Is Parapsychology a Science?

Paul Kurtz

I.

An observer of the current scene cannot help but be struck by the emergence of a bizarre new "paranormal world-view." How widely held this view is, whether it has penetrated science proper or is simply part of the popular passing fancy, is difficult to ascertain.

Many of those who are attracted to a paranormal universe express an antiscientific, even occult, approach. Others insist that their hypotheses have been "confirmed in the scientific laboratory." All seem to agree that existing scientific systems of thought do not allow for the paranormal and that these systems must be supplemented or overturned. The chief obstacle to the acceptance of paranormal truths is usually said to be skeptical scientists who dogmatically resist unconventional explanations. The "scientific establishment," we are told, is afraid to allow free inquiry because it would threaten its own position and bias. New Galileos are waiting in the wings, but again they are being suppressed by the establishment and labeled "pseudoscientific." Yet it is said that by rejecting the paranormal we are resisting a new paradigm of the universe (à la Thomas Kuhn) that will prevail in the future.

Unfortunately, the meaning of the term *paranormal* is often unclear. Literally, it refers to that which is "besides" or "beyond" the normal range of data or experience. Sometimes "the paranormal" is

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used as an equivalent of "the bizarre," "the mysterious," or "the unexpected." Some use it to refer to phenomena that have no known natural causes and that transcend normal experience and logic. The term here has been used synonymously with "the supernormal," "the supernatural," or "the miraculous." These definitions, of course, leave little room for science. They mark a limit to our knowing. Granted there are many areas at the present time that are unknown; yet one cannot on a priori grounds, antecedent to inquiry, seek to define the parameters of investigation by maintaining that something is irreducibly unknowable or inexplicable in any conceivable scientific terms.

Some use the term *paranormal* to refer to that which is "abnormal" or "anomalous," that is, that which happens infrequently or rarely. But there are many accidental or rare events that we wouldn't ordinarily call paranormal—a freak trainwreck, a lightning strike, or a meteor shower.

Some use the term *paranormal* simply to refer to the fact that some phenomena cannot be given a physical or materialistic explanation. In some scientific inquiries, physicalist or reductionist explanations are, indeed, not helpful or directly relevant—as, for example, in many social-science studies, where we are concerned with the function of institutions, or in historical studies, where we may analyze the influence of ideas or values on human affairs. But this surely does not mean that they are "nonnatural," "unnatural," or "paranormal"; for ideas and values have a place in the executive order of nature, as do flowers, stones, and electrons. Although human institutions and cultural systems of beliefs and values may be physical at root, they are not necessarily explainable in function as such. There seem to be levels of organization; at least it is convenient to treat various subject matters in terms of concepts and hypotheses relative to the data at hand. To say this in no way contravenes the physical laws of nature as uncovered in the natural sciences.

The term *paranormal*, however, has also been used in parapsychology, where something seems to contradict some of the most basic assumptions and principles of the physical, biological, or social sciences and a body of expectations based on ordinary life and common sense. C. D. Broad has pointed out a number of principles that parapsychologists would apparently wish to overthrow[1]: (*a*) that future events cannot affect the present *before* they happen (backward causation); (*b*) that a person's mind cannot effect a change in the material world without the intervention of some physical energy or force; (*c*) that a person cannot know the content of another person's mind except by the use of inferences based on experience and drawn from observations of his

speech or behavior; (*d*) that we cannot directly know what happens at distant points in space without some sensory perception or energy of it transmitted to us; (*e*) that discarnate beings do not exist as persons separable from physical bodies. These general principles have been built up from a mass of observations and should not be abandoned unless and until there is an overabundant degree of evidence that would make their rejection less likely than their acceptance—if I may paraphrase David Hume.[2] Nevertheless, those who refer to the "paranormal" believe that they have uncovered a body of empirical facts that call into question precisely those principles. Whether or not they do remains to be seen by the course of future inquiry. These scientific principles are not sacred and may one day need to be modified—but only if the empirical evidence makes it necessary.

Some who use the term *paranormal* refer to a range of anomalous events that are inexplicable in terms of our existing scientific concepts and theories. Of course, there are many events not now understood. For example, we do not know fully the cause of cancer, yet we would hardly call it paranormal. There have been many reports recently of loud explosions off the Atlantic coast that remain unexplained and that some have hinted are "paranormal." (These may be due to methane gas, test flights, or distant sonic booms.) If we were to use the term *paranormal* to refer to that which is inexplicable in terms of current scientific theory, with the addition that it cannot be explained without major revisions of our scientific theory, this would mean that any major advance in science, prior to its acceptance, might be considered to be "paranormal." But then new developments in quantum theory or relativity theory, the DNA breakthrough, or the germ theory of disease would have been paranormally related. But this is absurd. There are many puzzles in science and there is a constant need to revise our theories; each new stage in science waiting to be verified surely cannot be called "paranormal."

In actuality, the term *paranormal* is without clear or precise meaning; its use continues to suggest to many the operation of "hidden," "mysterious," or "occult" forces in the universe. But this, in the last analysis, may only be a substitute for our ignorance of the causes at work. Although I have used the term because others have done so, I think that it ought to be dispensed with as a meaningless concept.

II.

It is clear that science is continually changing and growing. As new facts are discovered, existing concepts and theories must either be extended to account

for them or be abandoned in favor of new and more comprehensive explanations.

In the current context, any number of new fields have recently appeared alongside the established sciences. These begin with a number of alleged anomalous events that proponents say cannot be readily explained in terms of the existing sciences. One may ask, Do these subjects qualify as sciences? One must always be open to the birth of new fields of inquiry. At first a new or proto science may be rejected by the existing body of scientific opinion; but in time, if it can make its case, it may become accepted as genuine. This has been a familiar phenomenon as new branches of inquiry emerge in the natural, social, and behavioral sciences. Unfortunately, not all of the claimants to scientific knowledge are able to withstand critical scrutiny, and many turn out to be pseudo or false sciences.

A classical illustration of this is phrenology, which swept Europe and America in the nineteenth century. It was formulated by F. J. Gall, and developed by his followers J. K. Spurzheim and G. Combe. According to the phrenologist: (1) the brain was the organ of the mind; (2) the mental powers of men could be distinguished and assigned to separate innate faculties; (3) these faculties had their seat in a definite region of the brain surface; (4) the size of each region is the measure to which the faculty forms a constituent element in the character of the individual; (5) the correspondence between the outer surface of the skull and the brain surface beneath it is sufficiently close to permit the scientific observer to ascertain the relative sizes of these organs by an examination of the head; and (6) such an examination provided a method by which the disposition and character of the subject could easily be ascertained. The theory was allegedly based on empirical observations from which generalizations were formulated. Gall and his associates examined the heads of their friends, men of genius, and inmates of jails and asylums in order to map the organs of intelligence, murder, sexual passions, theft, and so on. The theory seems quite mistaken to us today—not that behavioral functions may not be correlated in some sense with regions of the brain, but that they could be mapped by examining the exterior skull cap and that the permanent disposition of the persons could be so determined. Yet so great a degree of popularity did phrenology enjoy that in 1832 there were 29 phrenology societies in Great Britain alone, and several phrenology journals in America and Britain—all of which have virtually disappeared.[3] Indeed, I only know of one practicing phrenologist in North America. He tells me he is the leading phrenologist in the world and that he predicts a revival of the field!

The term *pseudoscience* has been used in many ways. One must be careful not to indiscriminately apply it to budding fields of inquiry that may have some merit. Perhaps it should be used for those subjects that clearly: (*a*) do not utilize rigorous experimental methods in their inquiries, (*b*) lack coherent testable conceptual framework, and/or (*c*) assert that they have achieved positive results, though their tests are highly questionable and their generalizations have not been corroborated by impartial observers.

There are a great number of candidates for "pseudoscience" today, many of them ancient specialties that still persist: numerology, palmistry, oneiromancy, moleosophy, aleuromancy, apantomancy, psychometry. And there are new ones constantly appearing. Perhaps some may in time develop testable and tested theories.

Astrology—which had all but died out by 1900 and is now very strong—is a good illustration of a pseudoscience. The principles of astrology remain largely unchanged from the days of Ptolemy (first century A.D.), who codified the ancient craft. And astrologers still cast their horoscopes and do their analyses very much as Ptolemy did, in spite of the fact that its original premises have been contradicted by modern post-Newtonian physics and astronomy. Most astrologers have considered astrology to be an occult field of paranormal study; others have attempted to develop it as a science. Yet astrology does not use rigorous experimental standards of inquiry by which it can reach conclusions, it lacks a coherent theory of what is happening and why, and it draws inferences and makes predictions that are highly dubious. Michel Gauquelin is a critic of traditional astrology on these grounds, though he has attempted to develop his own field of astrobiology. Based on careful statistical analysis, he has attempted to correlate personality characteristics with planetary configurations. Thus, for example, he maintains that there is a relationship between the position of Mars and the time and place of birth of sports champions. Thus far, the results of his study, in my judgment, are inconclusive, though his procedure is far different from the usual approach of astrologers.

Biorhythms appears to be another false science. It also claims to have its foundations in empirical data; yet when independent examination is made to see whether its predictions are accurate, the results appear to be negative.

III.

What are we to say about parapsychology? Is it a science or a pseudo-

science?

Interest in psychic phenomena appears throughout human history, with reports abounding from ancient times to the present. There is a fund of anecdotal material—premonitions that seem to come true, apparent telepathic communication between friends or relatives, reports of encounter with discarnate persons, and so on—that leads many people to believe that there is some basis in fact for psi phenomena. It has been almost a century since the Society for Psychical Research was founded in 1882 in England by a distinguished group of psychologists and philosophers (including William James and Henry Sidgwick) who were hopeful of the chance of getting results from their careful inquiries. In October 1909, William James, a president of the Society, wrote "The Last Report: Final Impressions of a Psychical Researcher," summarizing his experiences.[4] The Society, he said, was founded with the expectation that if the material of "psychic" research were treated rigorously and experimentally then objective truths would be elicited. James reported:

> . . . Like all founders, Sidgwick hoped for a certain promptitude of results; and I heard him say, the year before his death, that if anyone had told him at the outset that after twenty years he would be in the same identical state of doubt and balance that he started with, he would have deemed the prophecy incredible.

Yet James relates that his experiences had been similar to Sidgwick's:

> For twenty-five years I have been in touch with the literature of psychical research, and have had acquaintance with numerous "researchers." I have also spent a good many hours (though far fewer than I ought to have spent) in witnessing (or trying to witness) phenomena. Yet I am theoretically no "further" than I was at the beginning; and I confess that at times I have been tempted to believe that the Creator had eternally intended this department of nature to remain *baffling*, to prompt our curiosities and hopes and suspicions all in equal measure, so that, although ghosts and clairvoyances, and raps and messages from spirits, are always seeming to exist and can never be fully explained away, they also can never be susceptible of full corroboration.
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> The peculiarity of the case is just that there are so many sources of possible deception in most of the observations that the whole lot of them *may* be worthless . . . Science meanwhile needs something more than bare possibilities to build upon; so your genuinely scientific inquirer . . . has to remain unsatisfied. . . . So my deeper belief is that we psychical researchers

> have been too precipitate with our hopes, and that we must expect to mark progress not by quarter-centuries, but by half-centuries or whole centuries.

Almost three-quarters of a century have elapsed since James's comments. Has any more progress been made? Since that time psychic research has given way to parapsychology, especially under the leadership of J. B. Rhine and the establishment of his experimental laboratory. Where there were before only a handful of researchers, now there are many more. We may ask, Where does parapsychology stand today? I must confess that for many researchers, both within and outside the field, not much further along than before.

One thing is clear: many researchers today at least attempt to apply experimental methods of investigation. This was not always the case; and the field today, as then, has been full of deception, conscious or unconscious—perhaps more than most fields of inquiry. There are a host of fraudulent psychics and researchers—including the Fox sisters (who were hailed as mediums, in whose presence raps were heard during seances, but who evidently admitted they had learned how to crack their toe knuckles), Blackburn and Smith (who deceived scientists into believing that telepathic communication occurred between them), Margery Crandon and Eustasia Palladino (both shown to be fraudulent mediums), the Soal-Goldney experiments on precognition (experiments now in disrepute), Walter J. Levy (who was exposed for faking the evidence on animal ESP at Durham n 1974), Uri Geller, Jean Girard, and Ted Serios (whose alleged abilities in psychokinesis and psychic photography are open to charges of trickery). Even some of the most sophisticated scientists have been taken in by illusionists posing as psychics. In spite of this there *are* many parapsychologists today who are committed to careful scientific inquiry—as Rhine's work illustrates—and the use of rigorous laboratory methods. Whether they ever achieve it is not always clear, and critics are constantly finding loopholes in their methodology.

What about the results? Are the hypotheses proposed by parapsychology testable? Have they been tested? Here there are also wide areas for dispute. Skeptics are especially unimpressed by the findings and believe that parapsychology has not adequately verified its claims—even though some parapsychologists believe that ESP, precognition, and PK have been demonstrated and need no further proof. I reiterate that, since the chief claims of parapsychology in these areas contravene the basic principles of both science and ordinary experience, it is not enough to

point to a body of data that has been assembled over the years; the data must be *substantial.* This does not deny that there seems to be some evidence that certain individuals in some experiments are able to make correct guesses at above-chance expectations. The basic problem, however, is the *lack of replicability* by other experimenters. Apparently, some experimenters—a relative few—are able to get similar results, but most are unable to do so. The subject matter is elusive. It is rare for a skeptic to be able to replicate results, but it is even relatively rare for a *believer* in psi to get positive results. The problem of replicability has been dismissed by some parapsychologists who maintain that their findings *have* been replicated. But have they? For the point is that we cannot predict *when* or *under what conditions* above-chance calls will be made (with Zener cards, in precognitive dream labs, in remote-viewing testing situations); and one is much more likely to get negative results.

One explanation offered by parapsychologists for the difficulty in replication refers to the well-known "sheep/goat" distinction of Gertrude Schmeidler—that is, that those with a positive attitude toward psi (sheep) will get better results than those with a negative attitude (goats). Similar considerations are said to apply to the attitude of the experimenter. Is the explanation for this that when the experimenter is a believer he is often so committed to the reality of psi that he tends to weaken experimental controls? If so, perhaps we should distinguish between the donkey and the fox. The skeptic is accused of being so stringent that he dampens the enthusiasm of the subject. Yet parapsychologists Adrian Parker and John Beloff report on experiments at the University of Edinburgh by pro-psi experimenters that consistently score negative results. Most parapsychologists want positive results, but few receive them. Many or most people don't display ESP; or if they do, they do so infrequently. And those few that allegedly have the ability eventually seem to lose it.

According to John Beloff:

> There is still no repeatable experiment on the basis of which any competent investigator can verify a given phenomenon for himself.[5]

> The Rhine revolution . . . proved abortive. Rhine succeeded in giving parapsychology everything it needed to become an accredited science except the essential: the know-how to produce results where required.[6]

Adrian Parker writes:

> The present crisis in parapsychology is that there appear to be few if any findings which are independent of the experimenter . . . It still remains to be explained why, if the experiment can be determined by experimenter psi, only a few experiments are blessed with success. Most experimenters want positive results, but few obtain them.[7]

Charles Tart says:

> One of the major problems in attempting to study and understand paranormal (psi) phenomena is simply that the phenomena don't work strongly or reliably. The average subject seldom shows any individually significant evidence of psi in laboratory experiments, and even gifted subjects, while occasionally able to demonstrate important amounts of psi in the laboratory, are still very erratic and unpredictable in their performance.[8]

And Rhine himself says:

> Psi is an incredibly elusive function! This is not merely to say that ESP and PK have been hard phenomena to demonstrate, the hardest perhaps that science has ever encountered . . . Psi has remained an unknown quantity so long . . . because of a definite characteristic of elusiveness inherent in its psychological nature . . . A number of those who have conducted ESP or PK experiments have reported that they found no evidence of psi capacity . . . Then, too, experimenters who were once successful may even then lose their gift. . . . All of the highscoring subjects who have kept on very long have declined . . .[9]

All of this means not only that parapsychology deals with anomalous events but that it may indeed be a uniquely anomalous science, for findings depend upon who the experimenter is. But even that is not reliable and cannot be depended upon. If any other science had the same contingent results, we would rule it out of court. For example, a chemist or biologist could not very well claim that he could get results in the laboratory because he believed in his findings, whereas his skeptical colleagues could not because they lacked this belief. We say in science that we search for conditional lawlike statements: namely, that if *a*, then *b*; whenever *a* is present, *b* will most likely occur. Yet in viewing the findings of parapsychology, the situation seems to be that we are not even certain that *b* occurs (there is a dispute about the reliability of the experiments). Moreover, we don't know what *a* is, or if it is present that *b* would occur; *b* may occur sometimes, but only infrequently. A high degree of replicability is essential to the further development of parapsychology. Some sciences may be exempt from the replicability criterion, but this is the case only if their findings do not contradict the general

conceptual framework of scientific knowledge, which parapsychology seems to do. According to the parapsychologist, for example, ESP seems to be independent of space and does not weaken with distance; precognition presupposes backward causation; psychokinesis violates the conservation-of-energy law.

It is not enough for parapsychologists to tell the skeptic that *he*, the parapsychologist, on occasion has replicated the results. This would be like the American Tobacco Institute insisting that, based on its experiments, cigarette-smoking does not cause cancer. The neutral scientist needs to be able to replicate results in his own laboratory. Esoteric, private road-to-truth claims need to be rejected in science, and there needs to be an intersubjective basis for validation. Until any scientist under similar conditions can get the same results, then we must indeed be skeptical. Viewing what some parapsychologists have considered to be replication often raises all sorts of doubts. In the 1930s S. G. Soal attempted to replicate the findings of Dr. Rhine in Britain in regard to clairvoyance and telepathy. He tested 160 subjects, always with negative results, indeed with results far below mean chance expectations. After the tests were completed, he reviewed the data and thought he had found a displacement effect in two cases, which he considered evidence for precognition (that is, above-chance runs in regard to one or two cards before and after the target). Soal then went on to test these two subjects, Basil Shackleton and Mrs. Gloria Stewart, with what seemed to be amazing results. These results have often been cited in the parapsychological literature as providing strong proof for the existence of ESP. In 1941, in collaboration with the Society for Psychical Research, Soal designed an experiment with Shackleton that included 40 sittings over a two-year period. Among the people who participated were C. D. Broad, professor of philosophy at Cambridge, H. H. Price, of Oxford, C. A. Mace, C. E. M. Joad, and others. Broad described the experiment as follows:

> . . . Dr. Soal's results are outstanding. The precautions taken to prevent deliberate fraud or the unwitting conveyance of information by normal means . . . [are] seen to be absolutely water-tight.[10]

> . . . There can be no doubt that the events described happened and were correctly reported; that the odds against chance-coincidence piled up to billions to one . . .[11]

On the basis of his work in precognitive research, Soal was awarded

a doctorate of science degree from the University of London. Even Rhine described the Soal-Goldney experiment as "one of the most outstanding researches yet made in the field . . . Soal's work was a milestone in ESP research."[12]

C. E. M. Hansel, in his work, found, on the contrary, that the Soal-Goldney experiments were full of holes, and he suggested the high results might be due to collusion between the experimenters and/or the participants, especially in the scoring procedures.[13] Broad responded to "Hansel and Gretel," denying the possibility of fraud. It now seems clear that Hansel was correct. And even parapsychologists now doubt the authenticity of these famous experiments. In a recent publication of the Society for Psychical Research, Betty Markwick reported that there is substantial evidence that extra digits were inserted into the "random number" sequences prepared by Soal to determine the targets in the Shackleton tests. These insertions coincided with Shackleton's guesses and apparently accounted for the high scores on the record sheets. Interestingly, Soal was present at every session in which the subject recorded high scores. The only exception was when he was absent, at which time the results were null.[14]

Thus the classical tests usually cited as "proof" of ESP often employed improper shuffling and scoring techniques or had other flaws in the protocol. More recent developments in parapsychology have been more hopeful in this regard. Parapsychologists have attempted to tighten up test conditions, to automate the selection of targets, to use random-number generators and ganzfeld procedures, and to design ingenious dream research and remote-viewing experiments.

One might consider the use of random generators in testing situations to be an advance over previous methods, except for the fact that it is still the experimenter who designs and interprets the experiment. Walter J. Levy, who fudged his results, it may be noted, used machines in his testing work. No wonder the critic is still skeptical of some recent claims made in this area. Great results have been heralded in ESP dream research. Yet here, too, there are many examples of failed replication. For example, David Foulkes, R. E. L. Masters, and Jean Houston attempted to repeat the results obtained at the Maimonides laboratory with Robert van Castle, a high-scoring subject, but they met with no success at all. Charles Honorton has reported what he considers to be impressive results using ganzfeld techniques (where subjects are deprived of sensory stimulation). To date there have been upward of 25 published studies.

Approximately a third have been significant, a third ambiguous, and a third nonsignificant. This may sound convincing. But given the sad experience in the past with other alleged breakthroughs, we should be cautious until we can replicate results ourselves. Moreover, we do not know how many negative results go unreported. (I should say that I have never had positive results in any testing of my students over the years.) Parker, Miller, and Beloff in 1976 used the ganzfeld method to test the relation of altered states of consciousness and ESP and reported nonsignificant results:

> A total of over 30 independent tests were conducted on the data without a single significance emerging. Whatever way we look at the results, they not only detract from the reliability of the ganzfeld, but also argue against the view that psychological conditions are the sole mediating variable of the experimenter effect.[15]

Similarly, Targ and Puthoff at the Stanford Research Institute, in widely reported remote-viewing experiments, have allegedly achieved results that have been replicated. But the critic has many unanswered questions about the method of target selection and the procedures for grading "hits." Given their shockingly sloppy work with Uri Geller, Ingo Swann, and other "super-psychics" in the laboratory, the skeptic cannot help but be unconvinced about their claimed results.

IV.

The accounts above have been introduced as a general comment on the field of parapsychological research: If parapsychology is to progress, then it will need to answer the concerns of its critics about the reliability of the evidence and the replicability of the results.

But difficulties become even more pronounced when we examine other kinds of inquiries that go on in this field; for the parapsychological literature contains the most incredibly naive research reports along with the most sophisticated. A perusal of the parapsychological literature reveals the following topics: clairvoyance, telepathy, precognition, psychokinesis, levitation, poltergeists, materialization, dematerialization, psychic healing, psychometry, psychic surgery, psychic photography, aura readings, out-of-body experiences, reincarnation, retrocognition, tape recordings of the voices of the dead, hauntings, apparitions, life after life, regression to an earlier age, and so on.

We now face a puzzling situation. There has been a marked proliferation of claims of the paranormal in recent years, many of them highly fanciful. Presumably, scientific researchers should not be held responsible for the dramatization of results by fiction writers. Yet in my view some parapsychologists have aided, whether consciously or unconsciously, the breakdown in critical judgment about the paranormal. I have not seen many parapsychologists attempt to discourage hasty generalizations based on their work. There are often extraordinary claims made about psychic phenomena, yet there are no easily determinable objective standards for testing them. Because parapsychologists are interested in a topic and do some research, it is said by some that, ipso facto, it is validated by science. (Lest one think that I am exaggerating, one should consult the *Handbook of Parapsychology*, the most recent comprehensive compilation in the field, which includes discussions of psychic photography, psychic healing, reincarnation, discarnate survival, and poltergeists, among other topics.) Professor Ian Stevenson, for example, of the University of Virginia, is well known for his work in reincarnation, which is of growing interest to many parapsychologists. After discussing the case of a young child who his parents think is a reincarnation of someone who had recently died, Stevenson says:

> Before 1960, few parapsychologists would have been willing to consider reincarnation as a serious interpretation of cases of this type [recall] . . . Today probably most parapsychologists would agree that reincarnation is at least entitled to inclusion in any list of possible interpretations of the cases, but [he added] not many would believe it the most probable interpretation.[16]

Rhine is himself much more cautious in his judgment and implies that only clairvoyance, precognition, and psychokinesis have been established and that adequate test designs have not been worked out for other areas. If one asks if parapsychology is a genuine science or a pseudoscience, it is important that we know if one is referring to the overall field or to particular areas. Surely the critic is disturbed at the ready willingness to leap to "occult" explanations in the name of science in some kinds of inquiry.

Although I have no doubts that Rhine is committed to an objective experimental methodology, I have substantive doubts about his views on clairvoyance, precognition, and PK. The problem here is that one may question not simply the reliability and significance of the data but the

conceptual framework itself. Rhine and others have performed tests in which they maintain that they have achieved above-chance runs. What are we to conclude at this point in history? Simply *that* and no more. ESP is not a proven fact, only a theory used to explain above-chance runs encountered in the laboratory. Here I submit that the most we can do is simply fall back on an operational definition: ESP is itself an elusive entity; it has no identifiable meaning beyond an operational interpretation. Some researchers prefer the more neutral term *psi*, but this still suggests a psychic reality. Of special concern here is the concept that is often referred to in trying to explain the fact that some subjects have significant below-chance runs—"negative ESP," or "psi-missing"—as if in some way there is a mysterious entity or faculty responsible for both above-chance and below-chance guessing. All this seems to me to beg the question. If ESP is some special function of the mind, then we need *independent* verification that it exists, that is, replicable predictions.

One of the problems with ESP is that parapsychologists have noted a "decline" effect; namely, that even gifted subjects in time lose their alleged "ESP" ability. At this point, I must confess that I am unable to explain why there are significant above-chance or below-chance runs: to maintain that these are due to psi, present or absent, is precisely what is at issue. A problem for me is how many validated cases we actually have of significant below-chance runs in the laboratory. Rhine mentions some. But are they as numerous as above-chance runs? If so, perhaps the overall statistical frequencies begin to reduce, particularly if parapsychologists stop testing those who have shown psychic ability once they lose their alleged powers. We still need to come up with possible alternative explanations. Some that have been suggested are bias, poor experimental design, fraud, and chance. There may be others.

Rhine's reluctance to accept telepathy because of the difficulty in establishing test conditions is surprising to some. Of all the alleged psi abilities, this seems prima facie to be the most likely. Ordinary experience seems to suggest spontaneous telepathy, especially between persons who know each other very well or live together. If telepathy is ever established, I would want to find the mechanism for it—perhaps some form of energy transmission, though most parapsychologists reject this suggestion, possibly because they are already committed to a mentalistic interpretation of the phenomenon.

There are, as Rhine notes, very serious scientific objections to precognition—the notion that the future can be known beforehand

(without reference to normal experience, inference, or imagination). The skeptical scientist believes that, where premonitions come true, coincidence is most likely the explanation. If one examines the number of times that premonitions do not come true, the statistics would flatten out. The conceptual difficulty with precognition is that, although we allegedly can know the future by precognition, we can also intervene so that it may not occur.

Louisa Rhine cites the following case to illustrate this:

> It concerns a mother who dreamed that two hours later a violent storm would loosen a heavy chandelier to fall directly on her baby's head lying in a crib below it; in the dream she saw her baby killed dead. She awoke her husband who said it was a silly dream and that she should go back to sleep as she then did. The weather was so calm the dream did appear ridiculous and she could have gone back to sleep. But she did not. She went and brought the baby back to her own bed. Two hours later just at the time she specified, a storm caused the heavy light fixture to fall right on where the baby's head had been—but the baby was not there to be killed by it.[17]

If the future is veridically precognized, how could one act to change it? There are profound logical difficulties with this concept. Some parapsychologists discuss a possible alternative explanation for the event: one parapsychologist suggests (without himself accepting it) that the dream itself might have contained enormous energy that forced the calm weather to change into a storm, which cracked the ceiling holding the light fixture. "This alternative, then, is not precognitive but of the mind-over-matter, or PK variety."[18]

This illustrates a basic problem endemic to parapsychology. The lack of a clearly worked out conceptual framework. Without such a causal theory, the parapsychologists can slip from one ad hoc explanation to another. In some cases we cannot say that telepathy is operating, it may be clairvoyance; and in others, if it is not precognition, then psychokinesis may be the culprit. (Even an ESP shuffle may be at work!) I fear that the central hypothesis of parapsychology, that mind is separable from body and that the "ghost in the machine" can act in uncanny ways, often makes it difficult to determine precisely what, if anything, is happening.

A number of familiar conceptual problems also concern psychokinesis. What would happen to the conservation-of-energy principle if PK were a fact? How can a mental entity cause a physical change in the

state of matter? Comparing the alleged evidence for PK with the need to overthrow a basic, well-documented principle of physics is questionable. We read about Rhine's above-chance results in his die-rolling test: the results seem inconclusive. Recently a number of super-psychics, such as Uri Geller and Jean Girard, have made extraordinary claims for PK ability. Unfortunately, they have been uncritically welcomed by some parapsychologists and paraphysicists. Yet such super-psychics have been discredited, and what seems to be operating is probably magic and illusion, not psi.

Rhine at times expresses an underlying religious motive:

> What parapsychology has found out about man most directly affects religion. By supporting on the basis of experiment the psychocentric concept of personality which the religions have taken for granted, parapsychology has already demonstrated its importance for the field of religion . . . If there were no ESP and PK capacities in human beings it would be hard to conceive of the possibility of survival and certainly its discovery would be impossible . . . The only kind of perception that would be possible in a discarnate state would be extrasensory, and psychokinesis would be the only method of influencing any part of the physical universe . . . Telepathy would seem to be the only means of intercommunication discarnate personalities would have.[19]

Unfortunately, many parapsychologists appear to be committed to belief in psi on the basis of a metaphysical or spiritualist world-view that they wish to vindicate. Charles Tart, a former president of the American Parapsychological Association, admits this motive. Giving an autobiographical account of why he became interested in parapsychology, he says:

> I found it hard to believe that science could have *totally* ignored the spiritual dimensions of human existence . . . Parapsychology validated the existence of basic phenomena that could partially account for, and fit in with, some of the spiritual views of the universe.[20]

Of course, parapsychologists will accuse the skeptic of being biased in favor of a materialist or physicalist viewpoint and claim that this inhibits him from looking at the evidence for psi or accepting its revolutionary implications. Unfortunately, this has all too often been the case; for some skeptics have been unwilling to look at the evidence. This is indefensible. A priori negativism is as open to criticism as a priori wish-fulfillment. On the other hand, some constructive skepticism is essential

in science. All that a constructive skeptic asks of the parapsychologist is genuine confirmation of his findings and theories, no more and no less.

I should make it clear that I am not denying the possible existence of psi phenomena, remote viewing, precognition, or PK. I am merely saying that, since these claims contravene a substantial body of existing scientific knowledge, in order for us to modify our basic principles—and we must be prepared to do so—the evidence must be *extremely strong*. But that it *is*, remains highly questionable.

In the last analysis, the only resolution of the impasse between parapsychologists and their critics will come from the *evidence* itself. I submit that parapsychologists urgently need at this juncture to bring their claims to the most hard-headed group of skeptics they can find. In a recent review, C. P. Snow forcefully argues for this strategy. He admits that there are a good many natural phenomena that we don't begin to understand and ought to investigate. Moreover, phenomena exist that are not explained by natural science but which do not contradict it. It is when such phenomena allegedly do so that we should take a hard look. Snow says:

> An abnormal number of all reported paranormal phenomena appear to have happened to holy idiots, fools, or crooks. I say this brutally, for a precise reason. We ought to consider how a sensible and intelligent man would actually behave if he believed that he possessed genuine paranormal powers. He would realize that the matter was one of transcendental significance. He would want to establish his powers before persons whose opinions would be trusted by the intellectual world. If he was certain, for example, that his mind could, without any physical agency, lift a heavy table several feet, or his own body even more feet, or could twist a bar of metal, then he would want to prove this beyond, as they say in court, any reasonable doubt.
>
> What he would not do is set up as a magician or illusionist, and do conjuring tricks. He would desire to prove his case before the most severe enquiry achievable. It might take a long time before he was believed. But men with great powers often take a long time for those powers to be believed. If this man had the powers which I am stipulating, it probably wouldn't take him any longer to be accepted than it did Henry Moore to make his name as sculptor.
>
> Any intelligent man would realize that it was worth all the serious effort in the world. The rewards would be enormous—money would accrue, if he was interested in money, but in fact he would realize that that was trivial besides having the chance to change the thinking of mankind.
>
> It would now be entirely possible for such a man to have his claims

considered with the utmost energy and rigor. For a number of eminent Americans of the highest reputation for integrity and intellectual achievement have set themselves to examine any part of the paranormal campaigns. The group includes first-class philosophers, astronomers, other kinds of scientists and professional illusionists. They are skeptical as they should be. This is too important a matter to leave to people who want to believe. So there they are, the challenge is down. It will be interesting to see if any sensible and intelligent man picks it up.[21]

This, then, is an invitation and a challenge to parapsychologists to bring their findings to the most thoroughgoing skeptics they can locate and have them examine their claims of the paranormal under the most stringent test conditions. If parapsychologists can convince the skeptics, then they will have satisfied an essential criterion of a genuine science: the ability to replicate hypotheses in any and all laboratories and under standard experimental conditions. Until they can do that, their claims will continue to be held suspect by a large body of scientists.

Notes

1. C. D. Broad, "The Relevance of Psychical Research to Philosophy," *Philosophy*, 24 (1949): 291-309.
2. David Hume, *Treatise on Human Nature*, 1739; *Essay Concerning Human Understanding*, 1748; *The Dialogues Concerning Natural Religion*, 1779.
3. Encyclopaedia Britannica, 11th ed., pp. 534 ff.
4. Gardner Murphy and Robert O. Ballou, eds., *William James on Psychical Research*, New York: Viking, 1960, p. 310.
5. John Beloff, "Parapsychology and Philosophy," *Handbook of Parapsychology*, ed. by B. Wolman, New York: Van Nostrand, 1977, p. 759.
6. ———, *Psychological Sciences: A Review of Modern Psychology*, New York: Barnes & Noble, 1973.
7. Adrian Parker, "A Holistic Methodology in Psi Research," *Parapsychology Review*, 9 (March-April 1978): 4-5.
8. Charles Tart, "Drug-Induced States of Consciousness," *Handbook of Parapsychology*, op. cit., p. 500.
9. J. B. Rhine, *The Reach of Mind*, New York: Wm. Sloane, 1947, pp. 187-189.
10. C. D. Broad, "The Experimental Establishment of Telepathic Precognition," *Philosophy*, 19 (1944): 261.
11. ———, "The Relevance of Psychical Research to Philosophy," reprinted in *Philosophy and Parapsychology*, ed. by Jan Ludwig, Buffalo, N.Y.: Prometheus, 1978, p. 44.
12. J. B. Rhine, op. cit., p. 168.
13. C. E. M. Hansel, *ESP: A Scientific Evaluation*, New York: Scribner, 1966.
14. Betty Markwick, "The Soal-Goldney Experiments with Basil Shackleton: New Evidence of Data Manipulation," *Proceedings of the Society for Psychical Research*, 56 (1978): 250-278; D. J. West, "Checks on ESP Experimenters," *Journal of the Society for Psychical Research*, 49 (Sept. 1978): 897-899.
15. Adrian Parker, op. cit., p. 4.

16. Ian Stevenson, "Reincarnation: Field Studies and Theoretical Issues," *Handbook of Parapsychology*, op. cit., p. 657.

17. L. E. Rhine, "Frequency of Types of Experience in Spontaneous Precognition," *Journal of Parapsychology*, 18 (2) (1954): 199.

18. Douglas Dean, "Precognition and Retrocognition," in *Edgar D. Mitchell, Psychic Explorations: A Challenge for Science*, ed. by John White, New York: Putnam, 1974, p. 155.

19. J. B. Rhine, op. cit., pp. 209, 214.

20. Charles Tart, *Psi: Scientific Studies of the Psychic Realm*, New York: E. P. Dutton, 1977, vii-viii.

21. C. P. Snow, "Passing Beyond Belief" (a review of *Natural and Supernatural: A History of the Paranormal*, by Brian Inglis), *Financial Times*, London (Jan. 28, 1978).

On falsifiability

. . . With Einstein, [Karl] Popper realized, the situation was quite different [from that of the Marxists, Freudians, or Adlerians]. Einstein's theory about the universe led to making predictions; predictions that, if they did not hold up, would prove his theory wrong. Einstein's gravitational theory, for example, led to a prediction about "shifts" in the position of stars. Careful, experimental observation corroborated these predictions. But it was not the fact that the prediction held up that made Einstein's theory a scientific one. It was the fact that it could have been shown to be false. *The theory was falsifiable.*

What made Einstein's theory scientific—and different from those of Marx, Freud, and Adler—was that it was incompatible with certain possible results of observation. In short, Popper concludes, the criterion of the scientific status of a theory is its falsifiability, or refutability, or testability. . . .

Popper's notion of falsifiability is surprisingly fruitful. Falsifiablity not only allows us to demarcate science from nonscience and to weed out worthwhile theories from false ones, it also explains how scientific knowledge grows. . . . Falsification, Popper argues, is the key to the growth of science.

—From "Popper's Fallibilism," by Henry Perkinson, in ETC., A Review of General Semantics, *35:1 (1978).*