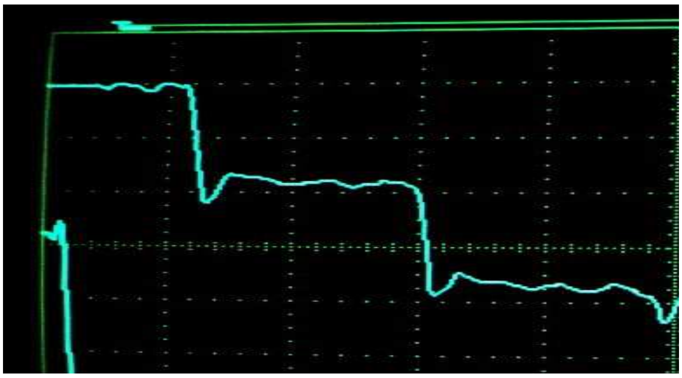
The last three traces.

This time the capacitor was discharged from both ends at the same time.

Left or right hand end



25% in from either end



50% in (half way)

The first five oscilloscope traces.

The five oscilloscope monitor points in the charged cable. At the right, 25% towards the left, 50% towards the left, 75% towards the left, and lastly at the left.
The left hand end of the pictures is at the moment when the switch closes and energy begins to exit.
The first picture is at the right hand end. Immediately, the energy which should have reflected and started off towards the left is no longer in the cable, since it has exited. So the voltage drops from 8 volts – the rightwards travelling energy plus the leftwards – down to 4v, now only the rightwards travelling energy.
In the second picture, 25% towards the left, there is initially no knowledge that anything has happened, so the voltage remains at 8v. However, after a short while (one square), the back end of the energy still travelling to the left passes, and the voltage drops from 8v to 4v. This drop occurs later at 50% and 75%, as the back end of the leftward travelling energy passes.
In the final picture, the back end of the leftwards travelling energy finally arrives and reflects, so that there is a sudden drop from 8v to 0v because both leftwards and rightwards energy disappear at the same moment.

Ivor Catt. 14 January 2013

Let us return to the first picture. We see a pulse nearly 8 squares long. On the left is the energy which exits first. The furthest to the right is the energy which exits last. This last was the energy which had just reflected at the right, and was travelling to the left when the switch closed. It went all the way to the left hand end, reflected, and returned to the right before exiting. There was a delay of twice the travel time from end to end before it exited to the right.
The key discrediting of classical theory, which says that the electric field was static until the switch closed, is to consider this last portion of energy. At the moment when the switch closed, so providing a new, extra path for energy, the energy which had just reflected at the right hand end rushed away from the new path, delaying twice the travel time from end to end before it finally exited. It would be very difficult to devise a behaviour compatible with classical theory to explain such a long delay. Classical theory asserts that before the switch closes all is stationary. Then at the instant when the switch closes, all the energy at every point in the capacitor suddenly leaps into life, travelling one way and the other at the speed

of light. Possibly this indicates instantaneous action at a distance. I cannot see how a stationary field before the switch closes can create the above sequence of five pictures after the switch closes.

If this charged capacitor does not contain a stationary electric field, as the Wakefield experiment proves, then no capacitor contains a stationary electric field.

Now consider a capacitor made up of concentric spheres. As we increase the diameter of the outer sphere to infinity, the capacitance does not drop to zero. If the diameter of the remaining sphere is 1cm, its capacitance works out to be 1pF. Now we see that energy is rotating around the sphere in all directions, most of it concentrated near the sphere, but extending to infinity. It is not clear how we fully develop the particle, for instance the electron, in this way.

Ivor Catt. February 2013

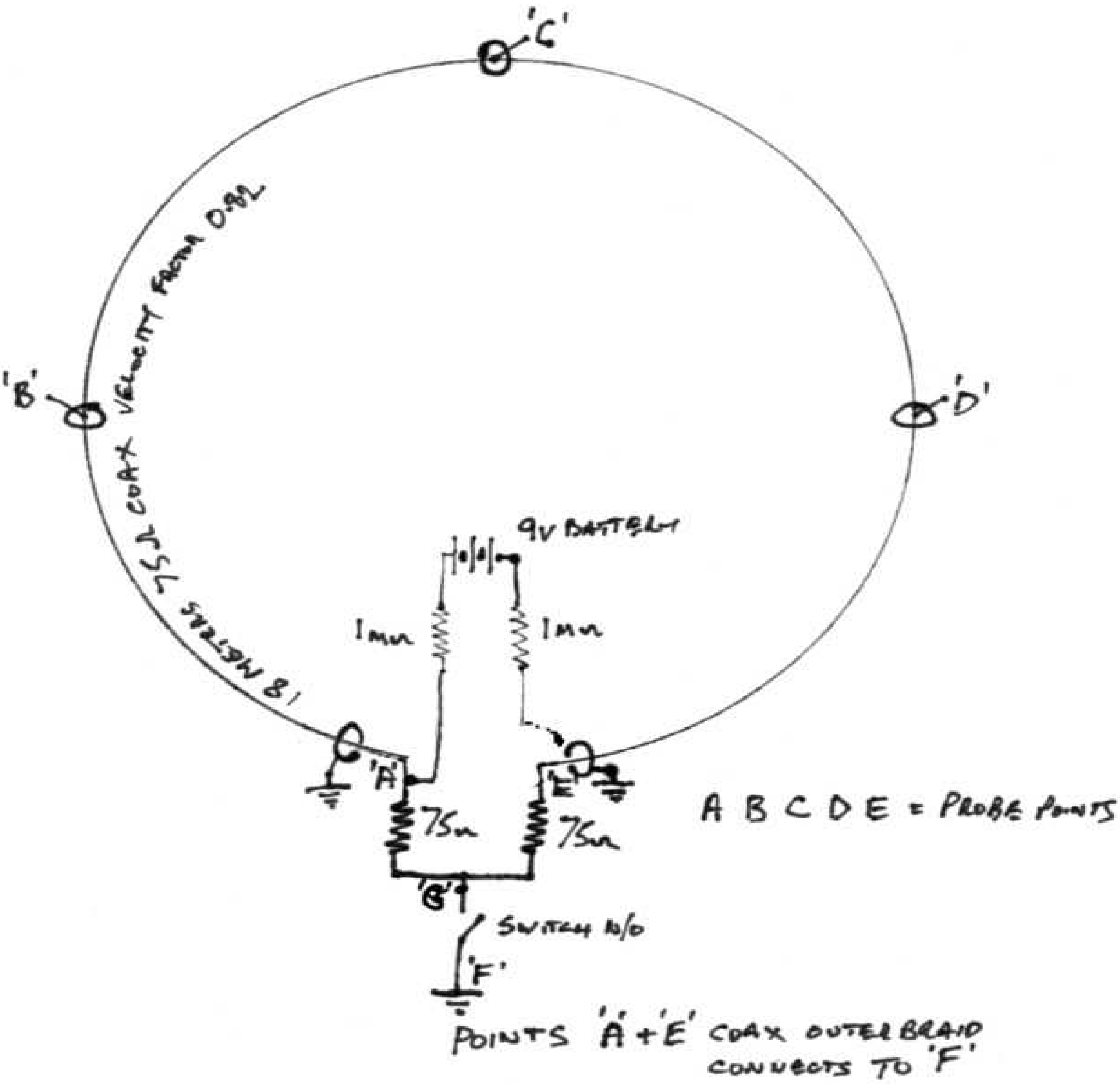
½CV^2

The two energies, one travelling to the right and the other to the left, have nothing to do with each other. Thus 8v, the V in the formula ½CV^2, is not a proper measure of the total energy, which relates to the two energies, each of amplitude 4v. Thus, looking at the real "electric" fields, we end up with half the energy which we know is in the charged capacitor. The other half of the energy is made up of the two magnetic fields ½LI^2. $4^2 + 4^2 + 4^2 + 4^2 = 8^2$.

Ivor Catt 13 March 2013

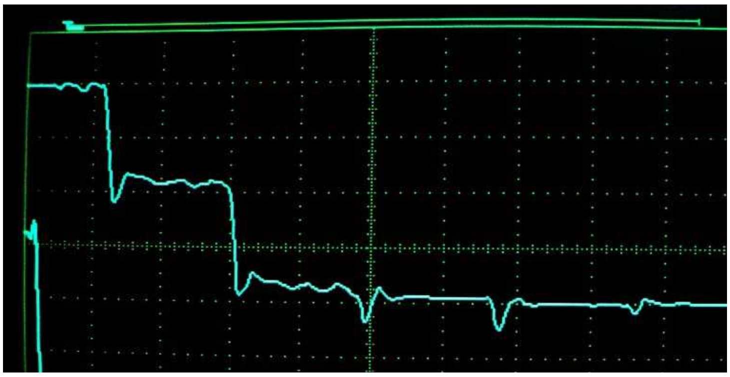
The last three traces.

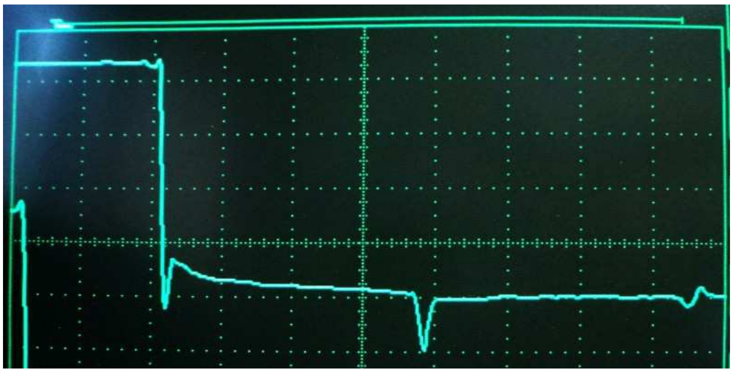
This time the capacitor was discharged from both ends at the same time.



The three traces below are the equivalent of traces 1, 3, 5 in the first set, where the cable was discharged at only the right hand end. The pulse out is now only the length of the cable, not double. The discharge takes half the time. Thus, the three traces below are the same as traces 1, 3, 5 in the first case, but half the width.

Left or right hand end 

25% in from either end 

50% in (half way) 

The moment the switches close, there are no more reflections at either end. The energy that was travelling to the right exits on the right, and the energy that was travelling to the left exits on the left. The width of each exiting pulse is now equal to the delay down the charged cable, not double as before.

At 50% in (half way) the pulses travelling in each direction suddenly part company, so there is a dramatic drop of the full 8v in the sudden gap between the pulses.

Ivor Catt 11 November 2013