

## Investigating the paranormal

*The Editors wish to thank Dr David Marks for coordinating this review.*

### An introduction

D. F. Marks<sup>1</sup>

*School of Psychology, Middlesex Polytechnic, Queensway, Enfield (England)*

A phenomenon is defined as 'paranormal' if it contravenes some fundamental or well-established scientific principle. Intense public interest is attracted by reports of spoon bending, poltergeists, apparitions, psychic detection, reincarnation and monsters, and the media, writers, and producers of 'documentaries' quite naturally cash in on this interest. Apart from the mystery and wonderment, some of the excitement about paranormal claims surely resides in the affront they present to established science. 'Isn't it amazing', so the catch-cry goes, 'even the world's top scientists can't explain it!'

Ideas of the paranormal certainly sell well and they can raise the small hairs on anybody's neck in an old, dark house in the middle of the night, but it is important to differentiate between 'pop' paranormal and serious scientific work. Both kinds are of interest: the former for the light it sheds on human motivation and belief structures; and the latter for its implications for the nature of science. The objective of this multi-author review is to critically examine the evidence for the paranormal in a selection of historically significant areas. Some scientists wonder why one should become involved in detailed analyses for investigations of paranormal claims. Perhaps they believe that science has limitations and that such territory is best left alone. There are, however, good reasons for not leaving science's borderline zones unexplored.

Firstly, the tensions that exist between established sciences, proto-sciences, and pseudo-sciences promote critical thinking and creative problem solving within and about science. Scientific programmes need to take stock of their fundamental assumptions from time to time because there is always a very real danger of degenerating into dogmatic positions which do not evolve as fast as the arrival of new evidence. If a genuinely new effect cannot be accommodated, then science is all the poorer for not having done so.

Secondly, science depends upon public support and it is crucial that it is seen to make proper account of itself in understanding problems which are of significant public interest. The perception that science cannot explain or, worse, does not even concern itself with phenomena such as ESP, reincarnation, or faith-healing is not only wrong, but may even be harmful to the scientific cause. Scientists cannot afford to remain aloof and detached from controversial issues while miracle-mongers of various self-proclaimed designations capture the public imagination with promises of occult secrets, separate realities, and supernatural powers. Scientists have a social responsibility to investigate serious claims, counter false propaganda, debunk pseudo-scientific mumbo-jumbo, and educate by providing rational models using

evidence, argument and debate. Confrontations with the paranormal, therefore, not only point to areas where existing knowledge requires strengthening or clarification, but they provide opportunities to demonstrate the power of the scientific approach. As Carl Sagan<sup>5</sup> has pointed out, paranormal claims pale into insignificance compared to recent advances in orthodox science, e.g. brain research, the discovery of DNA, continental drift, evolution, black holes, the search for extra-terrestrial life, and the Big Bang theory. How can these genuinely marvellous ideas and achievements be less widely recognised than such useless oddities as spoon-bending, horoscopes and Big Foot? Why should scientists be so shy about entering the paranormal debate? Are we, perhaps, poorly prepared in the vital task of communicating scientific ideas and attitudes to the society that supports us?

Contrary to popular belief, science can explain many of the major phenomena commonly believed to be paranormal. No new principles are necessary to achieve this, and no modifications to any existing principles are required. Several articles in this review illustrate current scientific understanding of purportedly paranormal phenomena which are interpreted as powerfully misleading or illusory effects created by error, fraud, self-deception and wishful thinking. The fact is that human beings are insatiably credulous and infinitely creative on questions of personal belief. Many of the anomalies which give rise to paranormal claims are the inevitable consequence of normal selective and constructive processes in human perception, memory and imagination<sup>4</sup>.

But skepticism and disbelief tread the same precarious pathway as belief itself. We have a 'Catch-22' situation in which belief and disbelief may both lead to self-fulfilling prophecies. Kurtz's paper provides a philosopher's analysis of legitimate and illegitimate forms of skepticism and provides the skeptical scientist with a measured approach to questions on the paranormal. Founding Chairman of the Committee for the Scientific Investigation of Claims of the Paranormal, Kurtz is the world's leading authority on investigating the paranormal.

Randi's article alerts scientists to the sharp practices of typical frauds and fakes. Randi's superlative investigations have shown how the professional magician plays an absolutely essential role in the detection of charlatans. While it is true that not all paranormal claims depend upon deliberate fraud, it is a factor which all too often is overlooked. Hume's principle that a lie is more probable than a miracle, may yet be the wisest insight in this field.

Scientific discoveries and the resulting beliefs about the natural world have a profound effect on human psychology. Copernicus's notion of a sun-centred universe rather than an

earth-centred one, and Darwin's theory of evolution were both greeted with violent opposition. Astrology and 'creation science' provide excellent illustrations of how pseudoscience prefers the arcane and impossible to the newly discovered and probable as yesterday's scientific orthodoxy becomes today's pseudoscientific unorthodoxy. Carlson's article on astrology shows how poorly astrological theory fares when it is subject to properly controlled double-blind trials and statistical investigations. Hewitt examines 'creation science' and another example of parabiology, the 'hundredth monkey phenomenon'. As Stephen Jay Gould recently pointed out, 'creation science' is an oxymoron<sup>2</sup>. Yet in the USA, the state of Louisiana is currently attempting to force public schools to teach 'creation science' as part of normal science courses concerned with the origins of the earth, human and other life forms. These cover enormous areas of the curriculum: anthropology, astronomy, biology, chemistry, geology, and physics. An *amicus curiae* brief signed by 24 scientific organisations, including the Committee for the Scientific Investigation of Claims of the Paranormal, and 72 Nobel laureates, has been submitted to the Supreme Court asking it to declare the Louisiana statute invalid. The court's judgement will have profound implications for science education in the USA.

Skrabanek provides an illuminating account of paranormal health claims, another area where human credulity has been successfully stretched to the limit. Leikind and McCarthy's article focuses on a single claim, that of fire walking, currently a commercialized fad in parts of the USA and Japan, and elsewhere.

Hyman's article provides a methodological critique of some of the best experimental work in parapsychology. Hyman begins with the first experimental work conducted by the Society for Psychical Research reported in the 1880's regarded by many as the first definitive experiment. In bringing his scholarly critique up to the present with analyses of the ganzfeld and random number generator research, Hyman finds the modern methodology wanting, even when assessed

using the criteria of the parapsychologists themselves. In similar vein, Scott critiques the methodology of the remote viewing studies which, in the late 1970s, were acclaimed to provide the strongest evidence for ESP amongst parapsychologists.

Given that the scientific evidence for the paranormal is so weak, we are left with the intriguing question of why so many people believe in the paranormal. Dutton provides an analysis of the craft processes through which a person can convince complete strangers that he/she can 'read their minds'. Dutton's research was largely inspired by the now classic article on cold reading by Hyman<sup>3</sup>. The final article reviews a number of the psychological processes which appear to stimulate and sustain paranormal belief formation. It also examines recent research on educational approaches to the development of critical thinking among science students with whom the fate of science ultimately rests.

- 1 Acknowledgments. This work was supported by the Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP), Box 229, Buffalo, New York 14215-0229, USA. The assistance of the CSICOP branches in Australia (Box 575, Manly, NSW. 2095), Canada (Chair, James E. Alcock, Glendon College, York University, Toronto), Great Britain (Michael J. Hutchinson, 10 Crescent View, Loughton, Essex), and New Zealand (Chair, D. Dutton, University of Canterbury, Christchurch) is also acknowledged. The University of Otago, New Zealand, provided a research grant to investigate the claims of self-proclaimed psychics.
- 2 Gould, S. J., 'Creation Science' is an oxymoron. *Skeptical Inquirer* 11 (1986-7) 152-153.
- 3 Hyman, R., 'Cold reading': How to convince strangers that you know all about them. *The Zetetic* 1 (1977) 18-37.
- 4 Marks, D. F., Investigating the paranormal. *Nature* 320 (1986) 119-124.
- 5 Sagan, S., Night walkers and mystery mongers: sense and nonsense at the edge of science. *Skeptical Inquirer* 10 (1986) 218-228.

0014-4754/88/040281-02\$1.50 + 0.20/0  
© Birkhäuser Verlag Basel, 1988

## Skepticism about the paranormal: Legitimate and illegitimate

P. Kurtz

*Committee for the Scientific Investigation of Claims of the Paranormal, Box 229, Buffalo (New York 14215, USA)*

**Summary.** With the growth of belief in the paranormal, skepticism can play a vital role in the scientific appraisal of claims. There are two forms: the first, hardly legitimate, is negative or total skepticism. It is nihilistic and dogmatic, and essentially self-defeating and self-contradictory. The second, a legitimate form, is selective skepticism. Here skepticism operates as a methodological principle of inquiry, testing hypotheses and theories in the light of evidence, but always open to new departures in thought. Skepticism has been applied historically to epistemology, metaphysics, religion, and ethics. The paranormal field has been full of fraud. Here the skeptic insists upon replicable experiments by neutral or skeptical observers before he will accept a claim as confirmed.

**Key words.** Skepticism; paranormal; parapsychology; psychical research; replication.

### Introduction

Skepticism is an intellectual position that has had a long but checkered career in the history of thought. There is a distinguished list of philosophers and scientists who have identified themselves with its principles.

On the contemporary scene, where belief in so-called paranormal phenomena is widespread, there is a point of view which may also be characterized as skeptical. In the area of parapsychology, it concerns claims about ESP, clairvoyance, telepathy, precognition, psychokinesis, or psychic healing, and the reliability of parapsychology as an experimental sci-

ence. In UFOlogy, skeptics have examined the evidence for the claim that extraterrestrial intelligent beings have visited our planet, in the past and present, and they doubt whether the evidence is sufficient to establish the claim. In astrology, skeptics have questioned the veracity of horoscopes and astrological charts and forecasts, and similarly, have questioned many other fascinating claims that have been made about a paranormal universe. Messengers from Thebes were executed when they reported that a battle had been lost, and many disciples of the paranormal would apparently wish to