

## Gordon Bell

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**Subject:** Email from Jay Forrester to Gordon Bell, gbell@microsoft.com re the Co-incident Current Core Memory Inventions

The following is the content in the email I received in response to a request for information to correct the Core Memory Wikipedia entry.

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**From:** Jay Forrester [mailto: Snipped]

**Sent:** Tuesday, April 05, 2011 1:20 PM

**To:** Gordon Bell

**Subject:** Re: Coincident Core Memory Invention... could you please provideme a few bits?

Gordon:

I believe that the Wang use of cores did not have any influence on my development of random-access memory. The Wang memory was expensive and complicated. As I recall, which may not be entirely correct, it used two cores per binary bit and was essentially a delay line that moved a bit forward. To the extent that I may have focused on it, the approach was not suitable for our purposes.

The background for my development of magnetic core memory started around 1947 with a random-access arrangement that was visualized using glow discharge tubes. The essential requirement was a nonlinear element at the intersection of the coordinate axes. The first line of thought used something like a neon glow tube connected across the coordinate wires. Such a tube requires some 70 volts to ignite it and it will remain conducting down to perhaps 12 volts We did a little bit of experimenting with the glow tube idea but never felt it would be practical. It was that earlier idea of random access coordinate selection that stayed with me and came back to life when I saw an advertisement for Deltamax in an engineering journal. The sharply rectangular hysteresis loop caught my attention as a possible nonlinear element. Shortly thereafter I had entered in my notebook the design that persisted for the beginning of the computer revolution.

Do you need any more information?

Best wishes, J

On Apr 1, 2011, at 6:54 AM, Gordon Bell wrote:

Dear Bob and Jay,

There continues to be substantial noise surrounding the core memory invention.

There are some clear errors on the Wikipedia site, [http://en.wikipedia.org/wiki/Magnetic\\_core\\_memory](http://en.wikipedia.org/wiki/Magnetic_core_memory)

Snipped re. Computer History Museum-----

My question is did Wang's work influence you?

If it did, how so?

Is this statement, on the Wikipedia site that refers to the fact that Wang and a colleague were working with cores true?

"Jay Forrester's group, working on the Whirlwind project at MIT, became aware of this work." Whether you were or were not aware, is fairly irrelevant, because the Forrester patent stands clearly a part from what Wang patented or created.

Snipped re. 3 sentences on comments to correct Wikipedia and Computer History Museum-----  
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Thanks,

**g**

Gordon Bell.

Principal Researcher, Microsoft Research

Snipped Bell and Forrester address information-----