

## METASCIENCE: NEW SERIES ISSUE FIVE

Contributions to *Metascience* are welcome and should be sent to the editor. If you have a book in press or have authored a recently published book, please encourage your publisher to send a review copy to the editor. If you would like to write for the journal, contact the editor or a member of the editorial board.

### SUBSCRIPTIONS

This journal is published by the Australasian Association for the History, Philosophy and Social Studies of Science; members of the Association receive *Metascience* free of charge.

If you believe that the journal is useful and has a role to play, please take out a subscription and encourage your library and colleagues to do so.

**Subscription rates are Australian \$25 per annum (two issues) for individuals and Australian \$50 for institutions.**

Bank drafts in Australian dollars are acceptable, but it will be more convenient for you to pay by credit card (in Australian dollars). This may be done in Britain, the USA and elsewhere with VISA or MASTERCARD.

Please complete and return the subscription form enclosed with this issue of *Metascience*. [New forms will be sent to you upon request.]

To take out a subscription or for further information, please write to:

Dr. David Miller, School of Science and Technology Studies, University of New South Wales, Kensington, Sydney, NSW 2033, Australia. FAX 61-2-313-7984.

### EDITOR

All editorial correspondence should be addressed to the editor: Dr Michael Shortland, Unit for the History and Philosophy of Science F07, University of Sydney, Sydney, NSW 2006, Australia. FAX 61-2-692-4124. Email Michaels@scifac.su.oz.au.

### EDITORIAL BOARD

Ms Anni Dugdale, Department of History and Philosophy of Science, University of Melbourne, Parkville, Victoria 3052, Australia. [Science and Gender]

Dr John Forge, School of Science and Technology, Griffith University, Nathan, Brisbane, Queensland 4111, Australia. [Philosophy of Science]

Dr Stephen Gaukroger, Department of Traditional and Modern Philosophy, University of Sydney, Sydney, NSW 2006, Australia. [Physical Science]

Dr Rosaleen Love, Department of Humanities, Swinburne Institute of Technology, PO Box 218, Hawthorn, Victoria 3122, Australia. [Science and Culture]

Dr David Turnbull, Department of Humanities, Deakin University, Geelong, Victoria 3217, Australia. [Social Studies of Science and Technology]

*Printed on 100% Australian Recycled Paper by the University of Sydney Union*

**New Series  
Issue Five 1994**

**METASCIENCE**

**EDITOR:** *Michael Shortland*

#### EDITORIAL BOARD:

*Anni Dugdale (Science and Gender),  
John Forge (Philosophy of Science),  
Stephen Gaukroger (Physical Science),  
Rosaleen Love (Science and Culture),  
David Turnbull (Social Studies of Science).*

**EDITORIAL ASSISTANT:**

*Jo Wodak.*

# Contents



## ESSAY REVIEW

Page

- False Advertising For God  
 Paul Davies, *The Mind of God*.  
 Reviewed by Peter Slezak and John Forge  
 Author's Response

1  
 7



## REVIEW SYMPOSIA

- Public Science  
 Richard Yeo, *Defining Science, William Whewell, Natural  
 Knowledge and Public Debate in Early Victorian Britain*.  
 Reviewed by Sheldon Rothblatt  
 Reviewed by David Knight  
 Reviewed by Michael Shortland  
 Reviewed by Timothy L. Alborn  
 Author's Response

9  
 9  
 13  
 16  
 22  
 24

- Culture and the Paranormal  
 David J. Hess, *Science in the New Age: The Paranormal, Its  
 Defenders and Debunkers, and American Culture*.  
 Reviewed by Rosaleen Love  
 Reviewed by Ron Westrum  
 Reviewed by Don Eldridge  
 Reviewed by Steve Fuller  
 Author's Response

31  
 31  
 34  
 37  
 39  
 43

- Surveying Evolution  
 Elliott Sober, *Philosophy of Biology*.  
 Reviewed by Jo Wodak  
 Reviewed by Paul Griffiths  
 Reviewed by Jorg Illi  
 Reviewed by Nicolas Rasmussen  
 Author's Response

48  
 48  
 51  
 53  
 55  
 61

# Culture and the Paranormal

David J. Hess, *Science in the New Age: The Paranormal, Its Defenders and Debunkers, and American Culture*. Madison: University of Wisconsin Press, 1993. Pp. xi+243. US \$42.50 HB, \$17.95 PB.

**By Rosaleen Love**

**T**he topic of scientific and technological literacy is often described from a science-centred perspective, i.e., what scientists ought to do to convince members of the public that they need to know about science in order to cope with the world of the future, to be able to understand and co-operate with the process of technological change. Brian Wynne has been critical of this approach, and has argued strongly for placing knowledges in context, in order to understand how people actually make use of scientific knowledge in everyday life. Wynne calls for a new consideration of questions such as 'what do people mean by science?', 'where do they turn for scientific information and advice, and why?', and 'what use do they make of it?'

In *Science in the New Age* David J. Hess asks what happens when science is interpreted anew in New Age contexts, both by those who defend the paranormal, New Agers and parapsychologists, and by sceptics. What if, instead of 'science' as mainstream scientists understand the word, the public for New Age ideas substitutes the so-called 'intuitive sciences'—palm-reading, clairvoyance, etc.? What if, instead of medical science is substituted the multitudinous varieties of alternative therapies, from Brazilian toe massage to EMDR, eye movement desensitisation and restructuring?

The key elements of New Age discourse as Hess lists them are: interest in Eastern philosophers, modern science and the psychology of human potential, to which in varying degrees is added elements of Native American religion, goddess religion, therapies which integrate body, mind and spirit, and all things understood as 'natural'—healing, ecology, etc.

As an Australian reviewer of this book with the phrase 'American

culture' in its title I set out to do some empirical research on its relevance this side of the Pacific. Parapsychology does not rate a mention in local texts on the state of the psychology profession in Australia, though there was a parapsychology research group at the University of Tasmania until recently. (Hess does not mention the recent scandal in parapsychology in the USA, where a supposedly automated experiment was found to be rigged. Following this scandal, it might be expected that the status of parapsychology is even lower now in the States than he reports.) The dialogue (or argument) in Australia is much more of a two-way affair, with scientists-sceptics aligned against New Agers (and other science critics, e.g. some local STSers) on topics as diverse as human nutrition, the health effects of low frequency electromagnetic radiation, the Omega network, the cancer cure that worked, to take but some of the issues raised in the latest issue of *Nexus*, *New Times Magazine*, a monthly magazine (locally produced but mostly reprinting syndicated articles from overseas). Hess's comments on the shared 'paraculture' seem appropriate in an Australian context, where by 'paraculture' Hess means a shared culture from which both mainstream science and New Age science draw their inspiration.

Many insights in *Science in the New Age* apply equally in the Australian context. The best-selling books Hess analyses are on sale in Australian New Age bookshops with some local additions at the tamer end of the New Age spectrum, e.g. 'how to' self-help books by local psychologists, often a mix of the *Tibetan Book of the Dead* with Hawton *et al.*'s *Cognitive Behaviour Therapy*. We don't seem to produce and market our own 'barking mad' end of the New Age spectrum, e.g. UFO-detainee confessions. A visit to the recent Body-Mind-Spirit expo in Melbourne indicated a truly eclectic New Age internationalism. All the visiting speakers were from overseas, and at \$10 a lecture my investigative journalist enthusiasm lapsed and I cannot report on Shamanic Egyptian Healing or Diagnostic Clairvoyance, though I was tempted by the workshop on getting in tune with my DNA and 'tapping into a limitless energy'. The marketing of the New Age in the expo context resembles the marketing of University subjects on Open Days. Instead of philosophy there were the Swedenborgians; instead of psychology there was regression therapy, rebirthing and psychosynthesis. Instead of Western theology there was a wide variety of Eastern religions; instead of human nutrition there was everything from Hari Krishna cuisine to spirulina and a display of a truly magical hand-powered fruit juicer. As I watched the artist sketching spirit guides, I reflected on just how many locals seem to have Native Americans watching over them. (I must declare I speak from the position of the sceptic.)

Hess's book is of particular interest to me on a more personal

level. I've long been part of his history of the persistence of the paranormal. I am a lecturer in the history and philosophy of science in a small university in which the psychology department is by far the largest Arts-based department. I've taught many mature age students who are practitioners of various alternative therapies. Concerned that the full rigour of the medical establishment is about to land on them and put them out of business they turn to the rigorously accredited discipline of psychology for their orthodox credentials, just in case. Along the way they study the social construction of science and appropriate with great joy the language and the authority of STS/HPS just as they have appropriated the language of orthodox science and medicine. So it is that much to my surprise (and no doubt the surprise of funding officials) I have trained chirologists, iridologists, crystal healers, etc. who continue in their chosen careers in the psycho-therapeutic arena.

In asking the important question why the paranormal is still so compelling to people in a technological capitalist society, Hess moves the scientific literacy debate in directions its 'science-centred' proponents would shudder to imagine. What Hess sees as an interesting question, the persistence of belief in the paranormal, conventional advocates of scientific literacy see as the problem that must be eradicated. Yet like rabbits in the Australian bush, the paranormal proves suprisingly resistant to elimination. Hess is not so much interested in some responses to the question of persistence, e.g. the desire for magical thinking, or the flight from reason in face of a receding basis for religious faith. He argues that this may explain why beliefs exist and persist, but not why specific varieties of belief in the occult or the paranormal have emerged more than others. Why mediumship in the nineteenth century, why since the 1960s its current variant, trance-channelling? What interests Hess are reasons for the dynamism, the variability and the cultural power of paranormal beliefs within society, the patterns of dialogue and the shared cultural assumptions between his three groups, the ways in which they construct the 'Other' in their dialogue, the construction of gender, how recent Hollywood films construct scepticism and the paranormal, etc. The book complements the brilliant essay on New Age science by Andrew Ross, 'New Age—A Kinder, Gentler Science?', published in his book *Strange Weather* (1991), just as Hess's book was nearing completion.

Hess wants above all to answer the question, what does the paranormal look like to those who embrace it? To those who reject it? To parapsychologists, who accept some claims, but reject others? If you are asking, 'who is right?', Hess would reply, 'you are wrong to ask'. Even a sceptic has to agree with him there.

Philosophy and Cultural Inquiry, Swinburne University  
of Technology, Melbourne, Victoria, Australia.



**By Ron Westrum**

I think that Hess has written a fine book on the groups contending over the status of parapsychological phenomena. Having participated in some of the events that he describes, and knowing some of the personalities he discusses, I find his treatment not only evenhanded, but insightful as to the basic issues and spirit of the debates. Those coming to these debates for the first time will benefit from the road map that Hess provides. I find particularly valuable his stress on the oppositional nature of both proponents and critics of the paranormal and how the program of each is distorted by its contention with the other. Hess suggests that inquiry becomes a crusade, with consequent loss of open-mindedness and closure of options as a consequence. The retreat of some parapsychologists to the laboratory as an attempt to be 'more scientific than thou' is a good example of this loss of options. Also good is the stress on gender issues in the approaches of both the paranomalists and the CSICOP group.

Yet Hess's book is narrow in two ways that might be broadened. Even at the cost of seeming to complain about 'the book Hess should have written,' I want to address these two issues. One can only hope that Hess will deal with them in a sequel.

The first is that parapsychology, while perhaps the best known and best researched area of anomalistics, is only the largest province. There are others whose claim for attention is no less legitimate. UFOs, cryptozoology, and astrology would all be contenders for attention. And these are simply the best known. In some sense these other areas parallel and provide similar case studies to parapsychology. One can see, then, in an examination of parapsychology, what the basic issues are. But in another sense these other areas have provided additional concern to the critics, and served as red flags that they needed to swing into action to suppress the 'growing tide of irrationalism'. CSICOP, for instance, started in part over the debate on astrology, and a good deal of its history has been associated with the struggle to suppress it. The Starbaby affair, whose revelations caused the reputations of several scientists associated with CSICOP to take a sharp dip, illustrates in my mind as well as anything the underlying ground-rules of practice on the 'sceptical' side. Similarly, if he were to look at the various groups involved in SETI issues, Hess might find some very interesting parallels to those in parapsychology (see Westrum, Swift and Stuppel in *Society*, 21, 1984).

There are also some differences. Each area of anomalistics carries its own challenges to science, some more severe than others. While

UFO investigators and theorists may sometimes propose an alternative world view, this is not as true as it would be in parapsychology. Nonetheless, if the claims of UFOlogists are correct, then they pose a major challenge to the political system. Cryptozoologists do not see themselves engaged in a conflict of world views or politics at all; rather, they see between themselves and their critics disagreement about the completeness of current biological science.

It is important to realise that CSICOP sees itself as defending science against a multitude of anomaly categories, not just parapsychology. Similarly the Society for Scientific Exploration encourages the scientific study of a large range of anomalies, not just those of parapsychology.

This brings to mind another way in which Hess's inquiry might be expanded. Both proponents and critics of anomalous events have powerful constituencies. Interactions with these constituencies are deeply reinforcing for each side. The proponents' constituency is largely those who read their literature, and this is not a negligible group. But many, many people consult astrologers or psychics, particularly among (my impression) the female population. But the constituency of the critics is also interesting. Being the 'hit men' of science has given the critics a chance to associate with scientific bigwigs, and has brought them a large following. Without making any scientific discoveries, they nonetheless get recognition from scientists. And scientists are taken off the hook. They don't have to get their hands dirty, writing the kinds of attacks that the critics do.

In concentrating on proponents and sceptics, it is important that we don't miss a key point: Many anomalies are important to science. Not all, of course: some are mistakes or are mere curiosities. But meteorites, coelacanths, the battered child syndrome, and many other anomalies that were found hard to believe at the time turned out to be not just real, but to have important implications for knowledge. Making anomalies contentious tends to discourage the process of inquiry, or to force it into narrower channels. It also tends to keep the great mass of the scientific community in a 'heads down' mode, unwilling to associate itself with popular sensations. Whether CSICOP has really had any impact on interest in astrology is not known. But it has definitely discouraged interest in doing the kind of correlational research in which the late Michel Gauquelin was engaged for much of his life.

CSICOP might study the meteorite controversy with some profit. Or the history of the 'battered child syndrome.' In the former case, the sceptics had a field day with the unfortunate meteorite eyewitnesses, who were accused of hallucinating and optical illusions. Ernest Chaldni, a courageous meteorite researcher, was attacked in terms that would make

even Phil Klass or Martin Gardner proud. The 'horselaugh' gambit was widely employed. Even the physical evidence itself, so easily read today, was largely set aside until the last decade of the 18th century. Similarly, the radiologic and other signs of child abuse were intentionally misread by physicians who feared legal entanglements, and for whom the idea of child abuse was preposterous. I know that C. Henry Kempe, for instance, was well aware of the extent of sexual abuse long before he publicised it. He waited until physical abuse was accepted, and then began to talk about sexual abuse as well. Getting child abuse accepted as a reality was tough. Today Kempe and his co-workers would have to contend with a new phalanx of 'false memory' experts.

Let me take a phenomenon that I find puzzling, and show how the contentious context of anomalies forces a kind of either/or decision. Satanic Ritual Abuse (SRA) is alleged by a large number of people who remember and appear to be the victims of a mysterious Satanic cult group or groups. Little physical evidence, if any, seems to exist to support these memories. Are the memories false? They seem to be. Is there anything unusual that might have given rise to them? I suspect it will be hard to find out. SRA is too tempting a weapon not to be used by the critics against other kinds of memories of anomalous events, e.g. UFO abductions. And needless to say, radical Christian groups will find in these accounts support for their beliefs that Satanism is real and dangerous. Whatever reality attaches to such accounts, then, we can count on them being politicised. The dispassionate investigation that needs to take place will be difficult.

It is because anomalous events may be important clues to scientific truths, environmental dangers, and even social problems, that we cannot simply dismiss the whole thing as a 'fringe' problem. The struggle over the status of anomalies takes place at the edge of science. Whether it is the forward or the rear edge is sometimes hard to say. But there is no question that sometimes it is the cutting edge that gets blunted. Consider how long the British sat on their data about the ozone hole at the South Pole. They didn't want to be laughed at. They didn't want the Americans to look down on them. So they waited it out. Ridicule has a price, just as credulity does.

Hess's book has covered some very interesting territory, and covered it well. But just over the border, similar wars are going on.

Department of Sociology, Anthropology, and Criminology,  
Eastern Michigan University, Ypsilanti, Michigan, USA.

## By Don Eldridge

In this review I focus on Hess's ideas about parapsychology, one of the three groups he examines (the others are sceptics and New Agers), but first I have two minor comments: Hess notes that most parapsychologists and sceptics are male, while many prominent New Agers are female. He goes on to see male-female dichotomies throughout, with no mention of people who balance the female and male traits we all have. I despair, and feel the Chinese have brainwashed us into a yin-yang, ping-pong, sing-song response mode while they get on with serious thinking.

While his approach to the three groups is not strictly even-handed, Hess writes with commendable understanding and lack of acrimony. I wish he could have been more critical of the wilder utterances of New Age feminists. However, since he has been called a materialist by a New Ager, deemed a sceptic by parapsychologists, and a sceptic felt he was irrational, this seems proof of his lack of extreme bias.

I found it refreshing to see sceptics being examined in a sceptical manner, which reveals 'dogmatic skepticism as much a type of true belief as religious dogmatism' (p. xi) and card-carrying sceptics as dabbling in 'scientific fundamentalism' (p. 161). Since some sceptics can be vicious in the defence of orthodox science, Hess recommends a 'reflexive skepticism' which is 'skepticism that is skeptical of its own skepticism' (p. xi). Who but a true believer could argue? Of course this means living with ambiguity; in an age of chaos theory, we should be able to cope.

Hess describes how parapsychology (a word coined by J.B. Rhine to distinguish laboratory research from psychical research in mediums, seances and whatnot) is in decline, due to funding cuts and criticism. Parapsychologists try to advance their cause by doing ever more careful research, which Hess says can be understood by fewer and fewer people. He argues that being able to replicate experiments probably will not convert the sceptics, so parapsychologists should return to the wider world and investigate case studies. He feels parapsychology should be of more use to society. This could be done in the teaching of unorthodox matters, as well as the critical examination of New Age claims, to give consumers a better idea of what is offered.

If parapsychologists return to psychical research, won't they be subjected to the same scorn as last century, when it was impossible to prove anything to critics? The educational function once a part of psychical research now seems to be done by New Agers, while sceptics occupy the Chair of Criticism. Besides, many parapsychologists are trained physicists

and engineers; they might *enjoy* the intellectual rigour of doing 'hard' science. It might be asking too much to expect them to switch to the type of research approved by social scientists:

Hess explains clearly the difference between case studies and laboratory research. As far as I can see, the switch to lab work was a response to demands that experiments be replicable. The parapsychologists felt that if they rigorously 'proved' paranormal events, using sanctified methodology, then orthodox scientists would have to accept the verdict. This hasn't happened. Even the best experiments have been rejected or ignored because they offend orthodox faith.

An example of this is in *Dreams of a Final Theory*, the recent book by Steven Weinberg, Nobel Laureate in physics. He refers to research done by Robert Jahn at PEAR (Princeton Engineering Anomalies Research), where extensive, scientifically rigorous work is showing that the human mind can influence matter at a distance. Weinberg feels (p. 49) that Jahn must lack a 'sense of the connectedness of scientific knowledge' in doing this research. Since Jahn is Dean Emeritus of the School of Engineering and Applied Science at Princeton University, Weinberg's comment seems juvenile and self-serving.

Weinberg wrote that he was so busy reading worthy papers he had no time for fringe work, no matter how scientific it purported to be. In other words, 'Don't bother me with facts, my mind is made up.' (No-one expects Weinberg to read everything, but we *can* ask him to reserve judgement on research that he refuses to read.)

PEAR has amassed a huge volume of high-quality research showing that our view of physics is incomplete, in that consciousness is neglected (leading theoretical physicists have long said this). As Hess writes, the sceptic magician, Randi, who has offered a large reward to anyone who can show a paranormal event he can't duplicate, refuses to go near places such as PEAR. This being so, why has Hess written so much on the Rhines, whose work is ancient history, and not about contemporary work? If space was a problem, why were 22 pages devoted to Hollywood films and not a word about some really serious work?

Since Jahn is mentioned briefly three times, Hess can't plead ignorance. Could it be he felt uncomfortable with quality work that presents a tough-minded challenge to orthodox science, preferring the softer climes of social criticism? I find this interesting, since Hess wrote that parapsychology (such as at PEAR) has a disproportionate impact compared to how little work is done, for New Agers can point to the work and claim that some of their beliefs have been 'scientifically' proven. For Hess to write this, then ignore modern work, is curious.

Another aspect that could have been tackled is the question why orthodox scientists seem to fear the paranormal. Professor Sergi Kapitza laments that pseudoscience now proliferates in Russia. He worries about the future of ordinary people who are unable to tell proper science from quackery. (His account is in *Current Science*, December 1991; a shorter version is in *Scientific American*, August 1991.) But is this logical? So much damage has been done to the Russian environment by orthodox science that it would seem prudent to lock up these scientists and let loose the palmists, mediums and shamans, for surely their minor sins would be less harmful than what happens now!

It seems the issue is not one of protecting the uneducated from pseudoscience, but of guarding the belief system that is the core of orthodox science. Scientists want us to think their unbiased, reverential quest for Truth, guided by the Scientific Method, is a 'given,' not subject to negotiation, whereas we know it is a social construct, subject to scrutiny. New Agers and parapsychologists provide a challenge. I realise this is a vast subject, but a few pages by Hess would have added balance to his book.

Hess criticises parapsychologists for writing in a style not accessible to outsiders, yet *Science in the New Age* itself is hard going for anyone not educated in the sociology of science, as it has reefs of jargon and shoals of polysyllables upon which lesser mortals founder. In his final paragraph he suggests that if New Agers, parapsychologists and sceptics could see the role sociology plays in their lives, they would gain insights and possibly might get together to resolve differences. This may be so, but for it to occur the sociologists must communicate in plain English.

To end, Hess has written an interesting book that, unfortunately, overlooks what is happening today while dwelling on work done decades ago; fortunately, what *is* written lacks malice and has what seems a genuine empathy for all involved.

Brisbane, Queensland, Australia

**By Steve Fuller**

**T**o what extent does the proliferation of New Age knowledges contribute to the delegitimation of mainstream science in contemporary Western culture? I find this the most interesting question to ask of David Hess's *Science in the New Age*.

Consider a historical benchmark of 'science delegitimated'. Weimar Germany provides a convenient point of reference. The ascendent



disciplines of the period—including engineering, the Geisteswissenschaften, and astrology—defined themselves in explicit opposition to the values of rationality and objectivity associated with mathematised experimental natural science, which, in turn, was held responsible for Germany's humiliation in World War I. More to the point, these ascendent disciplines competed successfully against the natural sciences for material resources, both in the public and the private sectors. In fact, some historians, following Paul Forman, believe that this process of status degradation and financial impoverishment led the German quantum physics community to adjust its theoretical orientation to the dominant irrationalist and subjectivist tendencies; hence, Heisenberg's uncertainty principle.

However, for the most part, Hess's account of the emergence of New Age knowledges in the US over the last quarter-century does not fit the Weimar mould. To be sure, there are superficial resemblances, and perhaps Hess's own emphasis on 'symbolic resources' and 'cultural meanings' makes them out to be more than they really are. Thus, it is easy to see the Aquarian Conspirators, the parapsychologists, and the New Age Sceptics as all trying to 'outsience' the scientists. The Aquarians believe that they take the sociological implications of the revolutions in twentieth century physics more seriously than the scientific establishment would like them to. Similarly, the parapsychologists regard the dismissal of their work as the product of unscientific taboos that preclude experimentation on something that might upset a purely materialist metaphysics. Finally, the very existence of Sceptics who spend their entire careers investigating the scientific credentials of New Agers—by debunking strategies that do not entirely sit well with scientists—suggests that the integrity of science requires full-time metascientific scrutiny. Clearly, these three stances imply that the mainstream scientific community lacks complete discretionary control over defining what science is. But does this count as delegitimation? Not necessarily.

First of all, most of the New Agers creatively appropriate the rhetoric of science rather than reject it outright. In fact, they are more prone to speak of mainstream science as backsliding from its historical mission; hence, the Vietnam War and the global environmental crisis are presented as perversions of science, not its natural consequences. But while the New Agers have managed to carve out nice livings for themselves in this manner, they have yet to cut substantially into the science budgets of the major Western nations. If policymakers scrutinise science more closely these days, it has more to do with highly publicised cases of misconduct by mainstream scientists than with anything that the New Agers have done or said. And if big physics budgets eventually evaporate, it will be because of

the perceived value of funding research in some mainstream branches of biology—not parapsychology.

My point, then, is that we need a concept more nuanced than 'delegitimation' for understanding the current relationship between New Age knowledges and mainstream science. The need comes from certain features of the political economy of science in contemporary Western societies, which are especially pronounced in the case of the United States. Hess occasionally alludes to these features, but they are not sufficiently prominent in his account. In the US, we have a largely decentralised financial apparatus for science. In addition to heavy independently motivated private sector investment in science (which often distrusts peer review as a method for judging projects), the public sector lacks a 'ministry of science' that monitors the amount and kind of science being funded by various federal agencies. As a result, despite the strong alliance between elite mainstream science and federal sponsorship (50% of the money goes to 30 out of a possible 2500 institutions of higher learning), federal sponsorship is itself a declining fraction of overall science funding in the United States.

This tendency toward privatisation is probably the result of science's inability to satisfy the range of interests that are needed to get action on science's increasingly expensive and specialised research demands. In such an environment, it is only natural for the federal government to formally 'divest' its interests in certain cost-ineffective scientific projects. The recent demise of the Superconducting Supercollider in the US Congress is a good case in point. A widespread belief is that, if the Supercollider is as world-historic as its proponents claim, then it will be snapped up either by a corporate investor or by multinational public investment.

I would hazard to guess that as the privatisation of science increases, scientific teams in search of funding will adapt their rhetoric to the interests of potential funders, which will be narrower than those of the state, and hence the knowledge will acquire the customised quality of New Age knowledges, albeit on perhaps a larger scale than Hess countenances. (A recent publicized case in the US involved a University Professor at Texas A&M, John Bockris, who received massive private funding for studying how base metals may be transmuted into gold. Is such funding a plus or a minus for a university in dire economic straits?) Indeed, if the federal government were to divest itself of research funding not directly relevant to public welfare, we may see something that might be called the 'delegitimation of science.' On the one hand, 'mission-oriented' science would be seen as social technologies, whereas, on the other, privatised basic research (given current trends in intellectual property law) would look like



art. So much for science as a universal form of knowledge!

But note the causality implied in my hypothesis. Maybe, as Hess maintains, there is a restless frontier spirit in the American soul that makes New Age knowledge a permanent possibility on our shores. Nevertheless, this possibility can be expressed only under certain material conditions, which include the divestment of science from federal control and the affluence of those groups who can take advantage of this privatisation. Let us not confuse the idiosyncratic character of New Age science with it being a return to the 'folk knowledges' of the dispossessed classes (which it is not). Idiosyncrasy, in the cases Hess describes, reflects the uniqueness of vision one finds in elites, not the proletariat. To test the hypothesis I am sketching here, Hess would have to see whether New Age science is as visible a force in a nation whose state, corporate, and scientific interests are more neatly aligned than in the US. For example, I bet that France does not have anything like the New Age phenomenon that Hess has found in the United States.

In short, I suspect that whatever delegitimation of science results from the ascendancy of New Age knowledges will be an unintended consequence of a variety of affluent constituencies seeking empowerment, in the wake of the divestiture of scientific investment from the public sector. Given this view of the situation, it is perhaps not unfair to wonder why exactly is Hess interested in promoting New Age knowledges. This question may be specified by asking what it is that Hess would like to help the New Agers promote. Is there something about the New Age ideas themselves that are worth promoting (and could thus use a better rhetoric or social formation), or is Hess talking about helping the people associated with the ideas increase their public presence (in which case perhaps the ideas themselves are negotiable)? In short, is the New Age worth preserving as a cognitive or a social formation? Hess is one of the very first anthropologists to frame his project in terms of this explicitly social epistemological question, and for this he deserves great credit. Nevertheless, I hope that he doesn't plump for the social side of the divide in this case, since it is not clear to me that certain eccentric members of the upper middle class need to become more empowered than they already are.

Department of Communication, University of Pittsburgh,  
Pittsburgh, Pennsylvania, USA;  
(from 1 September) Sociology and Social Policy, University  
of Durham, Durham, England.

# Author's Response

*By David J. Hess*

I greatly appreciated Rosaleen Love's empirical investigation that showed many parallels between the Australian and American cases. Her discussion was best at reviewing the questions and approach that I find interesting and worthwhile. Given the shared Anglo-Saxon cultural traditions of Australia and the United States, the similarities that she encountered should be expected. (I would also expect that a more long-term study would find some differences; for example, perhaps the American jeremiad would be less evident in Australian versions of New Age utopianism and dystopianism.) As I argued, the interpretations that I made are culture-specific, and I expect to encounter increasing divergence the greater the cultural distance is from the United States. Thus, for the Brazilian case, with which I am fairly familiar and have discussed in my new book *Samba in the Night: Spiritism in Brazil*,<sup>1</sup> a different sort of cultural interpretation would be necessary for many of topics discussed. At the same time, some of the structures remain the same, such as the gendered nature of the field of debates between sceptics and proponents of paranormal belief.

My book is limited to discourses on the paranormal, which I define on the first page as the psychic, mental, or spiritual phenomena that are believed to fall outside the range of the 'normal,' as defined by current scientific knowledge. Westrum has argued that my analysis could easily be expanded to related areas of 'anomalistics', including UFOlogy, cryptozoology, and Gauquelin-type astrology research. All those fields have ranges of erudite to popular discourse that would make them very amenable to the framework of cultural critique that I have developed in this study. The starbaby case, which involved a CSICOP investigation of quantitative astrology analysis, is important because—as I mention in Chapter Eight and as Pinch<sup>2</sup> and Collins<sup>3</sup> have discussed—the case marked a juncture in the evolution of organised scepticism. The sceptics' decision to focus on criticism rather than empirical experimentation, which would not always work out in their favour, is also important for the project of a cultural analysis, for the decision to opt for critique and debunking relocated scepticism in a cultural space along and beside (para) empirical scientific research.

As Love notes, parapsychologists are not without their own

scandals. The history of parapsychology—especially in the pre-experimental era—has more than its share of fraud and scandal. Parapsychologists also point out that psychical researchers debunked many mediums, and during the experimental era parapsychologists exposed several of the most well-known cases of data fudging. They believe there is a healthy internal process of self-criticism that is akin to exposures in other areas of science, and it is likely that one more accusation will not change their overall status very much. The end of the Cold War and loss of both government and private funding are, in my opinion, a more likely source of crisis. (Fuller need not worry about funds being diverted to parapsychology research from 'mainstream' science; if anything, there has been a general decline in both government and private funding for parapsychology during the last decade.)

On the topic of fraud and scandal, there is also at least one case in which a sceptic is said to have sent subjects to a parapsychology experiment with the purpose of faking results in order to test whether or not the parapsychologists would catch the subjects. The case raises obvious ethical issues that, from the parapsychologists' viewpoint, reflect poorly not on them but on their sceptical opponents. Although I do not state that Randi refuses to go near PEAR, my impression from conversations with parapsychologists over the years is that they do not take up his offer of a financial reward for a successful parapsychology experiment because they are sceptical of the sceptic's desire to perform an unbiased, publicity-free experiment.

Westrum points to issues of intellectual suppression, to invoke the term of Brian Martin and colleagues.<sup>3</sup> Elsewhere, I have discussed some of the mechanisms of suppression and circumvention strategies in the case of American parapsychologists.<sup>4</sup> As Westrum points out, the taboo status of many areas of anomalistic inquiry tends to produce a situation in which some credible claims, and the researchers associated with them, are suppressed. Of course, as he also points out, it is difficult to tell prospectively which of today's anomalistic claims may turn out to be tomorrow's standard wisdom. I would only add to his discussion the point that a cultural analysis of the terms of debates between opponents and proponents may make it easier to discuss claims of anomalies in a less charged context. In the case of parapsychology I have argued that one strategy for making the entire field of debate less tense would be to add to their research some separate studies that refrain from claims of the paranormal and instead analyse sociological, anthropological, clinical, or psychological aspects of psychic experiences. That level of analysis could provide a common ground for proponents and opponents in which a vigorous dialogue, rather than mutual debunking, might be possible.

Eldridge brings up the important issue of gender. I carefully distinguish between sex and gender, and because the distinction may be confusing to those who are not familiar with its use in cultural studies, it is worth reviewing my argument. At the level of sex, there are evident differences between the leaders of the sceptics and of the New Age movement, with the leading sceptics being almost all male and the New Agers having many prominent women. Parapsychologists are somewhere in between: they are predominantly male, but women have also been prominent, including most notably Louisa Rhine. I then ask whether or not the discourses are gendered as well; in other words, are there differences among and within the discourses in terms of metaphors, values, ideas, and positions with respect to gender? I answer this question in the affirmative, both within and among the groups. Sceptics can be found espousing extremely machista views, and among New Agers there is support for goddess religion and ecofeminism. Thus, gender corresponds to sex at this broad level. However, within each of the groups there are differences in terms of the gendering of basic ideas and methods, and here it is possible to find differences of gender attitudes and styles where there is no or only a partial corresponding difference of sex. For example, the difference within parapsychology between experimentalism and spontaneous case research is, within the culture of parapsychologists, constructed in gendered terms. My evidence is drawn on metaphors in use and explicit statements by some of the members of that community. That argument is complicated, and I refer readers to Chapters Five and Six for its full discussion.

Eldridge is also critical of my heavy reliance on the work of J. B. and Louisa Rhine, who were two of the most important figures in mid-century American parapsychology (a term which Rhine popularised but did not coin). Many of the leading American parapsychologists today were trained by J. B. Rhine, had experience in his laboratory, or were influenced by the research of J. B. and/or Louisa Rhine. Thus, I argue that it makes sense to include their work, especially given its popular appeal. For all three communities, I focus on texts written for the general public that locate their discourse with respect to social issues and cultural values. The Rhines' work was perfect for that problem. However, I also discuss a substantial number of subsequent parapsychologists and parapsychology texts from the 1970s and 1980s, and I note similarities to and differences from the work of the Rhines. What I do not discuss is the huge technical experimental literature and voluminous technical debates, either by the sceptics or parapsychologists. That literature was less relevant for the cultural analysis that I wanted to make, and it is also being covered in other studies, such as the work now in progress by Marilyn Schlitz.



Regarding Fuller's review, it is hard to engage because it is so tangential to my book. I have followed Steve's work and think his social epistemology program has helped advance the philosophy of science, but as a reviewer he has failed engage my arguments and work with my framework. His discussions of legitimation, delegitimation, funding, policy, and so on are characteristically provocative but nevertheless quite tangential to the questions I have raised.

Furthermore, it should be clear by now that I am certainly not 'interested in promoting New Age knowledges'. Nor do I really ask whether or not they are 'worth preserving'. I do not believe that New Age discourse and practice are likely to disappear, and I do not kid myself about having any power over what gets preserved or not preserved. I am very aware that I have published an academic book about a mass and semi-amorphous social 'movement' with a huge economic base in goods and services sold. If I were to have any effect on the New Age movement at all, I would hope to nudge some of its members (as well as parapsychologists and sceptics) toward a more sociocultural orientation in which there is more space for explicit political and cultural self-reflection within their own discursive communities. I have defended this critical, cultural perspective for all three groups in my concluding chapter. My argument in favour of more self-reflective political and cultural discourse within each group is what I would consider the 'policy' implications of my study, not questions of legitimising/delegitimising science or relationships to funding structures. If anyone should get more funding, my book would imply that it should be those who are doing critical cultural and social studies and the presses that publish us!

Overall, I have attempted to move discussions on the topic of New Age, paranormal, or heterodox knowledge in new directions both for STS analysts and for the participants. In terms of STS, I have focused on the cultural reconstruction of science in the general public, rather than on the social construction of science among experts. As I discuss in more detail in my forthcoming book *Science and Technology in a Multicultural World* (Columbia University Press), this shift of focus is one of the contributions that anthropologists are making to STS as they enter the field in huge numbers during the 1990s. In terms of discussions on the paranormal, I have also shown a way of relocating the axis of debates from who's right and who's wrong to, in an overly simplified formula, who's right and who's left. Some of the reviewers seem uncomfortable with this shift and want to return to the old and familiar set of questions. I urge everyone—sceptics, parapsychologists, New Agers, and the STS researchers who analyse them—to inspect the cultural politics and social implications of their discourses and practices. From that perspective, the debate shifts away from

classic conflicts such as the rational versus the irrational, science versus pseudoscience, or even legitimising versus delegitimising orthodox science. Viewed as cultural discourse, the debates can be seen as translatable into other kinds of conflicts, such as men versus women and West versus the rest.

Science and Technology Studies Department, Rensselaer Polytechnic Institute, Troy, New York, USA.

1. David Hess, *Samba in the Night: Spiritism in Brazil* (New York: Columbia University Press, 1994).
2. Trevor Pinch and Harry Collins, 'Private Science and Public Knowledge: The Committee for the Scientific Investigation of the [sic] Claims of the Paranormal and Its Use of the Literature', *Social Studies of Science* 14 (1984) pp. 521-46.
3. Brian Martin, C. M. Ann Baker, Clyde Manwell, and Cedric Pugh (eds.) *Intellectual Suppression* (Sydney: Angus and Robertson, 1986).
4. David Hess, 'Disciplining Heterodoxy, Circumventing Discipline: Parapsychology, Anthropologically,' In: David Hess and Linda Layne (eds), *Knowledge and Society Vol. 9: The Anthropology of Science and Technology* (Greenwich, CT: JAI Press, 1992).

