April 06, 2009

Abracadabra: What science can learn from magicians

From my Saturday Review column:

You're going to like this. Not a lot. But you'll like it. A couple of weeks or so back I went to see Paul Daniels play the Radlett Centre. There was a sort of Seaside Special first half with hoofing and songs from Joseph that I could have done without. But once Daniels came on, things changed for the better. Magic. I can't get enough of it.

It helps that I'm pretty gullible. I found it mildly irritating that Daniels's wife, Debbie McGee, kept wandering across the stage, acting dumb. It was only in the car on my way home that it dawned on me that her appearances were contrived as a distraction so that Daniels could do the sleight of hand or whatever. How stupid am I? Well, actually, I prefer to say that Daniels and McGee had found a way to exploit cognitive weaknesses that were a result of my neurological design. And a new Nature Reviews Neuroscience paper allows me to use the description without blushing. Much.

Two neurologists (Stephen Macknik and Susana Martinez-Conde, of the Barrows Neurological Institute) have collaborated on an academic paper with a group of magicians (Mac King, James Randi, Apollo Robbins, John Thompson and Teller, one half of Penn and Teller). In fact, the document they have produced is more like a manifesto.

The group is suggesting that scientists should become magicians. Their argument runs like this. Neuroscience is a relatively young field, or at least much of the progress that has been made is fairly recent. Magic, on the other hand, is as old as the hills. Through intuition, magicians have found ways to identify and exploit cognitive weaknesses - holes in perception, bits of the brain clashing with each other and so forth. They have learnt things - and used them over centuries - that have only dimly occurred to neuroscientists. So if scientists could master some of the magicians' techniques, they could learn more about what really makes us tick.

Paul Daniels began his act with a series of routines with a couple of small balls. He described it as one of the oldest tricks in the book. But it still had me wondering how he did it. Well, apparently it has something to do with "covert redirection of the attentional spotlight". A magician appears to throw a ball into the air and you "see" it vanish. In reality, the ball never left his hand. By following the ball's suggested arc with his eyes, the magician provides a social cue. And this leads you to think that he threw the ball into the air and it then vanished.

What excites magicians about this - the ability to make something happen that seems physically impossible - is obvious. But what excites neuroscientists is that while your attention may follow the imaginary arc of the ball, your eyes don't. Your gaze and your attention work differently.

Another area that cognitive scientists and magicians can explore together is what is known as the "misinformation effect". After a trick, the audience sits there trying to work out how it was done. The magician then sets about providing them with a subtly distorted account of what they have just seen. Again, their motivation (throwing the audience off the scent) is obvious. But what is interesting to cognitive scientists is the way that false memory can be induced.

These are just examples. The paper is replete with them - what can be learnt from the Indian rope trick, the bending of a fork, card tricks, levitation and on and on. They want scientists to learn such tricks in order to use them in proper experiments and understand how our brains work.

Showbusiness, magic and science. United at last.

POSTED BY DANIEL FINKELSTEIN ON APRIL 06, 2009 AT 10:34 AM |
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