Magicians in the laboratory: a new role to play

Scientists who investigate the paranormal are making increasing use of stage magicians, but they would do well not to hand over completely the conduct of science.

Harry Collins

RECENT events reported in this magazine ("The Amazing Randi hoodwinks the spoonbenders", 3 February p 267) have drawn attention once again to the vexed relationship between stage magicians and researchers into so-called paranormal phenomena. James Randi, the parapsychologists' most effective arch-enemy since Harry Houdini, has shown again the gullibility of those who claim that the power of mind-over-matter exists and can be investigated in the laboratory. Two of Randi's accomplices infiltrated the McDonnel laboratory and pretended to be psychic subjects. At least one of the investigators felt sufficiently confident of his findings to announce publicly—on the BBC TV programme QED—that he had witnessed paranormal phenomena under controlled conditions. Randi's moment of triumph came when he revealed, at a press conference, that the apparently successful psychic subjects were really his confederates.

This is just one example of a successful campaign that a group of scientific "vigilantes" has waged against parapsychologists over recent years. It is the magicians who have had the major successes in the campaign against the paranormal. While the scientists and others have mounted arguments, the magicians, notably Randi, have been able to do more; they have been able to show how claimed paranormal feats could actually have been produced by trickery. They have been able, to some extent, to reproduce the feats and occasionally they have demonstrated the naiveté of the scientists engaged in the research. So successful have they been that a large body of opinion now holds that no experiment on the paranormal can be considered worthwhile unless a competent illusionist was present during its conduct. Stage magicians—and this is something they are very happy with—are becoming accepted as the arbiters of the competence of a sub-set of scientific work, research on the paranormal.

Harry Collins/Univ. of Bath

Unaware that she is being watched, this girl bends a spoon the easy way. We must assume subjects will cheat, given a chance

Something has gone wrong! An outside professional group is being invited to arbitrate on the internal affairs of science. Interference that most professional groups would resent is being welcomed by many scientists. Why is this? The reasons are not hard to find; parapsychological research is embarrassing. It seems to waste the time of a number of otherwise very competent and successful scientists. It won't go away. It appears to rest on a body of careful experiments with standards of design better than those of orthodox psychology and it produces results with a statistical significance well above the rest of the social sciences, sometimes approaching the demands of physics. Criticising the enterprise is not just a matter of dismissing a bunch of cranks. Criticism, if it is to be convincing, must rest on careful technical analysis. Thus editors and heads of research groups have to make decisions about research proposals and manuscripts that they do not want, but cannot easily find a good reason for turning down. Any politically astute scientist knows that parapsychology is the "kiss of death" but how are the corresponding decisions to be justified in a way that at least seems to give allegiance to that paramount scientific value, open-mindedness to the potential of the unknown? Even to do the hard work required in order to provide a good technical reason for rejection carries with it the risk of seeming to take this touchy area too seriously.

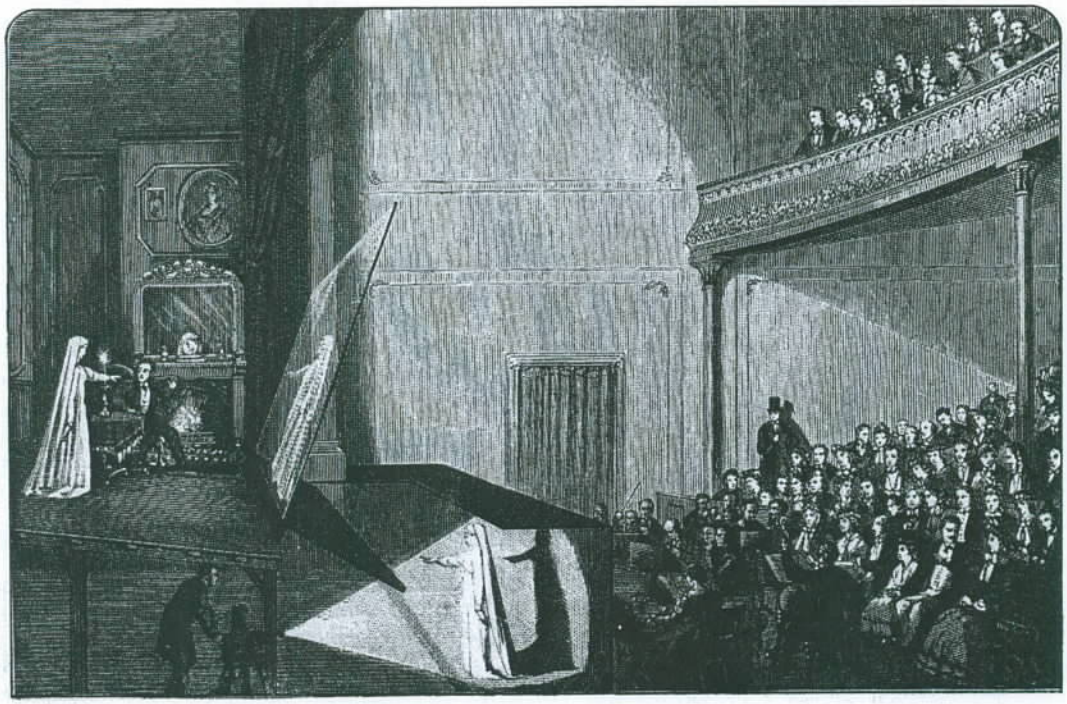
The magicians provide the answer; essentially they do the scientific community's dirty work. Parapsychology can be dismissed, grant applications turned down, articles rejected because the enterprise has been found wanting by an outside group of technical consultants. Scientific values need no longer be put at risk since proper reasons for rejection are now at hand.

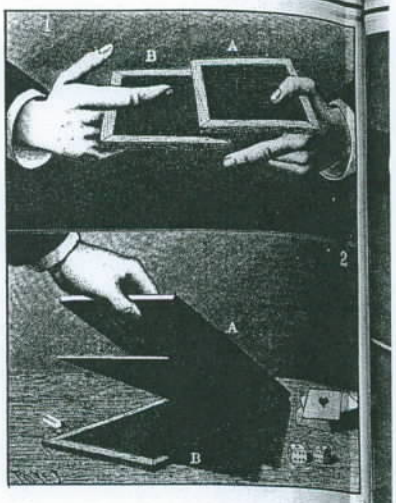
The problem is that the scientific community cannot give an outside professional group *carte blanche* in quite this way without conceding more than it may wish to. To hand over so much power is a mistake, a failure to fulfil professional responsibilities. But of course, researchers do not justify consulting illusionists in quite the bald way I have presented. They say that they have a body of expertise which no scientist can match when it comes to the unmasking of fraud. And they have given some evidence of this. Magicians have revealed the existence and *modus operandi* of many tricks masquerading as paranormal effects and they have shown that many subjects who claim to be capable of producing phenomena that cannot be explained by orthodox science have a history of fraud. There is no doubt that scientists have neither the time, inclination, nor ability to track down the shady goings on of their subjects outside of the laboratory, nor to keep a hawk-like eye on their every activity within it. Nevertheless, some careful thought about the nature of experiment will reveal that illusionists are not so indispensable to paranormal research.

Any experimental design that is to convince the open-minded of the existence of paranormal effects must be based on the assumption that the subjects under examination are frauds and will attempt to cheat the investigator.

This point has two corollaries: The past history of the experimental subject is of no concern whatsoever *as regards experimental design*. A subject with a completely innocent history must be treated, as far as experimental design is concerned, in exactly the same way as the most notorious cheat. If this were not the case the scientist reading an experimental report concerning an apparently innocent subject would be entitled to relax his or her standards of scrutiny. Credulity would be the proper attitude when it came to innocent subjects, and clearly it is not the proper attitude.

The second corollary is that notorious cheats are not disqualified as the subjects of paranormal experiments. All magicians' efforts in discrediting the subjects of paranormal





Conjurors, not surprisingly, are not keen to reveal their secrets. Experimenters could enlist magicians to ensure that their work is proof against known fraud. This "certification" could be an important new part of parapsychological protocols

experiments or the competence of the scientist outside of the experimental situation, is of no significance *as far as a well-designed experiment is concerned.* (Of course, as a matter of logistic good sense an experimenter may prefer not to work with notorious cheats because they might seem less likely to produce genuine phenomena; the innocent might seem to be more promising subjects.)

Though all experiments must be designed on the assumption that the subjects will try to cheat, it is important to realise that, ironically, there is no such thing as a fraud-proof experiment. This is because human ingenuity is open-ended. Brand new methods of fraud cannot be foreseen. This does not mean that all paranormal experiments are a waste of time any more than that all scientific experiments are a waste of time. All experiments are open to fraud, as we know.

What does follow is that when we talk of a "fraud-proof" experiment we must mean an experiment that is proof to every known or imaginable fraud. (We must, of course, exclude bizarre possibilities such as mass hallucination by experimenters and so forth or all of our science will grind to a halt.)

To design a "fraud-proof" experiment in this, restrictive, sense requires that the experimenter apprise himself of all known methods of fraud and use this knowledge in designing the experimental protocol. Illusionists can be ideal advisers at this stage. However it is not difficult for a scientist with a reasonable imagination and reasonable knowledge of existing techniques of fraud to design a fraud-proof experiment. We did this at Bath when we tested some child "spoon-benders" and Randi himself agreed that he would not be able to break our protocol. We offered other magicians the chance to break our protocol and deceive us but they declined the offer. (As a matter of fact we did not observe any *primafacie* evidence of paranormal events under our protocols, but the existence of paranormal phenomena are not at issue here.)

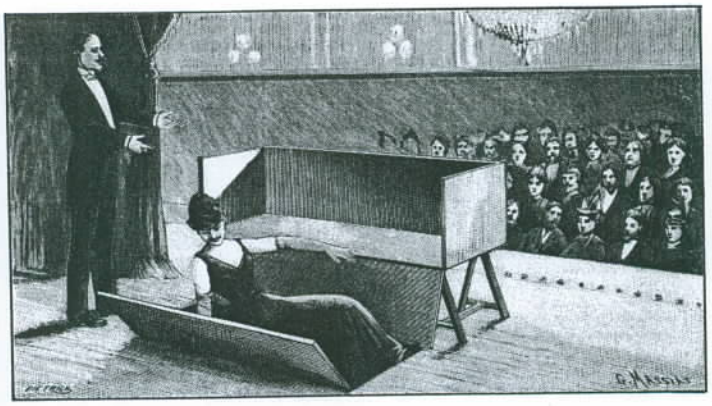
While illusionists may be good advisers as regards known imaginable types of fraud there is no reason to suppose that they have any special ability to spot the mechanism of hitherto unforeseen fraud techniques. One professional magician can fool another with a new technique!

It follows that it is not necessary for stage magicians to be *present* for an experiment to be fraud-proof. Their presence does not guarantee that the experiment is completely fraud-proof (in the impossible sense); their absence does not make the experiment necessarily susceptible to fraud in the restrictive sense. If there is a case for illusionists to be present while experiments are actually running it can only rest on the claim that as skilled practitioners of deception they have a better chance of seeing loopholes developing as the experiments run their course. I think it would be hard to demonstrate this but if parapsychologists can obtain the services of a friendly illusionist then it would be sensible to use them.

The stress in the last paragraph must be on the word friendly, where it is taken to mean that the illusionist would be prepared to leave overall control and reporting in the hands of the scientist. The illusionist's role must be adviser, not monitor. Under any other circumstances the costs—technical and value costs—can be very great.

Technical costs arise out of the logistics of insisting that no experiment is adequate unless it is done in the presence of stage magicians. Consider experimentation in more ordinary science: it often takes months or years to make a piece of apparatus work. Frequently the apparatus is subject to breakdowns and "gremlins", and other unforeseen difficulties affect the timing and even the very possibility of the work. Scientists fall ill, their technicians leave for better jobs, administrative or teaching responsibilities become unusually pressing. That experiments ever get done depends, in part, on the fact that all the scientists, technicians and so on work in the same institutional location. This means that they can be on call more or less continuously, awaiting the fortuitous moments when everything and everybody is together and working. Team experiments (and all experiments involving human subjects are team experiments) can work only because universities and laboratories (in the sense of collections of scientists and technicians) exist for extended periods. Experiments are feats of social as much as technical organisation.

What is more, where unusual or unexpected results are claimed, the scientific community will, quite properly, withhold its imprimatur until independent confirmation is seen to have been produced at other laboratories. Thus to demand that an illusionist be present at every experiment construed as being adequate would require his or her residence at every laboratory first performing psi experiments or attempting to replicate them. In short, the magicians would have to become part of the scientific community for extended periods. This is not a real possibility in either logistic or financial terms. To insist on continuous monitoring by



illusionists while they remain outside the scientific community makes the social organisation of experiments impossible. Were something similar demanded in other branches of science, the normal processes of research and confirmation would be wrecked just as they are in danger of being wrecked in parapsychology. (There are a few scientists in America who have trained themselves as magicians, but whenever they have claimed to produce positive paranormal results their magical competence has been questioned by the professionals.)

These technical costs are born only by the parapsychological community but the value costs are a potential threat to the whole of science as we prefer to see it practised. The sociologist Robert Merton has argued that science is supported by certain norms. The scientific community prefers its scientists to be open (communalistic) and disinterested. Though this code is frequently broken in practice it is a valuable ideal. Now the community of illusionists does not share these values even as ideals. There are strong sanctions in their community against giving away the tricks of the trade to outsiders and they are not expected to share the secrets of new tricks even with their fellow professionals. It is not priority that is at stake, but the continued ability to earn a living by amazing the public. The public, of course, will stay amazed only so long as it does not understand how the tricks are done, and an illusionist will be an outstanding success in his profession only so long as he can do things that other magicians cannot. For very good reasons then, the community of illusionists is neither open nor disinterested; these are not parts of its value system.

(We might add, in parentheses, that not only do illusionists not hold disinterestedness as a value, but they have a particular interest in seeing paranormal subjects discredited since the latter are potential competitors for the public's favours. What is more, a good living is to be made out of "debunking" psychics, as certain members of the profession have discovered.)

The more important point however is a more abstract one. As I have said, many members of the scientific community appear to want to cede to magicians the power of veto on the results of scientific experiments in the paranormal field. In doing this they are transferring the right of knowledge production from a profession which holds the values of openness and disinterestedness to a group whose values include secretiveness and financial self-interest above the quest for truth. This is not to condemn illusionists as moral actors but merely to state a sociological fact. In ceding so much to stage magicians the conditions for breakdown in the value system are being created in an unpopular limb of science. The disease is likely to spread to the rest of the body. Scientists would do well to try to maintain as much control over the arbitration of knowledge claims about the natural world as they can; they are under sufficient threat as it is.

The best way for magicians to help scientists would be for them to break their own professional codes and explain clearly the standard methods for fraud in typical parapsychological experiments. Perhaps there would be no need for a universally available *Journal of Fraudulent Methods*, though this would be the best thing, but at least stage magicians might be prepared to explain all their secrets to scientists who they sincerely wish to help. They would need to be given guarantees of confidentiality and reasonable consultancy fees. The word would soon get around as to who was a really useful, knowledgeable and helpful illusionist, as with other sorts of consultancy, and rewards would accrue to the best.

Failing this—and the illusionists' professional values might well prohibit it—perhaps willing parties would set themselves up as "protocol breakers". That is, experimenters would invite illusionists, not to tell their secrets, but to attempt to break the experimental protocols by producing apparently paranormal effects under control conditions. This way the scientist would learn to design proper experiments on a trial and error basis, and would know what degree of confidence to have in the protocol.

The failed attempts of named magicians to break the protocol might then become part of any worthwhile experimental report. Under these circumstances there would be no need for a magician to be present at the time of the live experiments; their failed attempts to break the protocol would act as a certificate of competence in experimental design.

Naturally, such a system is not completely foolproof. The scientist might deliberately or accidentally relax the protocols for the live runs after they had been "certified". This however would be a case of fraud or incompetence on the part of the scientist (not the subject) and would be no more or less of a problem than it is in other areas of science. Confirmation at other laboratories is the remedy for a problem of this sort.

I have argued that although stage magicians can be valuable advisers to experimental parapsychologists the scientific community must beware of conceding the power of arbitration over knowledge claims to this outside professional group. This would be an easy but dangerous solution to the embarrassing problems presented by unorthodox research. However, as I have suggested, there are ways in which illusionists can offer their help without taking so much on themselves. □

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