Science and the Paranormal

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THE AUTHOR

Leonard Lewin was born in 1919 in Essex, England. During World War 2 he worked at the British Admiralty on radar. In 1946 he joined Standard Telecommunications Laboratories (now Nortel), and became head of the Microwave Department. He is author of 40 patents and some 200 publications, including 12 books. One of these, *The Diffusion of Sufi Ideas in the West*, won an award from the UNESCO 1972 International Book Year. In 1962 he won the International Microwave Prize, moved to the USA and became a professor at the University of Colorado, where he taught microwaves and telecommunications. He also set up Sufi study groups and other enterprises for the promotion of Sufi ideas. In 1987 he taught at the University of Auckland, and gave the New Zealand IEE Prestige Lecture on education. In 1991 he was an invited speaker to the International Conference of Mathematicians, Kyoto, Japan. He is currently a Professor Emeritus at the University of Colorado.

Science and the Paranormal

Recent years have seen a phenomenal growth in public interest in matters outside the usual confines of orthodox science: UFOs, astrology, the Bermuda Triangle, Chariots of the Gods, ESP, biorhythms, spiritual healing, and so on. Encouraged by the mass media, publishers, and authors out for a quick buck, dissemination of material in this area has been widespread, books and articles easy to come by, and the general public seems to have taken to it to such an extent that serious scientists have become alarmed at what they see as a wave of irrationalism sweeping the country. In 1975 a statement ‘‘Objections to Astrology: A Statement by 186 Leading Scientists” was published in *The Humanist*, expressing strong concern over the popular belief in astrology. In the following year the Committee for the Scientific Investigation of Claims of the Paranormal (CSICP) was organized at an annual meeting of the American Humanist Association devoted to “The New Irrationalism: Antiscience and Pseudoscience”. Born out of frustration with the widespread growth of belief in the paranormal, the committee was founded to act as a forum for the critical examination of such claims.

In an editorial in the first issue of its journal *The Zetetic* (later renamed *The Skeptical Enquirer*) the editor writes[1] “Though it is likely that most of our results will prove negative, our central purpose is not one of debunking paranormal claims”. And a few lines further, “Our object is not to close the door on discussions of the paranormal, but to open it to serious and rational debate in the context of the basic ground rules of scientific method. The supporters and Fellows of the Committee are by no means united in their views on claims about the paranormal .... but all agree to allow the basic methods of science to arbitrate the differences.” And again, “Our commitment is to open and rational dialogue about paranormal claims from a science standpoint.” The belief in science and the scientific method and in its relevance to the investigation of the so-called paranormal, and the need to examine claims seriously and not to dismiss them out of hand just because of widespread and often fraudulent exploitation of the public, is seen to be paramount in these introductory statements. The CSICP claims to be sceptical though open-minded, and to be committed to the use of the established methods of science in its investigations.

Two-and-a-half years and four journal issues later it may be possible to try and take stock of how this enterprise is progressing, how scientists are responding to the issues, and the extent to which the public's belief in the paranormal is being either maintained or eroded. It may also be not out of place to comment on the manner in which the basic methods of science can be properly applied to certain classes of phenomena, and the distinctions that can be made between "scientific" and other more general investigations of a thorough and scholarly character. I would also like to indicate how it may be possible, through an over-enthusiastic debunking attitude of some of the more far-out and nonsensical paranormal claims, for perfectly sensible aspirants for serious study to slip through our fingers and be lost. Indeed, hidden prejudices can colour our attitudes to such an extent that we are usually quite unaware of the way we unconsciously introduce bias into the arena. To illustrate, I would like to offer the following cautionary tale.[2]

It is concerned with the woman whose daughter invited her to her wedding in some far-away country. The mother was delighted to hear that the girl was getting settled at last, and also, as she understood from a long-distance phone call, that it was to be such a suitable match. She sent her blessing and hurried to the spot.

To be married ....

As soon as she got to the jungle clearing where the preparations for the marriage were warming up, she seemed rather distraught, however.

"What's wrong, Mother – you told me you were delighted?"

"I did – but why didn't you speak up: I thought you said a RICH DOCTOR!"

People hear what they want to, imagine what they hope for. It should be clear that it would be unwise for anybody, over-anxious parent or serious scientist alike, to assume that they are completely free from the operation of such subconscious mental self-trickery; but if the goal is to be objective, one must be on guard against such influences stemming from one's own predispositions. Perhaps, therefore, I should begin by exposing my own prejudices, such as I know them, in relation to science and scientific methodology. I don 't think my point of view is in any way novel, though the emphases I may indicate need not necessarily be shared identically by others.

By "science" I mean the word as it is currently used in contemporary Western culture: the process of combining observation, experimentation under repeatable conditions, formation of a theoretical hypothesis compatible with the observations, and testing the predictions of the theory by further experiments. Abandonment or refinement of the theory follows

this last step, until the investigator is satisfied with the concordance of the theory, measurements and observations. This brief explanation is, of course, a very condensed outline. The process does not take place in a vacuum, but within the local social milieu. It is a long time since early solitary investigators experimented with bouncing balls or swinging pendulums. Over the years a very large, sophisticated and *coherent* body of knowledge has been built up, with communication among experimenters, duplication by others of new results, and general concurrence on outcome as the basis on which error, faulty observation or unsuitable theory have been eliminated, and the now generally agreed principles have become formulated and accepted. This has not always been done without anguish. The excellent article on N-rays in *The Zetetic*[3] shows how the French Academy of the day both "debunked" the idea of stones from the sky (meteorites) and uncritically accepted Blondlot's N-rays: but thanks to the existence of mutual criticism and repetition of experiments by others, the errors were eventually corrected. Fraud, obstinacy, closed-thinking, collusion, and many other human failings are not exempted from the scientific community, and the history of science is replete with occurrences of this kind. But the repetition of experiments by others has always prevented errors from this source from getting out of hand. In the long run the process is self-correcting, or at least has been presumed so up to the present.

The possibility of replication of experiments under controlled and repeatable conditions is clearly *crucial* to the process. It is assumed that the *relevant* conditions are known, or can be determined, and that they can be repeated. If the experimental results do not repeat, the first question to ask is whether the conditions were replicated sufficiently well, or whether there were unsuspected but important conditions that had not been taken into account. "What has changed?" is the normal question to ask if results don't repeat. It is also assumed that the experimenter has no influence on the results, and that *any* experimenter (or at least anyone with the requisite training and background) can – in principle – repeat others' results. This is the ideal situation through which, as I understand it, today's scientific self-supportive corpus of knowledge has been built up, and forms the basis of current Western technology.

In my limited experience scientists, or at least those that have bothered to give much thought to it, tend to fall into one of two categories. The first believes that given enough time and effort, the scientific method can, in principle, discover everything of importance about the universe and its contents. The second is either unsure or believes that there are some things that, *in principle*, can *not* be validly or usefully investigated as part of the scientific process. As I see it, all essentially non-repeatable events (such as

history, individual development, developmental or evolutionary sequences of a unique character) are, as *totalities*, *necessarily* outside the sphere of science, *though scientific knowledge can throw much light on the forces interacting therein*. The non-repeatable character of such events *removes* them (as totalities) from the replicability requirement, though it does not necessarily remove from study either identifiable substructures of a more elementary character, or a consideration of the interaction of such parts. But unless an exact replica of the original can be eventually synthesised in this way, the scope of scientific enquiry is necessarily limited, albeit it is nonetheless valuable so far as it goes. This assertion is not meant to imply that speculation is inappropriate, or that formulation of theories, such as Darwin's theory of evolution, (with its more modern refinements) cannot be good approximations to the truth. (Far from it; and experiments can be designed to test theoretical predictions in restricted spheres.) But speculation must be *compatible* with the existing corpus of knowledge, at least so far as it is understood to be applicable. It is this which rules out, for example, Velikovsky's *Worlds in Collision* fantasy, and other "far-out" theories. An excellent book review of "Scientists Confront Velikovsky" in *The Skeptical Enquirer* deals with this aspect, and includes the following brief quote[4] "Of course scientists do make mistakes. Of course there is always debate at the frontiers of knowledge. Even unexpected ideas (such as continental drift and meteorites falling from the sky) sometimes turn out to be right. But new advances in science do not negate well-established laws and principles in the regions in which they are known to apply." Perhaps it should be indicated that this compatibility requirement – with which I am indeed in full agreement - is based on *faith* in the uniformity of applicability of scientific laws, and is not really something that can be absolutely proved to hold irrespective of circumstances. This possibility is, of course, invariably a cop-out for someone who wishes to claim otherwise. And although highly unreasonable, we should perhaps always have it at the back of our minds as a rather remote possibility (Olaf Stapleton once wrote a science-fiction work in which the consciousness of a highly developed society affected the earth's gravitational pull on the moon. Highly unlikely though we may choose to think such a scenario to be, the law of gravitation has never been tested under such conditions, so we don't know *for sur*e whether this might not turn out to be one of the conditions affecting gravity). But hypotheses are "a dime a dozen" and the arbitrary introduction of unprovable and unnecessary hypotheses is to be strongly deprecated. The principle of parsimony – Occam's razor – is the main corrective here. Without it, fantasy imaginings could proliferate unreined. The consequences of such lack of restraint are to be seen in Vallee's explanation of the nature

of UFOs. In a book review in *The Zetetic*, Robert Sheaffer writes[5] "UFOs he (Vallee) says, deliberately make themselves absurd to keep us from taking them too seriously. That line of reasoning can, of course, be utilised to justify absolutely *any absurdity at all*. One would hope that Vallee might look past the immediate advantages to see the long range problems that would arise if other scientists were to follow his lead in constructing hypotheses that can never be proved true or false."

In addition to the replicability aspect, the scientific method is also dependent on the prescription that the experimenter's presence does not affect the results: for if it did, essential conditions could never be repeated with another experimenter (or, for that matter, with the same experimenter, since he would have changed by the time of the next experiment, from his knowledge of what had happened with the previous one). Whether this is something that is *significant* depends, of course, on the nature of the experiment. If we are merely "counting pendulum swings" the interaction is so trivial that it doesn't matter, to a very high degree of accuracy. At the atomic level the measurement itself interferes, in a significant way, with the entity to be measured, and leads to the Uncertainty Principle of modern quantum theory, whereby the future of an atomic system is *inherently* unknowable, although the *statistics* of its properties (i.e. the *average* behaviour of many like atomic systems) can be determined. This is good enough for many purposes, but it never tells us what any particular particle will do.

It is at the level of the investigation of human beings, either as individuals or in groups, that the presence of the observer and his interaction with the on-going process can be critical. The presence of an observer in the class-room affects both the instructor and the pupils. The interaction between a patient and a psycho-analyst occurs in private; for an "outside" observer to really know what is going on he must participate in the process, thereby influencing it by being part of it. An excellent account of this type of process in action is seen in Woodrum's article "The Development of the Transcendental Meditation Movement" in *The Zetetic*[6] where, following Junker's typology of forms, he describes himself as "participant as observer". This well-written account of the development of the TM movement is a good example of careful and thorough investigating and reporting, but it is not scientific in the sense that, the events being now in the past, and the experimenter's results having been published for all to read, there is no way by which another investigator could repeat the observations; or, perhaps, even be accepted by the TM movement as a participant observer as Woodrum was. This distinction between a *scientific* investigation, and an investigation of a thorough and scholarly character,

perhaps using scientific methodology or technical equipment, of an event of a unique or non-replicable character, is not unimportant. Perhaps we are here using the word “scientific” somewhat loosely, when we really mean something like “systematic”, “critical”, “methodical” or “thorough”; but the absence of replicability of an event removes it, in the strict sense, from science, though not from study in which scientific knowledge can be brought to bear, often very effectively. (An excellent example would be the forensic science laboratory of the legal investigative process.)

The way in which science attempts to come to grips with non-repeatable events is three-fold. In the first the situation is analysed into sub-systems, these into their respective parts, and then again into smaller parts, perhaps right down to the molecular level. Parts that have repeatable properties are obtained in this way, and these properties can be examined and investigated. Then the parts have to be put together again, and their mutual interactions discovered, and this involves not only knowing (perhaps by intuition) how the parts relate, but perhaps using systems theory to build up a hierarchy of interactions. This becomes very difficult for large complicated systems, and it is impossible to know for certain whether important features have been overlooked. The second method is via probability and statistical processes. (At the atomic level, the use of probability is essential anyway, because of the basic limitations of the Uncertainty Principle.) A large assembly, taken to be more or less identical to other assemblies, is examined for average properties, and the law of large numbers, where applicable, assures that the results will hold between certain limits with a certain degree of confidence. This process works well for things like telephone traffic, marketing, polling, etc. It provides useful information on, say, voting trends, but cannot say what an individual voter will actually do. The third way involves attempting to replicate what are believed to be the essential features of an event. If an experiment destroys or irrecoverably changes the object, then a near-identical object can be used for a subsequent experiment. To what extent the second object actually is close enough to the first becomes a matter of speculation, or, indeed, almost of faith. Thus, a biological experiment involving the death of the experimental animal obviously cannot be exactly repeated. Science tries to deal with this by utilising pure-bred strains, thus removing at least the genetic variability. Some experiments in the field of human psychology may be of more doubtful validity. If an individual’s response to, say, a question, is determined by what went before, the response to the same question second time around is basically affected, and the experiment cannot be repeated exactly. It can, of course, be repeated on another subject, and a statistical approach on an assembly of individuals emerges; but the individual response cannot be investigated in this way.

Nevertheless the statistical approach can yield much valuable insight as to what is happening, and the results can be applied to individuals in a general way. Everybody has a liver or a kidney, which function in much the same way as similar organs elsewhere; but there are individual differences, too. The same holds true for the brain and for mental functions, except that here the individual differences in some areas are so vast that it is a moot point as to what is primary and what is secondary. I suspect that it is in the deeper levels of individual psychology that the individual's uniqueness becomes paramount and attempts at "scientific" investigation become almost valueless. I do not mean to imply by this that investigation is not possible; only that certain methods that have been very successful elsewhere do not apply here. True, a lot of ingenious experiments have been designed to try to circumvent both the non-repeatability aspects, and also the unavoidable part the experimenter plays in affecting the outcome, but the process does have its limits.

If the above ideas are correct, the attempt to force the application of scientific ideas and methods in certain areas may be misguided. Science is certainly successful when applied in some definite domains. These are the domains to which its methods apply; that is, repeatable conditions, and uninfluenced by the experimenter. However, no conditions are *strictly* repeatable. It is of interest, therefore, that science works at all; it is successful where it is successful! If we are not to be left with a useless tautology we can, with Bertrand Russell, put this another way: it is of the nature of the universe that at least *some* aspects of it *are* subject to the scientific method. The success of the scientific method when applied, for example, to purely mechanical situations, tells us something of the nature of the universe; it has a mechanical aspect. This is not to say that *all* in the universe is of this character. By utilising the scientific method, we search out the mechanistic features. Applying the scientific method to humans or to society discovers only the mechanistic aspects of operating therein. But to assume that *everything* (in principle at least) yields to this method amounts to treating man or society as purely mechanical. There are indeed many who believe that this is so; and it has to be said that by treating people as machines, they do tend to become machines – thereby "proving" the assumption.

In order to explore where these ideas may be leading, let us suppose, as was fairly universal up to about 100 years ago, that there is a God who somehow interacts with the physical universe. Then science will not be able to discover this; if the supposed interaction is by way of "miracles" science will deny the possibility of their existence, saying that they "cannot" happen. If the supposed interaction is by the influencing of the pattern of events,

science will no doubt discover coincidences, but in essentially non-repeatable situations: from this it can neither prove nor disprove anything at all. The non-scientific aspects of the universe (if any) just cannot be investigated by the scientific method. Another tautology; perhaps we can phrase it more constructively by positing that those events involving an individual's presence as an essential element, and/or which are of an essentially non-repeatable character, require for their fun understanding a method of investigation different from standard scientific procedures which can, at most, select out the mechanistic features for study. This is not meant to be a surreptitious back-door attempt to introduce religious considerations into the discussion. But if genuine paranormal phenomena should happen to partake of that character we would be in the rather anomalous situation of committing ourselves to examine them by procedures that could be inherently inadequate or inappropriate. The CSICP, in any case, asserts that it wishes to take no position on mystical claims; but it might perhaps be better to take a more non-committal stance as to the *nature* of the paranormal, rather than to insist *a priori* that it should be of such a character that it must (if genuine) yield to orthodox scientific procedures. This is the Procrustean bed approach; or like trying to repair a watch with a hammer. We probably need to be a little more flexible than this. I think that the real trouble is that whereas, at the turn of the century, new laws were being discovered every day, and men's minds were open to all sorts of possibilities (even Blondlot's N-rays!), today the situation is almost the reverse. Apart from relativistic phenomena at cosmological distances, or discoveries in the fundamental particle arena, there is the feeling that most of the fundamentals of physics have now been discovered, and that a tidy intermeshing structure of laws has been put together that leaves little scope for something radically new. There is no room, for example, for some sort of undiscovered planetary emanation that could, in due course make astrology acceptable to science. At the intermediate scale of events it is perhaps only in the area of human brain function, mental activity and consciousness that really new discoveries would be readily acceptable. To deny the absolutism of the existing somewhat firm scientific picture would really amount to a contention that, in principle, *anything* is possible, given the right combination of circumstances. One can understand, therefore, the reluctance of the majority of the scientific community to embrace strange and uncertain phenomena that could conceivably undermine the stability of the coherent structure of laws so painstakingly put together over the years, often in the face of popular superstition, opposition from the Church, and general lack of public comprehension. If certain "highly implausible" possibilities cannot be excluded on *a priori* grounds, the floodgates of

unlimited speculation are in danger of being thrown open, and the resulting tide of irrationalism, that could threaten to catch the public's imagination, might be impossible to stem. We seem, in fact, to be perilously close to this situation now! To thread one's way through this morass is not easy. There is apparently no golden rule, and the individual investigator's personal bias determines to some extent the particular mix of expectations, scientific method, general investigation, and plain common sense in his or her approach. It is in. this rather uneasy milieu that the CSICP has set for itself the task of sorting out genuine occurrences of an unusual kind from a welter of rash claims, hoaxes, exhibitionism, downright fraud, self-deception, far-out nonsense, or just plain honest error in reporting.

Of the presentations of the various writers available to date through the CSICP publications, how much can be considered to be truly science, how much methodical critical investigation of a more general kind, and how much a debunking of stuff thought to be too silly to be taken seriously .by the scientific community? More importantly, perhaps; has such debunking exceeded limits of legitimate ridicule and spilled over into areas meriting serious study? Some approaches may be a matter merely of personal style, but one could also ask what part should such general debating tactics as innuendo, personal attacks, guilt by association, and the like, play in an article or review presented in the context of a "commitment to open and rational dialogue about paranormal claims from a science standpoint"?

A commentator's contribution is necessarily a personal opinion, too, but at least I have endeavoured to uncover the philosophical bases from which my own opinions stem.

The editorial in the fall/winter 1976 issue of *The Zetetic*, on which I commented briefly earlier, sets the stage for the committee's work; and the character of the articles and book reviews in this first volume sets the tone for much of the subsequent material. It is not my intention here to attempt a detailed comment on the entire publication – my selections are chosen more to illustrate various points.

Three articles, one on Dianetics, one on psychics, and one on von Daniken's Chariots are of the general nature of sociological surveys, but they differ substantially in character. Wallis's piece on Dianetics reads as a very studiously researched survey on the social impact of Dianetics, but it avoids any attempt at a scientific assessment of the validity of the therapeutical claims themselves. The piece by Fine on psychics gets much closer in character to a scientific survey, with tables of statistics and correlations strongly supportive of the thesis that persons selected or volunteering as psychics predicted the future no better than non-psychics. Omohundro's article on von Daniken differs from the previous two in more

than simply style, however. Whereas WaIlis and Fine, even though they may have strong opinions on the validity of their subjects' claims, write in the rather neutral investigative vein that one might have anticipated from the tone of *The Zetetic*'s opening editorial, Omohundro, exasperated, I suspect, by the incredible financial and publication success of what he clearly perceives as a nonsensical treatment of the subject matter, is uniformly critical of both von Daniken and his followers. He offers quite a number of valid examples of his objections, by way of refutation; but mainly he is holding both von Daniken and his readers up to ridicule for their endless false claims, ignorance, poor logic and just plain wish to be titillated and deceived. "The contrast between what we could do in space with what we could do for ourselves on earth was like watching a priest celebrate mass with his zipper down"[7] is an example of his style of treatment. But rather than "debunk" this article for its rather non-academic manner of exposition, it may be well worth quoting his opening paragraph in full, for it contains some important features warranting serious consideration.

> "Were it not for the fact that Erich von Daniken has millions of otherwise intelligent people discussing his book and theories seriously, I would prefer to write a parody of his style. But I fear his readership might believe me too. I ignored his books for four years, but now I cannot teach my students or talk to my academic colleagues without his name souring my day. It is out of his hands, now, this chariot thing. It has reached the people, and for reasons that are their own they have made von Daniken a prophet (profit?) and me a defender of the Establishment.

"Why is this book so popular? Von Daniken, it seems, has written one of the scriptures of a new cult. *What he says, people obviously want to hear*." (Emphasis added). Compare this assertion with conclusions from later editions of *The Zetetic*, such as Story's "Von Daniken's Golden Gods".[8] This piece is a much more soberly reasoned account of the Nazca desert markings and other material that form the basis of Von Daniken's expositions. (Though there may be some errors: thus Story quotes with apparent approval Kosok's conclusions that some of the desert lines pointed in the direction of the setting sun on the occasion of the winter solstice, thus giving credence to an astronomical calendar type of interpretation. But Randi,[9] in an interesting letter on "The Nazca Markings" indicates that a later computer study showed no general correlation of the lines with the solstice direction; and their true explanation continues to remain unknown.) But despite the contrast in treatment, there is an interesting correlation to

their conclusions. Story offers six answers as to why von Daniken's theories are so popular, and why so many people take him seriously. The first four, particularly relevant here, are:

> "(1) A large segment of the population, a majority perhaps, does not take kindly to the concept of human evolution that modern science has developed. It is simply unflattering to them to believe that our ultimate ancestors were a form of prehistoric ape or 'monkey', so to speak. A more pleasing notion, and a more traditional one at that, is that man has a supernatural origin as, for instance, is told in the Bible. Von Daniken is abiding in this respect in that he saves the supernatural part, and even makes it *appear* compatible with modern-day science.
>
> (2) The very concept of God that most of us have been taught consists in this familiar mental image: God is a super-being from a super-world from somewhere 'out there' (i.e., among the stars). This whole frame of reference fits perfectly the theme that God is an astronaut.
>
> (3) Another feat accomplished by van Daniken was to (seemingly) reconcile modern science with a literal interpretation of the Bible. Speculations are generally more popular anyway if they are overly simple. Abstruse theology is just as forbidding to the mass public as is academic science. The real answer to a difficult problem oftentimes requires more mental effort than many are willing or able to muster.
>
> (4) The theme of salvation is no doubt central to the ancient astronaut myth. What could be more appealing than beings who are godlike in their technical knowledge (which is threatening but still means so much to us) and in their wisdom (so we assume), and who could direct us in the use of advanced technology for the ultimate good of mankind? Since the gods may be our salvation, we want to believe in them, whether we realize it or not."

Let us add to these comments Rawlins' general observation[10] ".... truth is *not* stranger than fiction, but belief in an improbable fantasy's *literal* truth (emphasis added) makes it far more compelling." Sheaffer,[11] from a book review on UFOs says "His conclusion is that the UFOs form a 'control system' for human consciousness: 'they are the means through which man's concepts are being rearranged'. How and why we are being 'rearranged' and by whom, he is unable to say ...." Abell,[12] on Velikovsky, writes ".... those who follow Velikovsky do 'so not out of reason but out of emotion, as a belief in a sort of neo-religion, and perhaps as a way of rebelling against the authority of science ...."

In the Jileks' letter[13] we read ".... the real significance of von Daniken's enormous literary success, also with intellectual readers, has little to do with scientific, or even popular scientific, interests of the public. Rather it has to do with modem man's *anomie* and alienation and his hope that, although the old Gods are dead, some *deus ex machina* may soon step out of an extraterrestrial spaceship and with his suprahuman intelligence and technological power lead us out of the mess we created on this planet. Von Daniken must be credited with catering to this pseudo-religious need of industrialized man ...." And finally, in Julian's review[14] on UFOs, ".... even a trained historian can develop so intense a desire to believe in alien visitations that he becomes an advocate rather than a neutral observer."

The import of all these findings would appear to be as follows: Even if Chariots of the Gods, UFOs, etc. had been presented purely as fiction, people would *still* have wanted to believe in them as real. There seems to be a sort of mass psychological urgency to *exteriorize* a need to see cosmical forces (of evolution, control, whatever) as *real*; real in the sense of tangible, (or at least, *immanent*) as distinct from the merely spiritual of the gods of yesteryear. Real in the sense that the experiencing of the persons of, say, Christ or the Buddha were real to the followers of their day. Whether this upsurge of irrationalism is a sort of pathological precursor, an indicator or portent of the shape of things to come, or merely an ignorant reaction to an incomprehensible and insensitive advanced technological society, only time will tell. But perhaps we should be willing to shift emphasis from expending too much further time and effort on trying to disparage von Daniken's weird theories – it's not quote clear whether he really believes them himself ("I am not a scientific man, and if I had written a scientific book, it would have been calm and sober and nobody would talk about it.")[15] – and concentrate more on the psycho-social phenomenon of the large number of people who *want* to believe it as literal truth. For I think it is here that the really interesting discoveries await us. (Maybe those versed in the theory of Jungian archetypes, or in the psycho-evolutionary ideas of Sufism, would have something of value to contribute to this.)

This article[16] "Scientists as Experts: Observations on 'Objections to Astrology'" by Westrum is a rather non-emotional study of the basis on which scientists can legitimately comment on astrology (or anything else for that matter) and goes in considerable depth into the question of the credentials needed for being a valid witness or advocate. It is followed in the same issue by a hard-hitting reply[17] "Are Astronomers and Astrophysicists Qualified to Criticize Astrology?" by Kurtz and Nisbet. A rather pained rebuttal by Westrum "More on Astrology"[18] appears in the next edition of *The Zetetic*, followed by a further reply by Kurtz and

Nisbet[19]. Irrespective of the merits of the case, I find particularly disturbing the way in which a carefully reasoned piece is responded to with rhetoric and innuendo in a tone which seems to me to be completely out of place in a journal of the type which I think *The Zetetic* is striving to be. The result is that the argument degenerates into an attack/defence mode in which the original points tend to get lost. Westrum is accused of sloppy scholarship on the basis of two quite minor errors (one of which turns out to have been correct after all); of libelling fellow scientists for saying that they lacked the competence to judge astrological claims – Westrum avers he made no such assertion; of setting up and then knocking down 'straw men', based on a dubious reading of the text (actually an interesting semantic point is raised, about which more later), until the whole thing degenerates into the utter triviality of whether or not Westrum actually used the word 'astrologer' in his article. He said he didn't, but was unwise enough to claim so without a thorough check. Kurtz and Nisbet, with great glee, track him down and quote one line where, sure enough, the terrible word appears. Big deal! I had almost hoped (so caught up was I in the emotive current) that they were wrong, and that the word was 'astrolo*gist*'; but no, they had indeed done their homework right – so they got the last word in, as if *that* proved the unreliability and poor scholarship of Westrum's article. A most unedifying spectacle of horn-locked scholars disputing ideational territory. It is not my purpose here in any way to provide a defence for Westrum's thesis, (still less to defend astrology) but to try to come to grips with finding what is needed to get the scientific view across effectively to the public. Westrum tries to make the point that a scientist, presumed competent in a certain specific discipline, is not *thereby* qualified to speak in a broader arena in which his particular discipline forms but a part. (A case in point is that of the British Astronomer Royal who, prior to the moon landings, had proclaimed "Space travel is bunk.") It is the *interactions* between several disciplines, and maybe other matters of a more general nature, that are involved, and unless the scientist has *also* studied these, or at least familiarized himself with them, he can offer only personal opinions. It is to this that Kurtz and Nisbet take great exception, interpreting it to mean that *only* practising astrologers could legitimately speak up on matters astrological. In defence, Westrum points to the analogous field of criminology for which there are *criminals* (practitioners) and *criminologists* (those studying crime). Clearly the two are not the same, and a criminologist doesn't have to be a criminal to do his job well, nor are many criminals criminologists. Unfortunately, astrology has its practitioners (astrologers) but an astrolo*gist* also happens to mean the same thing. We need a new word, like 'astrologerist' to describe someone, an astronomer,

say, who has also studied astrology sufficiently well to know and understand all about the interactions of the astronomical component with others in the field of astrology. How many of the origina1 186 scientists signing the "Objections to Astrology" could be counted as 'astrologerists'? Westrum rather implies not very many; but Kurtz and Nisbet indignantly say any number of them were, and quote six (by name), "to mention only a few." I find myself wondering, if there really were all that many, why was not some larger figure mentioned, or a certain substantial percentage not given? Perhaps many more would indeed fit that category, but I don't have the figures, and neither did Westrum; and nor, for that matter, did the general public who, without the benefit of Westrum's more scholarly analysis, might well have simply asked what business scientists, just because they were famous in their field, had in pronouncing on astrology. This may not have been intended as an appeal to authority, but from a distance it rather *looked* like it. The popular view of the scientist as advocate is not a pretty one, in any case. Contradictions between expert witnesses in court cases often give the impression that a scientist can be found to express almost any convenient point of view for a litigating party. The following quote[20] from a national syndicated columnist shows the sort of thing the public is exposed to, and from which its opinions in part are formed. The piece concerns the role of caffeine in causing birth defects, and runs, "Let me respond first as a scientist and then in terms of common sense. Scientists, as you might imagine, are lined up on both sides of this question, with the consumer-advocate scientists arguing AGAINST coffee and the coffee-trade-association-scientists arguing FOR coffee. The scientists of the Food and Drug Administration say, as you might expect, that they are still studying the question. So much for science. Now to common sense...." This not very flattering view of scientists helps to confirm the public's suspicions, and creates difficulties for getting even a fully scientifically agreed statement across.

Although the signed statement itself did not list the scientific evidence to counter the claims of astrology, its publication in *The Humanist* was accompanied by two studies dealing with this matter at some length. What was the relevance of these two articles to the statement? In his first paper Westrum seems to have largely ignored them. Although some early media publications indeed referred to them, later news items dealt more with the statement alone. The vast majority of the public, not being subscribers to *The Humanist* (and probably never having even heard of it) got its news from the popular press or the television newscasts, by which time, for the most part, merely the bare fact of the issuance of the signed statement came through. In any case, as far as the signatories themselves are concerned,

how many were aware that the two articles would appear alongside the statement? Westrum at first assumed the statement and the two articles were more or less separate documents, and that few of the signatories were aware of the articles. But later he adds[21] "I have now been told, however, that the two articles were circulated among potential signers previous to their signatures being added to the document." However, this doesn't seem to be correct either, because Kurtz and Nisbet state[22] "Nowhere have we said that the Jerome and Bok articles were circulated among all the potential scientists before their signatures were added. The scientists thus were not asked to endorse Bok's and Jerome's articles *in toto* .... They endorsed only the statement itself." Thus it is still unclear whether the signers of the statement expected the publicity it would generate would be linked with the articles giving the evidence against astrology. As far as the general public is concerned, the connection does seem to have been largely lost.

The purpose of the whole exercise was stated to be to alert the public; how well did it actually succeed? Bok, drafter of the statement, states[23] "As far as I am concerned our primary purposes have been achieved. They were: (1) to warn young people against accepting astrological predictions without question; and (2) to provide them with a clearly written statement and two articles showing that astrology totally lacks a scientific foundation." Westrum, however, is less certain[24]: "The publication of 'Objections to Astrology' has done little, as far as one can tell, to end the popularity of horoscopes and visits to as astrologers. It would be interesting to see how small a dent it made in the sales of books on astrology, or the reading of newspaper astrology columns." Has anyone actually conducted any research to find out what the impact of the statement has been? In fact, was the original issuance of the statement preceded by any research to show what was the best way to tackle what was, after all, a P.R. job? I don't know the answers to these questions, and would be glad to be corrected, but I suspect that the answer to both of them is no. To reach that part of the general public interested in astrology I would have thought that the mass media would have to be brought in somehow. (And with the participants chosen for their ability to handle questions in a live TV setting, not simply for their academic qualifications or scientific reputation.) All this is past now, of course, but it does seem, in retrospect, that the matter was not handled as 'scientifically' or as efficaciously, as it could have been. The discussions in *The Zetetic* were not all as scholarly as they could have been, either; the rhetoric and appeal to emotion seemed rather out of place, I thought, and left me with a sad feeling of an opportunity lost. I can fully agree, however, with Kurtz and Nisbet when they say[25] "What is more profoundly at issue is the question of how scientists and scholars can best meet the rising

epidemic of untested claims of the paranormal. It is a question of strategy. And it concerns no doubt the very future of *The Zetetic* and of the Committee for the Scientific Investigation of Claims of the Paranormal." This question of a *valid* strategy is really quite crucial. We live in what is, to a large extent, a "snake-oil" culture, and a knee-jerk type of reaction to a worsening situation just cannot be expected to produce any long-lasting or constructive effects. Just how amenable *are* people, scientist and non-scientist alike, to rational argument on subjects in which they feel a deep emotional involvement? Rawlins, in the article already alluded to, remarks somewhat cynically:

> "The theory that humans are hardcase irrational is widely accepted in certain quarters, for example, psychoanalysis, criminal law, advertising, and politics, many of whose leaders themselves constitute excellent examples of the theory. While being properly grateful for small nonhypocrisies, one is nonetheless disturbed at an insidious, pervasive trend that is becoming a self-fulfilling prophecy, convincing myriads of already muddled minds that life is beyond comprehensible control.
>
> "If this post-Freudian-revolution viewpoint is correct, then reasoning with a person is as futile as reasoning with a volcano – and thus the attempt to reason victims out of superstition is *itself* a superstitious act: that is, one is performing actions towards a goal when those actions have in fact no relation to the goal's attainment.
>
> "We must also face a chicken-versus-egg question: Is superstition a symptom or a cause of its associated ills? The fact is, circular, ongoing, educational systems – schools, family, media, cults – make it *both*.
>
> "How to crack these feedback cycles? Well, perhaps we can't; but if there's a chance it lies in understanding the phenomenon and its rationalizations .... And to accomplish anything we're going to have to break some eggs."

And he proceeds to do just that, in a very hard-hitting, closely-knit piece that goes all out to debunk ESP, astrology, Jeane Dixon, J.B. Rhine, and anyone else straying into his orbit. Speaking with evident relish of the scorn serious astrologers hold for the garbage of the newspaper horoscopes, he comments: ".... pseudoscientists' sharpness when skewering each other cannot be exceeded by mere outlanders. But one may aspire!" And so he flays out mercilessly, using an extensive battery of facts, leavened with a

broad sense of humour, (lamentably lacking, unfortunately, from other, more sombre, treatments). Levy, Rhine's hand-picked director, comes in for no less than three bashings for being caught fixing data. Rhine himself is viewed somewhat tragically as a man who has wasted his career chasing the ESP will-o'-the-wisp. Jeane Dixon gets it for lying about her age, having an alias, and for various other things, including failure to 'phone the FBI with details of JFK's impending assassination'. Not that some of these criticisms are unwarranted, mind you. A former president of the Parapsychological Association apparently was unwise enough to have painted himself into a corner by affiliating himself with the *National Enquirer* and conducting a mass ESP experiment, the results of which he announced as "highly significant" on the basis of what turned out to be a totally inadequate statistical analysis. But that disgrace was apparently not punishment enough – a certified-mail letter was sent to him asking him to compute the chance score, and he failed to reply; and this last dismal transaction is also recorded (*sotto voce*, in a footnote) for the entire world to gloat over.

If you disbelieve in the paranormal and want to have your prejudices stimulated and indulged in, then Rawlins' article does it perfectly. It is so easy to be caught up in the current of this extensive sortie into Debunkemland; but preaching to the converted doesn't make new converts, and it is doubtful whether many of the "victims" for whom Rawlins professes so much concern, would ever read this piece, or be persuaded by it if they did. The exposition is presumably intended to be read by fellow scientists, and the mass of interesting data notwithstanding, I wonder whether it really gets us much further either into a strategy for dealing with the spread of mass superstition, or with, the problem of coming to grips with genuine (if any) paranormal phenomena. Rawlins repeatedly links ESP and astrology, allowing the opprobium of the frauds and deceit perpetrated in the one to leak over onto the other by a sort of "guilt-by-association". What they have in common, of course, is that the same sloppy mentality that so readily and avidly believes in the one often believes also in the other; and both are being exploited commercially, endlessly and shamelessly, for profit. Probably the same could also be said for UFOs, though they don't figure in Rawlins' piece for some reason. (Perhaps he had more than enough material without them!) But linking them all together for the purpose of debunking them, or exposing the operation of a ubiquitous fraudulent element, doesn't help in disentangling the truth from the falsehood in whatever lies latent in any particular situation. Conceivably there could be genuine elements in one but not in the others, and a massive umbrella debunking of the demonstrably fraudulent is more likely to confuse than to clarify the situation. Take the case of ESP, for instance.

Fraudulent exploitation and cheating apart, Rawlins echoes a common objection, the lack of an ability to replicate, insisting that ".... in the absence of repeatable experiments, the *entire* basis of one's belief in ESP or astrology is *nothing* but the tester's *word*. History or law this may be; but it is not science." But is this assertion about the basis of one's belief really correct? It might be so for astrology, but the popular belief in ESP goes back to long before Uri Geller's spoon-bending exploits, or Rhine's attempts to put ESP on a systematic basis with his Zener card testing sequences. It is certainly *easier* to investigate something if it can be repeated in a handleable form in the laboratory: but lack of such replication surely doesn't remove it from the realm of legitimate investigation. Ball lightning is accepted as a valid phenomenon though we know little about it, and it certainly can't be (yet) produced in the laboratory. The same can be said for falling meteorites, which appear on the scene at unpredictable intervals, not when we choose to call on them. It may be that at some future time genuine ESP can be demonstrated reliably in a controlled setting; but if this can't be done now that is surely no reason for discounting it, or writing it off as "history or law".

But more to the point, why hasn't Rhine's attempt at a systematic approach come up with more than guessing sequences which, on average, are, *at best*, only slightly better than chance? (I don't wish here to discuss in detail such relevant questions as (i) the role of cheating in these experiments, (ii) the 'past holy miracles', as Rawlins calls them, of 25-right-out-of-25 Zener card runs, (iii) psi-missing, (iv) cumulative probabilistic calculations.) I suspect that the reason may be that, to the extent that it may be genuine, ESP is essentially a phenomenon with relevance to specifically human situations, and particularly to human *survival*: for if it is presumed to have evolved through natural selection, it is to human survival, surely, that it would pertain. Thus ESP has traditionally been associated with death situations, or with accounts of visions of a certain 'serious' character, and not with such 'trivialities' as Zener cards. (Though it might be of interest to know the sort of response that might ensue, if the life of the subject were literally to hinge on the results.) Past accounts of these kinds of visionary revelations abound, but they are clearly beyond any sort of current valid investigation; for we can never know whether fraud, deceit, poor memory, imaginative elaboration, or just plain mis-reporting were involved. But here is a 'live' one, that appeared in the press while this article was in preparation. The purpose of reporting it here is not in any way to make a case for ESP, but to indicate the sort of event from which we could seek clues, and which, in any case, seems to call out for a proper investigation. Headlined "Voice Identifies Killer", the UPI report reads as follows[26]:

> " A physician has testified in court his wife became possessed, talked to him in the voice of a slain woman and told him the name of the woman's killer and how he could be proven guilty.
>
> "The witness, Dr. Jose Chua, Tuesday said his wife, Remibios, went into a trance three times last summer, identified herself as the slain Terista Basa, 48, and named Allan Showery, 32, as Miss Basa's killer.
>
> "Chua testified at a pretrial hearing in which Showery's lawyer is trying to have the murder charge against Showery dismissed because of the unusual circumstances that preceded his arrest.
>
> "Showery was arrested Aug. 11, 1977, after Chua passed on to police information he said he got from his wife as she spoke in the voice of Miss Basa, who was found stabbed to death in her apartment on Feb. 21, 1977.
>
> "Acting on information supplied by Chua, police found jewellery belonging to Miss Basa in the possession of some of Showery's friends. Police detectives said Showery later admitted to the killing ...."

Clearly a lot of questions can be asked: such as the relation, if any, between the Chuas and Showery, or the Chuas and Miss Basa; whether forgotten sensory cues can be recalled under drugs or hypnosis; the response of the police to the information presented, and its relevance to the arrest. The whole question of whether the story as reported is accurate needs confirmation, and there are doubtless other questions that a skilled investigator would ask. The outcome of such an enquiry might well show that the entire incident has a straightforward and prosaic explanation; and then again it might be otherwise. In any event, this sort of account of (supposedly) ESP is quite different from Zener card guessing on the one hand, and the Uri Geller brand of exhibition on the other. Can we really expect anything valid from the latter? Rawlins clearly thinks not: "Even skeptics are often insufficiently aware of the *necessarily* crucial role of fraud. Assuming for the sake of argument that ESP is non-existent, ask: How could an entirely baseless idea get anywhere *without* repeated, systematic trickery?" This, of course, begs the question of whether genuine ESP exists; but it *excellently* underlines the nature of the case for subjects not possessing any such abilities. They *must* resort to trickery, and the question is whether they can avoid getting caught red-handed. What is so incredible is the way that some of the earlier, and also some of the more recent, investigators cling so pathetically to these trusted fakers, even after their cheatings are exposed. Rawlins captures this perfectly in his essay: "In the nineteenth century Oliver Lodge of SPR defended the notorious

Eusaphia Palladino, after she was nabbed red-handed, by loop-holing that she must have been low on her real powers that day and so, under pressure to perform, resorted to deceit this once! .... the arranger of the famous 1967 Pike-Ford television seance offers that 'Ford was a genuinely gifted psychic who .... fell back on trickery when he felt he had to:' .... When, in 1972, I entrapped and exposed Russ Burgess's college-audience 'psychic' act's capstone feat as just a magic trick, a faculty member was quoted in the ensuing press coverage as having reacted: O.K., *that* was fake, but the rest of the *same evening's* performance looked real!.... One of the two Stanford Research Institute testers of Geller and the otherwise-intelligent editor of *The Geller Papers* have each told me that he believes that Geller sometimes cheats but that doesn't mean he isn't real the other times. Apparently not-getting-caught equals genuine." Clearly one (or more) stage magicians are a helpful adjunct in exposing these frauds, and Randi, in a special report[27] "Tests and Investigations of Three Psychics" shows how either the supposed psychics were actively involved in cheating, or else were unable to perform when conditions were really closely controlled. Of course this doesn't prove that fraud is present in *every* such case, but the widespread exposure of so very many cases strongly leads to the supposition that it would be prudent if it were to be anticipated in all. It's like a sort of psychological version of Gresham's law – an excess of fraudulent 'psychics' discredits any (presumptive) genuine ones. In fact the point of view may well be taken that if the outcome of a psychic performance can be replicated by a stage magician, or others using 'ordinary' methods, then it should be *presumed* to be the result of trickery, even if actual cheating was not detected. An excellent piece[28] "The Non psychic Powers of Uri Geller" by Marks and Kammann describes just such a comparison of Geller's results with those of college students and others. Their conclusion: "Parsimony dictates the choice of normal explanations for the phenomena described here. Geller's procedures allow him to use ordinary sensory channels and ordinary motor functions. While we cannot with our data refute the Stanford Research Institute experiments, we question whether it is credible that Geller uses normal sensory-motor means outside the laboratory but switches to paranormal means inside it." And it is only a small step to take this a little further and claim that even if you don't know how it's done, it should still be presumed to be by some sort of trickery. After all, how many, including other magicians, know how a particular stage trick is performed? And most scientists are unaware of the ingenious procedures of the professional trickster, and so can be easily caught out, particularly if they are one of those who subconsciously *want* to believe.

So where is all this leading? If the Zener-card type of testing is more or

less clinically sterile, if private visions are, for the most part, either unreported or are too ephemeral to investigate accurately, and if closely supervised laboratory testing of 'psychics' indicates either fraud or a failure to perform, what are we left with? Not very much, it would seem; and it's therefore not too surprising that so many serious scientists are to be found in the ranks of the non-believers or the disbelievers. But if it should be the case that genuine ESP is *completely* non-existent, how do we account for there being such a widespread belief in it? One can always counter with "No smoke without fire" or, as Rumi, the Persian poet, once expressed it, "Counterfeit gold exists because there is such a thing as real gold". But this doesn't get us very far, either. Rawlins has his own quite definite ideas on the matter ".... if you could read character or the future by the 'magic' of the horoscope or just by turning on one's ESP, then the acquisition of life's desiderata would be plain *easier* .... despite all the high-flown hype about the ethereal spiritualism of astrology and ESP, most addicts' primary goals for learning about them are (ask any publisher) the old mundane standbys – sex and money." As the opening editorial of *The Zetetic* says "And when those making the miraculous claims stand to profit from the claims and when the history of such claims has often been connected with fraud and misperception, we have added reason to be highly skeptical and critically reasoning." And from Committee News Notes of the same edition "These miracle men are utter frauds," says Dr. Kovoor, "and resort to philosophical jargon, claptrap, and jugglery to achieve popularity. It is a vast racket, and there is big money in it." The message from all these selections seems to be quite clear, and I think we can reasonably draw one of two alternative conclusions from it. The first is plainly that there is no such thing as genuine ESP and that everyone into it is either 'honestly' self- deceived, or else is fraudulently exploiting it for personal gain. If this really were so, then the CSICP could be, from the scientific point of view, completely wasting its time. It would be investigating, not ESP, but imitative ESP, and the only real value of so doing would be for P.R. purposes; lest, by default, these frauds continue to exploit the public unchallenged. The people involved are either exhibitionists, charlatans, hoaxers, or are seeking publicity, esteem, or just personal attention from the testers – one way or another they are all full of themselves, hypocritical, and basically untrustworthy. The other possible explanation is quite simply that such people are in such a debilitated psychological condition that ESP is quite *unable* to operate through them. (Just why this might be so is speculated on later.) This leaves open the possibility of the existence of genuine ESP, but raises the question of what sort of condition of the individual *could* permit ESP to operate. Just to see where this kind of reasoning might possibly lead,

let us consider a sort of 'hypothetical hypothesis' along the following lines: "ESP can operate through those individuals characterized by their being in a 'selfless' condition." This bald statement clearly calls for further elaboration. The selfless condition could be either of a permanent character, or perhaps of a temporary nature brought on by unusual or pressing circumstances. The word 'selfless' is used to indicate an *absence* of such traits as hypocrisy, dishonesty, untrustworthiness, or a pathological need to seek publicity, self-esteem, or to draw attention to oneself. More positively, it would likely be characterized by such qualities as love, generosity and humility. Such an individual would probably be a doer of good deeds in the community (but a good-doer, not a do-gooder). There is an acknowledged descriptor for such a person; and if I can use it without its being off-putting to some readers, it is *saintly*. Not in the religious sense of canonization, but simply in the sense of being completely reliable, trustworthy and good. Such an individual would not cheat, would not be tempted to use ESP powers for personal gain or other improper purposes, and would exhibit the integrity of character such that questions like these would not even need to be asked. If there is a widespread belief that someone with genuine ESP powers would necessarily be expected to use them for personal gain, this merely indicates that most people would not fall into this selective category. Of course, there *are* such 'good' people, but they are probably few and far between, and perhaps not that much in the public eye.

What can we usefully do with such speculative arguments? If we drop the 'hypothetical' and treat the suggestion as an actual working hypothesis, it might indicate a necessary condition for success in enquiring about the nature of ESP. However, such a special individual, when located, might turn out to be quite unwilling to be caught up in scientific experimentation. If it should be the case that telepathy, say, has some sort of a spiritual basis, it is conceivable that an individual able to operate in that mode would be reluctant to engage in "worldly" scientific experiments, with the very real fear of catastrophic misuse as a possible eventual outcome. (Many people feel this way today with the results of "ordinary" contemporary science.) Perhaps a good rapport with a particularly candid and honest experimenter would also be a pre-condition; an experimenter motivated by a genuine altruistic interest and concern, and not out for personal prestige, publications, grant money, and the rest. If the experimenter's character and mental attitude should turn out to be critical in this respect, what becomes of our earlier requirement of the scientific method that the experiment should be capable of replication by *anyone*? Well, I circumscribed this a little by requiring that the experimenter should have the necessary background and training – perhaps the training (for ESP experiments) can legitimately

include the capacity to present a suitable psychological state in relation to the experiments. After all, if ESP is to be seen as a manifestation of a mental phenomenon, then requisite needs in that area should not be too surprising. If an experimenter is, say, too eager or excited, this could conceivably distract the subject in the experiment. All of this is speculative, of course, but it is not inherently unreasonable. It does point to the need to consider the *characters* of the subject and the experimenter as possibly *essential* elements in the enquiry. And unless these are known and controlled we cannot, in any case, claim that conditions for an experiment can be properly replicated.

Quite apart from being put off by widespread fraud, there is another reason why most scientists are unwilling to give credence to ESP – they don't see "how it can work". From one point of view this is almost *a priori* reasoning against ESP. It used to be the case that a scientist would investigate a new phenomenon and only later discover the mechanisms operating therein. To ask for the mechanism first is like putting the cart before the horse. Even so, let us not completely avoid this issue since, once raised, it clearly calls for attention. Einstein, for instance,[29] while willing to be persuaded by adequate evidence, had reservations about ESP because, among other things, of the apparent invariance of the effect with distance. Physical forces with which we are familiar decay with distance, but ESP apparently does not. One suggestion I have heard to get round this supposes that brain currents produce extremely low frequency radio waves that propagate in the earth/ionosphere as a waveguide with a negligible attenuation. The low frequency would also ensure penetration through metallic shielding, another presumptive requirement. Ingenious though this proposal may be I don't believe that it can really stand. Brain currents are minute in any case, and a body-sized antenna would be extremely inefficient in coupling out to the distance of the ionosphere; and the waves would certainly be subject to inverse distance effects prior to that. Rather than pursue this line of reasoning further I think it might be constructive to note that a proper distinction can be made between the *physical principle* on which a phenomenon operates, and the *effect produced*. For example I can transmit intelligence by talking, but those at the back of the room can understand me just as well as those in front, even though the sound of my voice is much weaker at the back. I can make a transatlantic telephone call just as effectively as one across town. So long as the net effect at the receiver is sufficiently *above the noise threshold* the intelligence gets through no matter what the weakening with distance of the transmitted forces. If we suppose that extra-sensory perception might be of the nature of a universal human potentiality, then it may be that the threshold for

awareness is impossibly high in "noisy" persons, people so full of themselves that their attention is fully absorbed in themselves to the exclusion of other possible low level inputs. "Mental quietness" then becomes a prerequisite for ESP to operate. It can be seen as a matter of *access*; if the brain is too busy, weak signals just don't get through to our attention.

All this doesn't get at the nature of the supposed forces, however. I think that there is a real mystery here, but I believe that the mystery is not so much at the ESP end as at the much more familiar junction of *ordinary* awareness and action. We can understand how nerve impulses are transmitted from the eye to the brain, or from the brain to the muscles, but *how* does this account for our *awareness*, our *consciousness*, of sensory inputs, or our ability, *at will*, to move an (unparalyzed) arm? We are so used to these things, and they are so very close to us, that we normally do not give them a second thought. However, I think it is to here that the emphasis should be directed if we are to make progress. Dr Jule Eisenbud is heavily into many aspects of ESP and goes very much further in his willingness to accept 'far-out' claims than I am, but on this question of awareness and ESP he has put the case so very succinctly that I don't think I can do better than quote him on the matter.[30]

> "Our consciousness .... seems qualitatively different from the gross objects which occupy space, yet it is able to become aware of these objects. How can this occur? .... An enormous amount of sophisticated work has been concerned with how physical emanations of various sorts affect our senses, and with how our brains monitor what happens from there on. But we know nothing about how any of this brings about awareness of ourselves and of the world we perceive as external to us.... the difficulty we have in comprehending *sensory* perception is itself seemingly insurmountable. Confronting the possibility that our minds can obtain information through other minds or directly from things and events without the intermediation of the known senses, that is, telepathically or clairvoyantly, leaves us hardly worse off than we were before. Physical space has as little to do with one situation as with the other. We are just more familiar with one mode than with the other. Indeed, it has been suggested that so long as we have in both cases to regard what happens as basic unexplained facts of experience, there might be some advantage in approaching the problem of how things get into awareness if we simply assumed that we are capable of becoming clairvoyantly aware of everything that exists (Moncrieff, 1951), and that the chief function of the brain, as Bergson (1950) long ago conjectured, is not to apprehend the external world but to filter out those parts of it for which we have no immediate use .... As in the case

> of ESP, the data of PK add no fundamental complications to the problems that already exist in the realm of voluntary or even involuntary initiation of bodily movements by something that could be called a mental act. Here again, for aught we know about the fundamental process involved, we might think of the ordinary or at least familiar influence of the mind or the will on the body as merely a special case of a more general faculty .... The one problem posed by ESP and PK, one might therefore say, is not their categorical difference from ordinary modes of cognition and initiation of motion, but their ostensible rarity ....”

It is apparent from this that some sort of *gestalt* is envisaged, and that an examination of the parts is unlikely to indicate all possible properties of the whole. Again, all this may be speculative, but it is at least an honest attempt to get things moving away from endless investigation of fraud, into a possibly more fruitful sphere.

Meanwhile *The Zetetic*, now the *Skeptical Enquirer*, continues in both a scientific spirit and also in a debunking vein. I am not against ridiculing the ridiculous, but we must be careful not to blindly overdo it, lest the baby goes out with the bathwater. As a writer says in an earlier letter,[31]

> “I certainly hope the debunking spirit doesn’t come to totally dominate CSICP. Certainly a generous dose of skepticism is *essential* for such investigations. And I strongly suspect that most if not all of the material in question *is* bunk. But strident *ad hominem* argument cannot pass for scientific investigation, which is what the committee advertises. If it clearly delivers less, it will left-handedly lend support to exactly that which it intends to topple.”

I don’t pretend to know what impact the possible future confirmation of genuine ESP by the CSICP would have on the public, or on our strategy to expose fraud, exploitation and the other nonsenses. In the long run, hopefully, the appearance of the real thing might automatically spell the demise of the imitation. In which happy event, its task done, and with a clear conscience, the CSICP could then consider gently and graciously voting itself out of existence.

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(Most of the references are from the first four issues of *The Zetetic*, and are annotated by volume, issue and page number.)

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