

## Scepticbusters

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If only everything in the strange world of parapsychology was as simple as it looks on television. In the BBC series *Sea of Souls* a group of psychic investigators at a fictional Glasgow University investigates supernatural phenomena. These paranormal Inspector Morses are a mixed bunch: an eager know-it-all; a brilliant student returning to teach at his alma mater; a woman whose superior interpersonal skills allow her to elicit information denied to her laddish colleagues. Presiding over the department is Dr Douglas Monaghan, a father-confessor figure played by the charismatically crumpled Bill Paterson.

The members of Monaghan's department usually solve two mysteries during each two-hour story but spend little time writing papers or attending meetings. Seldom has academic life looked so inviting. Not surprisingly, the staff of Edinburgh University's Koestler Parapsychology Unit, on which *Sea of Souls* is loosely based, roll their eyes when the programme is mentioned. They realise their field attracts interest from lay people in the way that more traditional disciplines cannot hope to. But it irks them to be misrepresented as ghostbusting fruitcakes. Part of the university's psychology department, the unit is located in sparse rooms in a labyrinthine building in George Square. Like their fictional Glaswegian counterparts, the unit's staff are a mixed bunch.

Caroline Watt, acting head, is a thoughtful, quietly spoken psychologist whose work includes studies on the childhoods of people who claim paranormal experiences and an investigation of ghostly incidents in Edinburgh's underground vaults. One of three research fellows, Peter Lamont, is a former professional magician and the world expert on the Indian rope trick. Much of his work is about the history of deception. Fiona Steinkamp works part time. A philosopher, one of her interests is the possibility that humans can predict the future. Dr Paul Stevens, by contrast, trained as a physicist. His current research involves testing people to see whether their bodies react to the emotional state of a person in another room, then comparing this to the effects of very weak, low-frequency magnetic fields. Stevens is a science-fiction fan but engage him in debate and you realise he doesn't have a credulous bone in his body. Together this small team supervises eight postgraduate students.

Edinburgh University's parapsychologists are not cranks. Much of their work would sit happily within other academic disciplines. They speak the language of scientific method and peer review, and they do statistics the way most people do lunch. Yet many of the things they investigate - telepathy, precognition and psychokinesis, for example - are still regarded as anathema within "mainstream" science.

This puts them and their colleagues in academic parapsychology in a peculiar position. If they can explain how and why apparently paranormal phenomena happen and explain them, then they are scientific pioneers - as Newton and Einstein were - thinking the unthinkable in the face of derision. If they fail, however, they are intellectual heirs of the medieval alchemists: years of endeavour will have left them with a handful of fool's gold. So which of the two is it? Even the fictional Dr Monaghan and his team would find that question hard to solve.

The history of parapsychology in the UK might have been very different if it wasn't for one man. Born in Hungary a hundred years ago this year, Arthur Koestler was one of the 20th century's great men of letters: novelist, science writer, Zionist. A committed communist who fell out of love with Marx, he was imprisoned and sentenced to death under Franco during the Spanish civil war and escaped from Nazi Germany to settle in Britain, where he spent much of his later career attacking Soviet totalitarianism.

In March 1983, his suicide marked a controversial end to an often controversial life. Koestler's decision to overdose on barbiturates was not unexpected by his friends. He was suffering from Parkinson's disease and leukaemia. But there was widespread shock that his third wife, Cynthia, had taken her life too, despite being only 55 and in good health.

Koestler had always been a saturnine, overbearing figure, and the suspicion that he had bullied Cynthia into killing herself clouded the appreciation of his achievements. (Years later, his moral character would be called into question again when Jill Craigie, the wife of Michael Foot, claimed that Koestler had raped her. In the outcry that followed, his bust was removed from the concourse of Edinburgh University's psychology department. Today it sits in the Koestler unit library.)

A further bombshell came with the publication of Koestler's will. Just £7,000 was left in personal bequests. Almost everything else, including his book royalties and house in London's Montpellier Square, was given to establish a chair in parapsychology at a British university. Cynthia's will also included £100,000 for this purpose. The total legacy was almost £1m.

Who knows exactly where Koestler's fascination with psychic phenomena came from. As a young man, he had been influenced by Jung's writings on synchronicity. But it was after his disillusionment with the Left that he became increasingly interested in the paranormal - almost as if he was trying to make up for the loss of one idealistic belief system by embracing another.

Writing in *The Sunday Telegraph* shortly after Koestler's death, the novelist and critic Stephen Vizinczey observed that, in choosing to leave his money to psychic research, Koestler "committed suicide twice". His interest in the paranormal "practically made sure no one should suspect this loony Arthur Koestler of having written some of the most lucid and rational books of our time..."

If the keepers of Koestler's flame were aggrieved, the potential beneficiaries of his and Cynthia's largesse were hardly more pleased. Oxford and Cambridge universities both turned up their noses at the money, as did King's and University colleges, London. According to David Cesarini, author of *Arthur Koestler - The Homeless Mind*, "The subject matter to which [the chair] was devoted was regarded as ridiculous and the bequest was treated as a likely source of derision as much as enrichment."

That the Koestler chair should finally go to Edinburgh owed much to the philosopher John Beloff, an acquaintance of Koestler who had quietly taught parapsychology for several years as part of Edinburgh's psychology course. As Britain's only university professorship in parapsychology, the chair was, and still is, unique. With its establishment, the field took a step towards respectability. Not surprisingly, many within the university doubted the wisdom of recognising a "pseudo-science" in this way.

The first Koestler professor arrived from America in December 1985. Robert Morris was a psychologist who had worked at Duke University in North Carolina under the famous paranormal researcher J.B. Rhine in 1960. There he had taken part in some unusual studies. In one, rats were tested for their psychic ability. Having heard stories of dogs that ran to their master every morning except on the day they were due to be put down, Morris decided to see whether a similar phenomenon could be observed in the lab.

Sixteen rats were each released for two minutes into an 8ft x 8ft box marked with a grid of small squares. Notes were taken of how many squares each rat entered - a measure of how active they were. After this, eight of the rats were selected at random to be killed. "Half of the animals that lived were active enough to leave their original square," Morris concluded, "whereas none of the animals that died showed such activity."

The study is too small to be statistically relevant. But it gives an idea of the gamble Edinburgh University took by accepting the Koestler bequest. Academic institutions work on a lowest-common-denominator principle: a suspicion of flakiness in one department threatens the credibility of all and, to many in academia and beyond, rats that could foresee their own deaths must have looked pretty flaky.

Morris, however, turned out to be an astute choice as professor. "Bob clearly had a long-term plan," says Caroline Watt, who joined the unit in 1986. "He knew that if parapsychology was ever going to be taken seriously he would have to go about things carefully." This caution took several forms. He was happy to appoint sceptics as researchers, and he gently steered the unit away from the more outre forms of paranormal research, such as investigating UFO sightings. Above all, he never overstated his case.

Typical of his public pronouncements was an interview he gave to *New Scientist* in 2002. On the one hand, he told the magazine that when he came to Edinburgh University he "set the odds at about 85 per cent that we were studying something that would turn out to be above and beyond what present-day science could account for. During those years, I've probably drifted into the low to middle nineties". On the other hand, he warned that "researchers need to get away from the notion of believing or disbelieving. People don't talk about believing in other fields... It looks to me as though there is something new going on, but it wouldn't blow me over if it turned out there wasn't."

Morris's backside must have grown sore from sitting on the fence, but his patience paid off. By the time of his death in August last year, there were five parapsychology units in British academic institutions seeded by former Koestler postgraduates, including research groups at the universities of Coventry and Hertfordshire. By contrast, in the US, where researchers have tended to be more gung-ho about expressing belief in the reality of psychic phenomena, parapsychology has almost disappeared in universities.

If Koestler were around today, he would surely be pleased to see the fruits of his legacy. But he would also be impatient for answers. What exactly have the unit's researchers and their colleagues in academic parapsychology learnt? In the language of parapsychology, the unknown factor or factors present in apparently paranormal phenomena is known as "psi" - named after the 23rd letter of the Greek alphabet. Historically, however, psi's workings have often been broken down into two processes, extrasensory perception (ESP) and psychokinesis (PK). The former refers to situations in which an individual acquires information without the use of any recognised human sense; the latter to situations in which the mind acts directly upon matter.

Methods of lab-parapsychology have changed with technological advances over the years. Until the 1960s, experiments in which participants attempted to influence numbers rolled on dice were popular tests of PK. With the advent of random electronic number generators, they have become defunct. Instead of trying to toss, say, a "three" or a "six", subjects attempt to influence the machine so that it throws up a disproportionate number of binary noughts or ones.

Likewise, in ESP research, card-guessing experiments have largely disappeared. In recent years, the most popular ESP experiment is what's known as the "ganzfeld", from the German "whole field". The ganzfeld lab is the first indication that something out of the ordinary takes place in the Koestler unit. This small, bare, soundproofed room houses a black leather recliner and a computer screen. When you see it for the first time, it is hard to avoid the comparison with a torture chamber or a particularly grim dentist's surgery.

Ganzfeld procedure can vary, but in essence it works as follows. First the experiment's subject is sensorily deprived. This is done by covering their eyes with ping-pong-ball halves and shining a red light at them. At the same time, white noise is played through headphones. After a short period of relaxation, the experiment begins. In a room in another part of the building, a "sender" concentrates on a "target image" (usually a video clip) with the aim of transmitting it telepathically to the subject. At the end of the session, the subject is then shown four images from which he or she tries to pick the target.

The ganzfeld reveals a lot about the state of parapsychology. By chance, ganzfeld subjects should guess the right target 25 per cent of the time. In fact, the overall success rate often quoted for ganzfeld is slightly more than 33 per cent.

Statistically, that is a huge discrepancy: taken at face value, ganzfeld results form almost incontrovertible evidence for the existence of psi. The trouble is, as you quickly learn from talking to parapsychologists, nothing can be taken at face value. The ganzfeld has caused more bust-ups than a poltergeists' convention.

In 1985, the parapsychologist Charles Honorton presented a paper claiming that the ganzfeld had proved the existence of psi. In response, the American sceptic Ray Hyman published his own review of the ganzfeld literature in which he pointed out 99 flaws in the original experiments, ranging from security flaws to failures to ensure that the selection of target pictures was truly random.

After a year of debate in academic journals, Hyman and Honorton issued a joint communique. In it they agreed that the ganzfeld experiments seemed to show something happening that couldn't be accounted for by statistical error. But they disagreed about whether this effect constituted evidence for psi: "We agree that the final verdict awaits the outcome of future experiments conducted by a broader range of investigators and according to more stringent standards."

In scientific terms, this was no bad thing because it encouraged experimenters to tighten up their procedures. Honorton began to develop the "autoganzfeld". This computerised version of the experiment, which is used today, was designed to eliminate many of the flaws noted by Hyman - in particular the possibility that target images chosen by researchers were not truly random.

Slowly claims of positive results re-emerged. From a six-year autoganzfeld study, Honorton's lab claimed a hit rate of 34 per cent. Other institutions, including the Koestler unit, reported similar findings in the 1990s.

Things looked rosy for the hypothesis that psi existed. Then, just as they had in 1985, the feathers began to fly.

In 1999, the British parapsychologists Julie Milton (a Koestler unit researcher) and Richard Wiseman (a former Koestler postgraduate) published a statistical overview of 30 new-generation autoganzfeld studies conducted after Honorton's. This "meta-analysis" claimed that collectively these results were much as would be expected by chance.

The debate that followed in the next couple of years was ferocious: a series of accusations and counter-accusations aired in journals and on the internet, with much attention paid to which studies should be considered standard enough to be included in the meta-analysis. (Not long after, Julie Milton left the world of parapsychology for a job at the Office of National Statistics. Former colleagues suggest it was partly the hostility of the argument that made her change career.) The pro-psi brigade pointed at what they saw as the evidence and claimed victory; the sceptics held firm to their (dis-)beliefs. It was a stand-off. Anyone outside the hothouse world of parapsychology was left as bemused as they had been when they started.

Who, then, is right? The Koestler unit's acting head, Caroline Watt, is as measured in her words as Robert Morris was. "There seems to be something going on but we are not sure what it is - the existence of psi or a flaw in the methodology somewhere. There's an old joke Bob used to make to audiences to sceptics that ESP stands for 'error some place'."

To an outsider, it seems extraordinary that researchers worldwide could conduct variations on the same experiment for three decades only to reach this position. At least the proverbial blind man looking for a needle in a haystack had some idea of what a needle felt like and how, if he eventually found it, it could be used to sew things. Even if someone could prove that psi exists, nobody has a convincing model of how it works. Among many parapsychologists, it is held that psi operates independently of time (thus allowing effects such as precognition) and across distances that conventional signals could not cover. If this is true, then the physical laws that govern our universe will need amending, possibly even rewriting entirely.

"What you have to realise is that the field of parapsychology is very small - and psi research is only part of that field," says Watt. "Someone once calculated that the total amount of research done on psi is equivalent to just two months' study in mainstream psychology in the US."

If resources are a problem, however, so is psi's apparent fickleness. The inability to reproduce "successful" experiments at will is the biggest obstacle psi-research faces in its fight to be taken seriously. Replication is how science moves forward. Why, sceptics ask, should parapsychology be any different?

Richard Wiseman, who with Julie Milton conducted the 1999 ganzfeld meta-analysis that found no significant effect, is now professor for the public understanding of psychology at the University of Hertfordshire. A former member of the Magic Circle, he has worked with the mindreader Derren Brown (a "great magician but no paranormalist") and he once wrote and performed a stage show at the Soho Theatre, London, with the Cambridge University mathematician-turned-media star Simon Singh.

"My position is slightly odd," Wiseman says. "Because of my work with the Koestler Chair, I went to meetings of the Parapsychological Association and got to know the proponents [of psi]. But my natural home is within scepticism. I was brought up in someone else's house."

Wiseman's work has included examining Indian fakirs and co-authoring a guide to testing psychic claimants with Robert Morris. ("I've never come across one I've not felt able to explain," he says.) But he is almost as dismissive of the "believers" within parapsychology research.

"If you're a believer in psi, your problem is whether the thing you're studying exists or not. If it does, that's great - weh-hey, you're on to the next Nobel prize. But if it doesn't, what do you do? It's very difficult to justify your position as a psychic researcher if people aren't psychic.

"My personal theory is that if I could say tomorrow that all these weird results can be explained by a wave that comes out of your brain and goes into someone else's, many parapsychologists would leave the field overnight. For a lot of them it is a kind of paradox - an ongoing search for mystery, not for a solution."

Wiseman himself does not dismiss the possibility that psi exists. But he argues that parapsychologists have been too flighty, moving from one type of experiment to another without following through. His argument is that parapsychology needs to put all its eggs in one basket. "If everyone is trying to do their own thing, you

don't learn anything," he says. "Let's find our best hope, do a systematic amount of research and see what we get."

And then? What if such a study is still inconclusive?"

My question to proponents of psi would be this: When do you say, we've been on 20 expeditions to find the unicorn, and each time someone thought they've seen a little bit but we've never been able to drag one back? When do you stop looking for something?"

Dean Radin is a man who believes that the unicorn has been caught - and only the wilful disbelief of sceptics says otherwise. Radin is director of the Consciousness Research Laboratory (CRL), part of the Institute of Noetic Sciences, a Californian organisation founded by the Apollo XIV astronaut Edgar Mitchell in order to study the "potentials and powers of consciousness".

The institute's website does little to dispel sceptics' prejudices: forthcoming events include the Nina Gates Mystery School ("Explore your inner wisdom and move into service as the leaders of tomorrow") and something called a Spiral Dynamics Integral Workshop. Radin's credentials, however, are reassuringly solid. He has conducted paranormal research for, among others, the telephone giant AT&T and the US government. Academic work has included spells at Princeton and at the Koestler unit, where in the early 1990s he worked on ganzfeld experiments. Radin's 1997 book *The Conscious Universe* - a popular science bestseller - presented what he called the "irrefutable" evidence for the reality of paranormal phenomena.

As an old sparring partner of Richard Wiseman, Radin has heard all the criticisms before. "People's responses to questions about the existence of psychic phenomena depend on their a priori opinions," says Radin. "New evidence will push them to a degree - but only to the extent they are pushable. Richard falls into a class of people who want to see something like the UFO landing on the White House lawn before he will accept proof."

For a neutral opinion, Radin says, you need only look at the findings of official scientific committees. Five US government panels assessed the findings of psychic research during the 1980s and 1990s. "All five decided that something was going on."

Even when the CIA decided to stop its Stargate paranormal research programme, it wasn't because they'd failed to find effects but because it was felt that the practical intelligence applications for those effects were limited.

While Wiseman asserts that psychic researchers are often mystics in disguise, Radin believes that sceptics are often out of touch with modern science. In particular, he argues that developments in quantum physics - the branch of science that explains the often downright weird behaviour of sub-atomic particles - mean that "our understanding of the physical world is becoming more compatible with psi".

For example, one of the biggest barriers to accepting that psi exists has always been the apparent impossibility of transferring information instantly, regardless of distance.

In the late 1990s, however, a research team managed to pass information in just this way between two "entangled" atomic particles. This process is known as quantum teleportation, and even its developers seem struck by its strangeness. One of them, Charles Bennett of IBM Research, described it as "like a curse passing from a lock of hair back to its owner".

Put this together with recent theories of consciousness, which suggest that quantum processes within the brain are responsible for puzzling effects such as free will and the sense of self, and the implications for psi research are huge. If psi is a quantum phenomenon and consciousness a quantum machine, what could be more natural than the former manifesting itself in the latter?

It hardly needs saying that many biologists and physicists disagree. Again, parapsychology drags the neutral observer through the looking glass - before dispatching him back to the "real" world, full of wonder but little the wiser.

In 1963, the historian Thomas Kuhn published the most influential book ever written about the philosophy of science. *The Structure of Scientific Revolutions* observed that history was divided into long periods of "normal" science followed by shorter bursts of "revolutionary" science. Normal science "does not aim for novelties of facts or theory, and when successful finds none". In times of revolutionary science, by contrast,

the most fundamental scientific ideas are there for the taking - just as they were when Copernicus first declared that the earth went round the sun.

Kuhn called such changes from one scientific world model to another "paradigm shifts" and noted that they often required a generation to accomplish. Controversially, he argued that reason alone can never compel a scientist to switch allegiance from one paradigm to another, however good the evidence: in part, this kind of mindshift would always have to be an act of faith.

For pro-psi researchers, Kuhn's ideas offer comfort and ammunition. To them, science is undergoing a paradigm shift during which acceptance of psychic phenomena will eventually become the norm among scientists. Opposition from the establishment is only to be expected.

Like most revolutions, the psi revolution has its promised land. A psi that could be manipulated might have many practical applications. Psychic healing would be a boon to any health service and psi-responsive chips could transform computing. Mind-power might even be used to stimulate crop growth, hunt for oil or change weather patterns.

But for some researchers it is not the technical applications of psi that appeal but its wider social implications. For example the idea that individual consciousnesses can be joined for a collective purpose. For Radin, this opens the possibility of "brief shining moments when intensely nurturing thought from a single individual, or groups of like-minded individuals, may literally spread out and heal the world-mind".

This kind of Aquarian idealism is hardly unique within the field. (Is it coincidence that many of the most pro-psi researchers were at university in America during the 1960s?) Even Foundations of Parapsychology - an even-handed introduction to the subject that was co-written by Bob Morris - declares that a post-psi world promises "a societal organisation in which there will be less competition and more co-operation, and the feeling of the unity of society being greater than the assertions of the individual; less of a work ethic and more of a merging of work, play and learning; a greater tolerance of difference..."

In this revolution it is not the workers of the world who unite but their minds. Is it any wonder that Koestler, the disillusioned communist, should have gravitated towards parapsychology?

Meanwhile, back at the academic coalface, however, grand ideas count for little. The members of the Koestler unit chip away diligently, as they wait anxiously to see whether Robert Morris will be replaced directly or the unit will in effect lose its professorship. Whatever happens, the research group will survive in some form. The university's powers that be are happy with their publication rate, and Koestler's bequest is ring-fenced. Maybe in another 20 years, they will know whether their discipline is based on a chimera or not.

The data from Paul Stevens' latest magnetism-telepathy experiments suggest that some kind of non-sensory transfer of information is taking place. "In some ways it's the worst thing to get a positive result," he jokes, "because then you're forced to go back and recheck."

Fiona Steinkamp's study into precognition has reached its 43rd week out of 64. Every Saturday she puts money on greyhounds randomly chosen by people who visit her internet site. "On gambling weeks, I get to keep my winnings," she says. "On charity weeks, they go to a good cause. But I don't tell anyone which week is which. The idea is to test some people's belief that you can't use psychic abilities for selfish ends."

Peter Lamont, at one remove from the business of psi research, is revising proofs of his biography of the Victorian psychic D.D. Home. And Watt is in the middle of a study in which she videos a believer who gets psi-positive results and a sceptic who doesn't. She then tries to determine whether they each treat their subjects differently. "Surprisingly, it's not really obvious where the difference lies," she says. "I'm still puzzled."