

Spoon-bending science

Gellermania continues, albeit in a muted form, as British scientists continue to examine children who bend cutlery and a major French firm has launched an investigation of a metal-bending psychic and magician

Joseph Hanlon On a rainy June night, five apparently sane men drove 100 miles to a lab in Bath to watch a girl try—unsuccessfully—to bend a spoon “paranormally”. This trek provides evidence that parascience, and metal bending in particular, continues to attract the attention of serious scientists. But it also illustrates the changes that have occurred in the nearly four years since Uri Geller burst upon the scene and dozens of children appeared to have the same abilities. As the scientists became more aware of the possibilities of deception and tightened their conditions, these abilities disappeared. Professor John Taylor just two years ago in his book *Superminds* (MacMillan) declared: “Taking all this evidence as a whole, only one conclusion seems to be possible: the strange metal bending phenomenon is genuine.” But last week he told *New Scientist* that he is now much less sure that there even is a metal bending effect. In his own lab, the powers of the children have declined in direct relation to the tightening of conditions. Not only can none of the children perform under what he calls “100 per cent” conditions, they now cannot or will not even duplicate their earlier performances under looser conditions.

The Bath test last month was in the lab of Harry Collins, the only person in the UK to have government money for research connected to parapsychology. Collins is perhaps best known for his letter to *Nature* (vol 257, p 8) in which he reported that through the use of one-way glass, he had caught five of the little “Uris” cheating. His £10 000 Social Science Research Council grant is to look at the parapsychological researchers. But it also includes “participant observation”, which means watching children bend spoons. In this area, “we saw enough to encourage us to continue our experiments, but nothing that would convince a sceptic.” Since then, the conditions have been tightened and again nothing has happened.

The June test, at which I was one of the judges, was of 15-year-old Julie Knowles. Her abilities have been well publicised (eg *Reveille*, 5 November, 1976) and she was taking up the \$10 000 challenge of US magician James Randi. He offered the money to anyone who can bend metal by paranormal means, but his money remains safe. Julie has been tested both by Collins and Professor John Hasted of Birkbeck College, London. Hasted is a strong believer in Julie’s abilities. Although Collins has not seen her cheat, neither has she been able to perform under his tighter conditions.

Of those British scientists who have looked closely at metal bending, only Hasted appears to remain strongly convinced. He recently published the results of his work with Uri Geller and three children in *Journal of the Society for Psychical Research* (vol 48, p 365). He is now looking at what he claims is the children’s ability to affect strain gauges embedded in pieces of metal without touching the metal.

If spoon-bending is dropping from vogue, there appears to be an increase in other forms of academic parascience research. There are now at least eight post-graduate students in parascience, at least two of whom hope to get PhDs this year—probably the first British PhDs in parapsychology.

John Beloff (author of *New Directions in Parapsychology, Elek Science*) continues his research with the aid of four postgraduate students. He has recently reported a possible “retro-psychokinetic effect”. In the last, signals



Jean Pierre Girard (left) with Chris Evans

are put on to a tape randomly and a subject later tries to increase the strength of those signals—if this occurs, it would mean the subject had influenced the randomisation process which occurred some weeks before the experiment.

At Surrey University, a philosophy chair was established for someone to do research “concerned with the philosophical implications of data accumulating in the borderlands of scientific inquiry, eg ESP.” Since its establishment, the chair has been occupied by Professor S. C. Thakur, who is developing a philosophy of parapsychology. Three post-graduate students are now working on telepathy and psychokinesis (PK) in the Surrey philosophy and psychology departments.

At City University, Professor Arthur Ellison, president of the Society for Psychical Research (SPR), is now building up instrumentation to study physiological correlates—brain rhythms, electrical skin resistance, etc—of unusual mental states, particularly during “out of body experiences”. And at Kings College, London, Taylor is looking at electromagnetic (EM) signals emitted by subjects during psychic healing and other apparently paranormal events. Some low level PK effects, such as moving a small object by passing a hand nearby, have been “very repeatable”, and Taylor now believes they can be explained by low level EM forces, charge distributions on the objects, etc. The more spectacular events, such as objects moving about the room, have never been repeated under controlled conditions so could not be studied.

Money remains a particular problem in this research area. None of the post-graduate students is known to have studentships, although three are supported by the SPR. Taylor raised the money for his research from private sources; but even so, he had to beg and borrow equipment. That money has now run out, and Taylor’s assistant expects to have to leave this month.

Magic and the paranormal

For Charles Crussard, research money is not a problem. He is research director of Pêchiney, the metals and chemicals conglomerate which is the fifth largest private company in France. Crussard heads a series of labs employing 100 researchers. Crussard says that his researchers have been studying—with company approval—Jean Pierre

Girard. By all accounts, the Girard studies are on a much higher plane than the Geller circus. The most striking difference is that Girard openly admits to being a trained magician and to having a listing in a French magicians' annual. Noting that Geller is also a trained magician, Crussard writes that this merely "proves that such people have an attraction toward illusionism" and that special precautions must be taken. Crussard concludes that the metal bending effect is a combination of mind and body—psychic and magic—which is sometimes 100 per cent psychic but not always. "I believe that Geller has PK powers, but I also believe he gives too many public performances and uses his other powers too often."

In a paper submitted to *Nature* last year, Crussard reports on 116 cases of Girard bending metal. Some, he says, were under tight conditions. But in the paper he admits that "in some cases the experiment was confused and a trick may have been possible. But we never saw any tricks." The events reported include many bent keys—in two cases, it is claimed that they were checked as flat before being put into an assistant's hand and were bent before they were taken from his hand. A flat aluminium plate held by an assistant and stroked by Girard is said to have bent in two places; other plates were bent and straightened during the same session. Twenty five round bars have also been deformed; in one case a stainless steel bar in a closed (but not sealed) tube was both bent and magnetised, Crussard reports.

Flying to Grenoble

The importance of Pechiney and the high standing of Crussard as a metallurgist inevitably forced *Nature* to take the paper more seriously than it might otherwise have done, although its anecdotal form and mix of controlled and uncontrolled tests would probably have made it unpublishable in any case. At Crussard's invitation, *Nature* editor David Davies and noted sceptic Chris Evans (a referee of the original Geller paper: *Nature*, vol 251, pp 559, 602) flew to Grenoble in early May. They watched Girard give an informal performance, in which he bent a few bars, and saw films and tapes of other Girard bendings.

It was agreed that the conditions still did not satisfy those which have been developed in the past few years. In particular, it was felt that the bars were not well enough controlled before the experiments and not labelled, making it possible to bend a similar bar before the test and substitute it for the test bar. Indeed, Girard had been invited by the experimenters to take identical bars home to practice with. Other problems included the fact that Girard did not always keep the bar in sight of the camera, and that the protocol did not adequately exclude the possibility that an experimenter might be involved in a fraud.

"I have always considered that my word was sufficient. In a scientific experiment, if a scientist sees something, his testimony is sufficient," Crussard comments. But last week he told me that he accepts the *Nature* criticisms, and that in this area of science much tighter rules must apply.

At an early stage in the experiments, the researchers contacted James Randi and read his book *The Magic of Uri Geller* (Ballantine) as well as several of his articles in an attempt to tighten the conditions. After the *Nature* visit, Randi was invited to go to Grenoble actually to set the conditions. Just three weeks after their first visit, Evans and Davies were back in Grenoble—this time with Randi. And this time the conditions were tight. Davies and Randi coded the rods and Evans controlled them before and during the experiment. After three hours, Girard gave up and abandoned the unsuccessful test. Crussard told me that "the protocol Randi selected was very good" and will be continued. He dismissed Girard's failure as due to working the first time with a very complicated protocol. "I am quite

sure that after a few tries he will be able to do it."

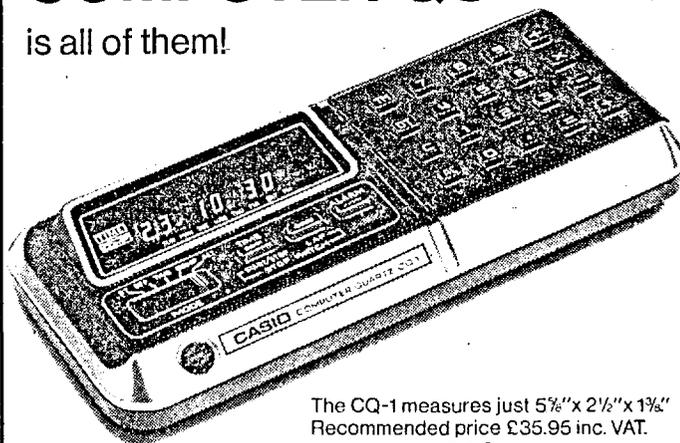
Crussard involved a magician at an early stage—the French illusionist Ranky has issued a public statement saying that in the tests he watched, he could not see how Girard could have used tricks. And his involvement more recently of Randi, probably the best spoon-bender in the magic business, continues to show that these experiments are on a much higher level. Chris Evans commented: "I was impressed by their honesty and their determination to do things properly. I feel very strongly that they are treating this in a proper scientific manner—quite different from any other so-called scientific studies of this that I have seen." Evans remains a complete sceptic, but he admits that "Girard is quite the best I have ever seen. If this was fraud, it was very clever—not the sort of thing Geller or I can do." Evans also stressed the "staggering difference between Girard and Geller. Everything about Geller shouts fake at you. Girard seems quite different." Where Geller constantly runs around the lab and is always doing six different things, often unannounced, Girard just sits in a chair the whole time, stroking the bars and doing precisely what he says he is going to do.

The Randi visit has, however, sparked off a row between Randi and Crussard. Randi watched some of the videotapes of Girard and says he caught Girard cheating several times. In one, for example, Girard holds a bar in his right hand and slowly rotates it with his fingers. It appears to bend, when in fact a bend hidden from the camera is simply rotated in view. Although he did not say so at the time, Crussard told me that the whole thing was a test of Randi, and that he knew that the film contained tricks as well as real psychic events. This explanation cuts little ice with the critics, however, who consider it may be little more than a cover-up. Crussard also told me that if he

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found during a proper scientific experiment that Girard used a trick, "it would be very disillusioning for me. But I would certainly tell it—this must be published as well."

Girard was also tested a year ago by Taylor, who says that it was he who told Crussard that Girard was a magician. Although Girard was able to perform under Taylor's tightest conditions at that time, Taylor also says they were "not 100 per cent" and have been made considerably tighter since then. Taylor refused to say if he had seen Girard using his illusionist's skills, but he did admit that he had taken legal advice on the libel laws—perhaps a wise decision, as one researcher recently withdrew an already submitted paper reportedly accusing an alleged psychic of fraud after the psychic threatened to sue.

Meanwhile, back in the US, the parapsychology boom continues. Two books were published last year on Geller (*The Search for Superman* by John Wilhelm, Pocket Books, and *The Geller Papers* by Charles Penati, Houghton Mifflin). This year, Russel Targ and Harold Puthoff, the Stanford Research Institute scientists who wrote the *Nature* paper on Geller, published a book on remote viewing experiments at SRI (*Mind-Reach*, Delacorte).

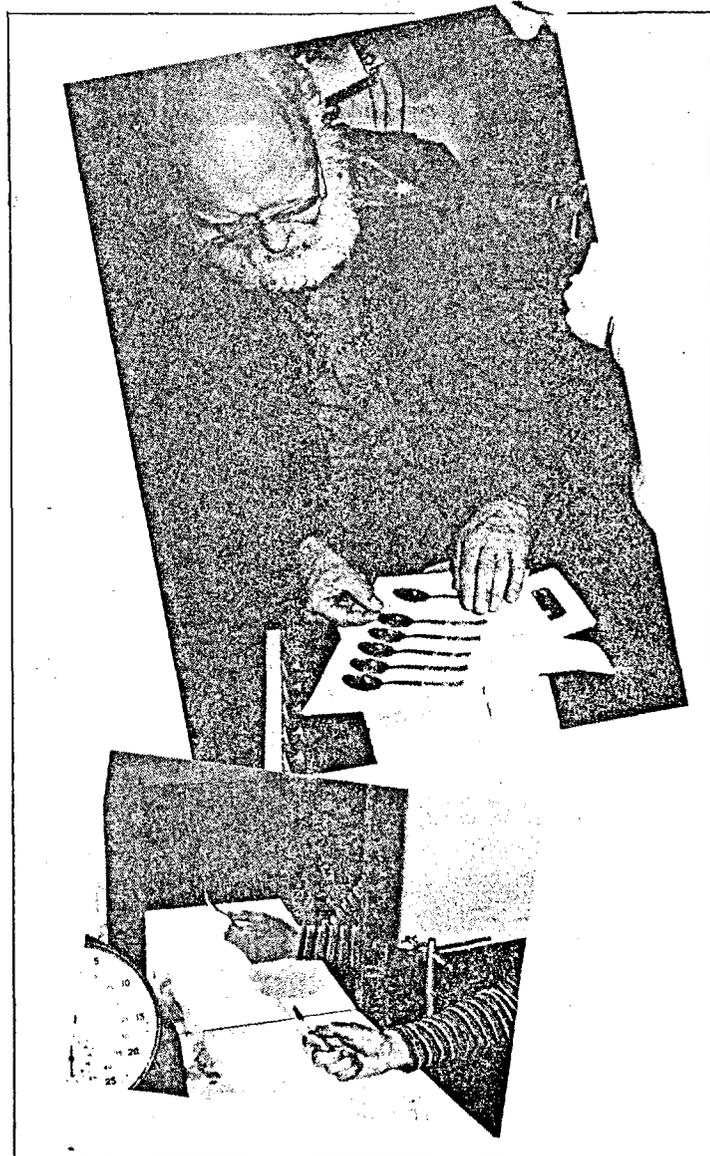
The critics are also out in force. A Committee for the Scientific Investigation of Claims of the Paranormal has been launched with well-known critics such as Randi, Evans, Martin Gardner, and C. E. M. Hansel, as well as a few who are less closely related to the area such as B. F. Skinner, Carl Sagan, and Isaac Asimov. Their bi-annual journal *The Zetetic* has just published its second edition. Committee members also had a large section of the May-June issue of *The Humanist* with a series of articles "The psychics debunked". And Committee members have been called in to advise the US government on its continued funding of parapsychology research.

The Targ and Puthoff studies of Geller continue to take a knocking. In his book, Wilhelm comes close to accusing Targ and Puthoff of dishonesty. The major experiment in the Targ and Puthoff paper is a series of picture drawings, in which Geller was supposedly isolated from one of the experimenters. That experimenter would then make or select a drawing and attempt to transmit it by telepathy to Geller. "Following a period of effort ranging from a few minutes to half an hour, Geller either passed (when he did not feel confident) or indicated he was ready to submit a drawing." Geller passed in three of 13 attempts, they say.

Not quite, replies Wilhelm. In three cases, he alleges, Geller chose to pass but they included one of his drawings anyway. In one of those cases, Geller passed, but Wilhelm says: "apparently Targ and Puthoff themselves may have helped select one of Uri's many drawings that best fit the target." This was a horse in response to a target of a camel. Only the drawing of the horse (but not the others) was published in *Nature*. In another case, Geller asked Puthoff whether the target was a geometric picture or an object, and Puthoff told him. Was there any more such communication not mentioned in the *Nature* report? Also not mentioned is that in one instance Geller left the room and drifted three rooms away for a cup of coffee during the experiment. Wilhelm notes that not only was Shipi Strang present during the tests, but so was another Geller supporter—Jean Mayo. Often more people were present. Geller's "SRI experiments tended to be more like full-blown stage performances than private experiments." In one case, Mayo's telephone number appeared on Geller's response sheet. She recalls she gave him the number during lunch, but how did it get on to the sheet? Paranormal, or was protocol broken by Geller having the pad before or after the test?

Finally, one of the best scientific validations of ESP is brought into question in an article by Martin Gardner in today's (14 July) issue of *The New York Review*. Last year, Charles Tart, a professor at the University of Chicago, Davis, published *Learning to use extrasensory perception* (University of Chicago). In the book he describes an experiment in which a randomiser selects a number from 0-9 and lights a corresponding light on a console. The sender concentrates on the light, while a receiver in another room presses a button which he thinks corresponds to the sender's light. In a run of 5000 numbers, the receivers were right 722 times instead of the expected 500. But three mathematicians at Davis checked the machine, and wrote to Gardner that in fact it was not random! In a random series, there is a 10 per cent chance that the machine, having produced a number X, will immediately produce X again. In Tart's run of 5000 numbers, this occurred only in 193 trials instead of the 500 expected. The mathematicians tested the machine and found that it did, indeed, avoid twins as it had during the experiment. People apparently repeat a number in such tests much less than 10 per cent of the time, so this alone could have provided many of Tart's extra hits.

In a comment that must apply to most of the parascience research done recently, the mathematicians say: "Until the experiment is done again, we are in the position of a chemist who at the end of an experiment discovers that his test tube was dirty. Whether it was only a little contaminated or a lot doesn't matter. The experiment has to be executed with a clean test tube." □



Finding a home for stray fact

Was the "Miracle of Fatima" simply ball lightning? Are the strange dull sounds heard by George Darwin 80 years ago related to those reported in the British press last year?

Adrian Hope

Independent American journalist I. F. Stone, with his famous weekly newsletter, routinely embarrassed politicians and public figures by reminding them in print of official lies told years ago. Apart from a prodigious memory, Stone relied mainly on clippings continually gathered from other publications. "Everything you need is on the public record," he would tell students of investigative journalism.

In science there is also in the public record a wealth of hard fact reported first-hand, but consistently overlooked, for the simple reason that it fails to fit neatly into any scientific pigeonhole, and thus remains unclassified. Sometimes this unclassified residuum of hard, scientific fact can have direct bearing on modern scientific puzzles. For example the recent reports in the popular press of complaints from people living in London, Bournemouth, Cardiff, Blackpool, Glasgow, and Ipswich of mysterious humming noises which are supposedly "baffling scientists" bear a marked resemblance to those of sounds heard a century ago in iron steamers off the coast of Greytown, USA.

In the US, William Corliss of Glen Arm, Maryland, has embarked on the mammoth task of classifying 200 years backlog of previously neglected but potentially interesting scientific material. A nuclear physicist who has worked for NASA, Corliss has six series of source books available, each containing classified and meticulously cross-indexed references and excerpts from old and new papers and magazines.

Some sources are as obscure and unlikely as the material culled from them. *Catholic World* (June 1949), for instance, is quoted as citing a 1917 description by a Miss Gordon of the famous "Miracle of Fatima". During a rainstorm at the Cova da Iria, the clouds were torn apart, a sun the colour of stainless steel appeared, and threw out colours like a giant Catherine wheel. Finally the sun, turning blood-red in colour, came hurtling down over the heads of all those present. Alongside this reference is another, culled by Corliss from the *Edinburgh New Philosophical Journal* of 1841, describing balls of fire witnessed near London in 1750. "Dogs howled, fish jumped three feet out of the water . . . and a ball of fire was seen." According to the same source, in 1795 the Rev Mr Gregory described how a ball of fire passed over the town of Derby and several locals "felt something like an electrical shock." According to *Nature* in 1971, something similar happened in Austria in September 1963. In the entrance hall of a restaurant, students on a field trip from Heidelberg University Geology Department were sheltering from a storm. "Suddenly, through the open outside doors, a whitish-yellow ball appeared, just above the floor. It was slightly larger than a tennis ball and its speed was that of a walking person."

All these, and numerous other related source references, are to be found under the heading "Ball, lightning", reference section GLB of the Corliss Source Book *Strange Phenomena*. Alone and isolated where originally published, they mean little. Together, they help build up a picture not only of what forms ball lightning can take but how, under some circumstances, this natural phenomenon can be mistaken for something supernatural or psychic.

In the same source book, Corliss quotes a dull description from a 1964 issue of *Undersea Technology* of "an electromagnetic radiation pattern over the ocean" which may help explain away some of the mysteries still surrounding the Bermuda Triangle. Scientists from the LTV Research Centre engaged routinely on another task, the investigation of an accident, a unique, stable electromagnetic radiation pattern

over the ocean. Amplitude and spectral analysis of the low and medium frequency radiation pattern is documented at length and the interesting point made as an aside that it "is found as variations in the signal from radio stations". In other words, whatever is causing the ocean pattern produced unpredictable interference in received radio signals. One explanation offered by the Navy, who supplied the aircraft, the crew, and the computer which analysed the data, is that the effect is due to peculiarities of ocean current temperature and salinity. Corliss, in a source book footnote, suggests possible correlation with the Bermuda Triangle.

Corliss readily acknowledges that by including fascinating, but homeless, facts and filtering the data included in his source books only slightly, it is inevitable that some hoaxes and honest misinterpretations will have been included. His unabashed philosophy is to include material by virtue of its strangeness and tendency to contradict current scientific hypotheses. It follows that either the "waifs" that he has included are false, or as he puts it, "science still has much fundamental work to do".

Healthy scepticism

Reassuringly the annotations are healthily sceptical where the waifs are in serious doubt. For instance, alongside that hard fact report on radio disturbances over the ocean is an excerpt from an 1847 *Report of the British Association* describing how two Liverpool residents in the Great Park at Birkenhead saw in the clouds an erect image of Edinburgh for a period of 40 minutes. Corliss reminds the source book reader that the straight-line distance between Edinburgh and Liverpool is about 170 miles, and that as there was at that time a panoramic model of Edinburgh on display in the Zoological Gardens at Liverpool, "the coincidence of the mirage and the exhibition is hard to swallow". Corliss is even more openly sceptical when quoting in his *Strange Artefacts* a report from the *English Mechanic* of 1892. Archdeacon Nouri, it seems, climbed the top of Mount Ararat and there discovered Noah's Ark which he "walked round with five or six companions". The Ark, like the UFO, notes Corliss, is found frequently.

Although other entries may also at first appear to have a touch of humour about them, some dubious phenomena have been independently reported so many times that it is only a fool or a wise man who would discard them. In 1895 George Darwin, son of Charles, wrote to *Nature* describing strange dull sounds heard in the delta of the Ganges. These, he explained, are locally called Barisal guns, apparently similar sounds heard off the Belgian coast being called "mist pouffers". Darwin believed that similar sounds were heard in Dartmoor and parts of Scotland, and asked, "will any of the numerous readers of *Nature* in various parts of the world give us an account of their experiences in this matter?" There then followed a lengthy correspondence reporting guns or pouffers as far afield as Western Australia and Cardiganshire. Corliss is able to cite references to rumblings heard by Humboldt in Mexico, Moodus sounds in Scotland and Buffalo, and Gouffre noises in Haiti.

Can all these and perhaps those heard recently in England perhaps be explained by the same cause? Who knows? But that is the kind of question that Corliss's source books leaves unanswered, and indeed does not seek to answer. The compiler's avowed intention is to rock the scientific boat by referencing anomalous events and artefacts which have not been reported on modern computerised data systems. □