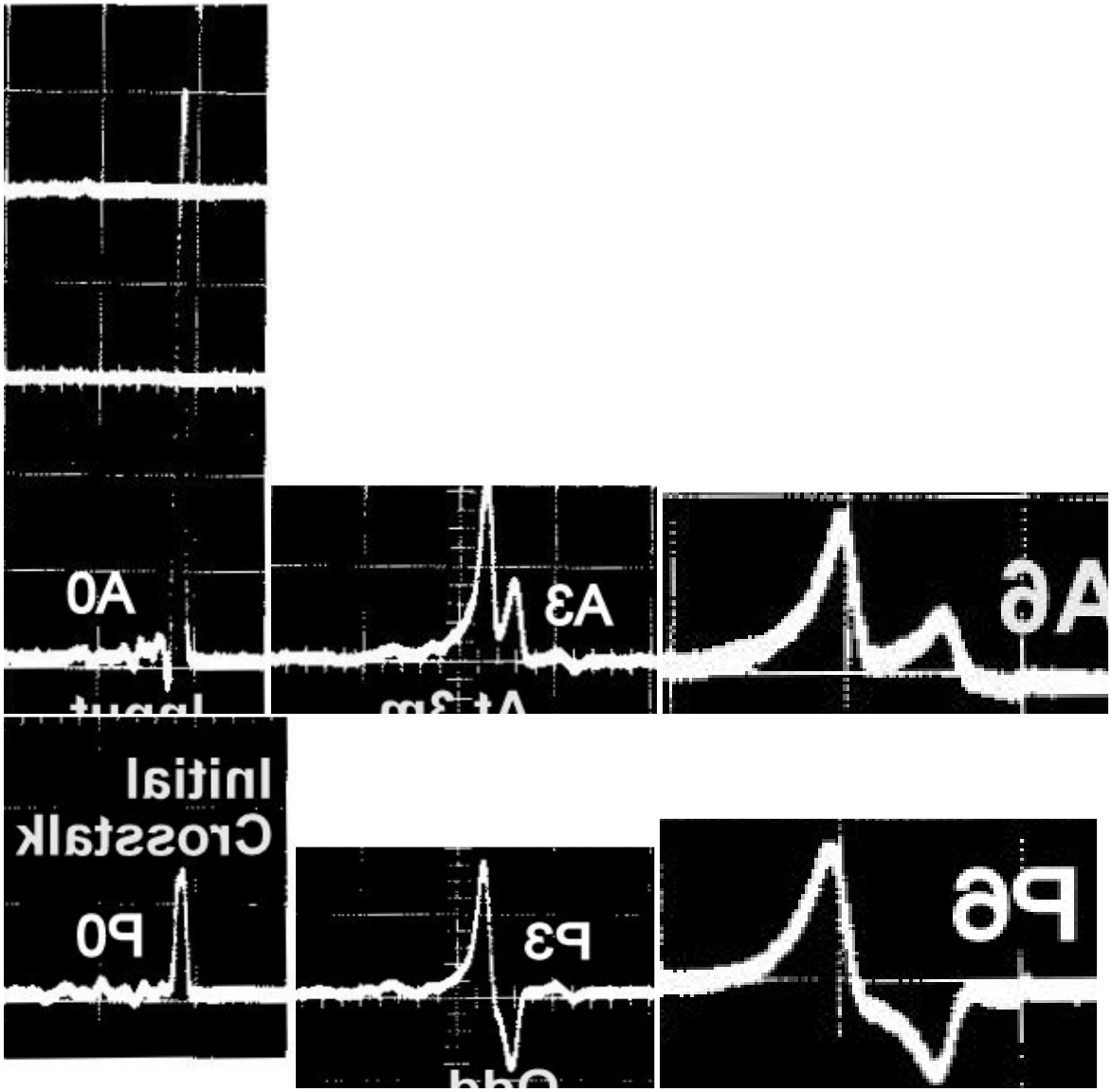
The key diagrams in the January/February article in *Electronics World* modified to help understanding.

Ivor Catt. 2 February 2011

Active line above. Passive line below. Having been reversed, each picture is a waveform at one instant in time as the signal travels towards the right. Originally a single voltage spike, it breaks up into two, one faster than the other.



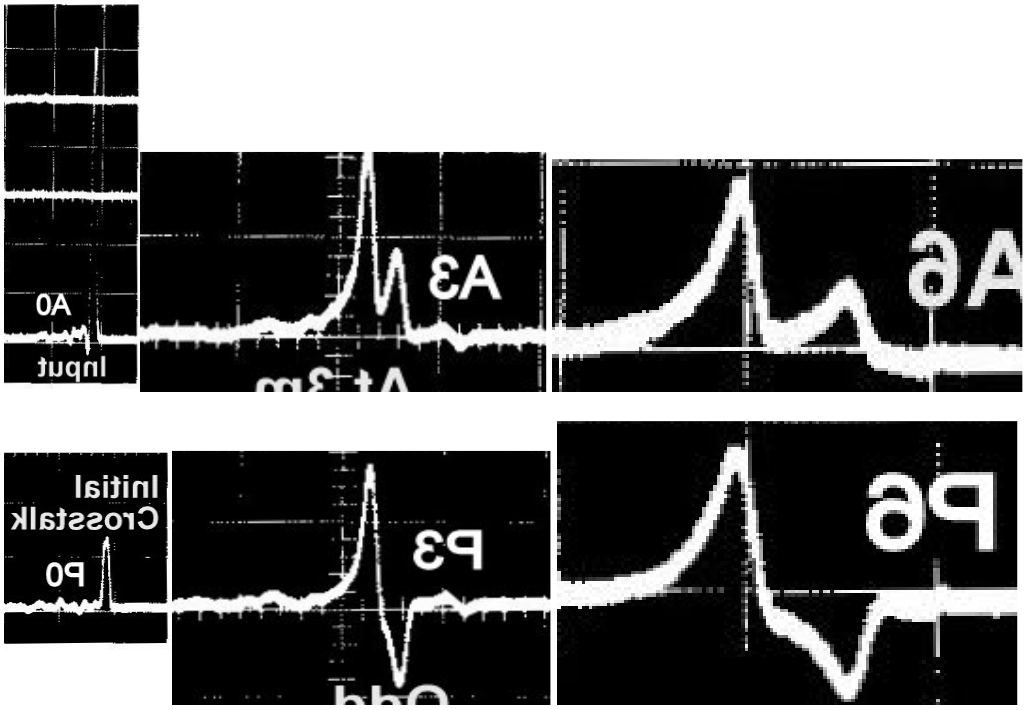
Signals at start At 3 metres At 6 metres

I have reversed the traces so that the faster signal gets further to the right.
To help understanding, I tried to make up for the way every signal is reduced by half for every 3 metres travelled. However, I had to leave the first traces twice too high, or the input on the active line would not be clear enough. Allowing for the two traces at the start being twice too high, you can see that the signals remain the same, but the faster Odd Mode gets further and further ahead of the slower Even Mode. The slower left hand spike is the Even Mode. The faster right hand spike is the Odd Mode, further ahead.

The next set of traces shows the first signal halved, to show the pattern. A novice should assume that that is the real sequence, and ignore the problem of attenuation. Along the top trace for the active line, the sum of the signals remains the same. The sum of signals also remains the same in the bottom passive line, where initially we only see the difference.

Initial signal now reduced to a quarter. 3 metres signal reduced to half.

Active line above, passive line below.



Signal at start At 3 metres At 6 metres