Parapsychology and the Skeptics
Introduction

In 1772 the prestigious French Academy of Science appointed a committee to investigate reports of what are now called meteorites. After long deliberations and examination of much evidence, the conclusion reached by the committee was that with which they started: there are no such things as hot stones that have fallen from the sky because there are no stones in the sky to fall. Reports of the phenomena must have other explanations – delusionary "visions," stones heated after being struck by lightning, stones borne aloft by whirlwinds or volcanic eruptions, and so forth. So great was the prestige of the committee and so convincing its arguments that museums all over Western Europe threw away their meteorite specimens.

Meteorites were dismissed as superstitions lingering from a time when Jove was thought to punish errant mortals by hurtling his thunderbolts at them. But when evidence of their reality was eventually conceded – in 1803, following another report from the Academy – scientists did not learn humility. They merely congratulated themselves for correcting the errors of their predecessors.[1]

In 1831 the French Academy appointed another committee, this one to investigate reports of what is now called clairvoyance – correct perception of objects or events not accessible to one's sense organs at the time of apprehension. Much to the surprise of many Academy members, the committee reported that clairvoyance had in fact been satisfactorily demonstrated.[2] But unlike meteorites, the Academy did not finally concede that clairvoyance was more than just silly superstition. The mechanistic science of Galileo and Newton simply could not accommodate such phenomena. So the report was set aside and ignored.

The Strange Trials of Henry Slade

Forty-five years later, a bizarre trial divided London, and attracted international attention. It all started in the summer of 1876 when the American psychic Henry Slade visited some friends in London and held séances with several prominent townspeople. At these séances Slade would demonstrate his apparent psychic powers, which would include the movement of untouched objects, the disappearance and reappearance of objects, and the tying of knots in untouched endless cords.

But what got Slade into trouble was his most popular skill: that of seemingly producing automatic writing on a slate. Slade would take a child's slate, put a crumb of pencil lead on it, and hold it face upwards under the flap of a table, with his fingers under the back of the slate, and his thumb on top of the table flap. After a few seconds scraping noises would be heard, and a scrawled message would be found on the slate. Slade had been tested in America by Robert

Collyer, and although Collyer found the messages often trivial and sometimes ridiculous, he was satisfied that they could not have been produced by any trick.

Shortly after arriving in England, Slade was tested by August Cox on behalf of the Psychological Society he had founded. Although anxious to expose cheats, Cox was also unable to find any fault with Slade. The room, he reported, was sunlit; in addition to slate writing, the inexplicable movement of large and small objects was said to have occurred. A few days later Slade was tested by Dr. Carter Blake, the former Secretary of the Anthropological Society, who also pronounced that he considered Slade genuine.

All of this was too much for Edwin Ray Lankester, the young laboratory assistant to the famous zoologist and skeptic Thomas Henry Huxley. Apparently eager to impress his heroes Darwin and Huxley, Lankester and his fellow medical student Horatio Donkin visited Slade, pretending to be believers. During a séance, Lankester claimed that he had suddenly snatched a slate out of Slade's hands before the "spirit" could begin to write, and had found a message on it. Slade claimed in a letter to *The Times* that the writing had in fact been heard before the slate was snatched away. But Donkin denied this, and Slade was charged with violating the Vagrancy Act, an old law designed to protect the public from traveling palm readers and sleight-of-hand artists.

Throughout the fall of 1876, London buzzed with talk of the Slade trial. The courtroom was packed with Slade's supporters and detractors, and *The Times* carried trial transcripts day after day. The trial also divided the scientific community: Charles Darwin contributed 10 pounds to the prosecution (a substantial sum in those days), while his co-founder of the theory of evolution, Alfred Russell Wallace, was set to testify as star witness for the defense.

By common consent, the legal evidence against Slade was weak. Even a historian favorably disposed toward Lankester and Donkin wrote that:

> Both scientists turned out to be terrible witnesses; their observational skills, developed in anatomy and physiology labs, were useless in detecting fraud by professional cheats. …Indeed, Lankester and Donkin apparently could not agree on anything much beyond their charge that Slade was an imposter.[3]

They two had to admit they could not explain how Slade's tricks were accomplished. All they were prepared to assert with confidence was that they *must* have been tricks, because the conjuror John Maskelyne had shown them how the table had been designed for that purpose. It had specially constructed flaps, movable bars, and wedges, specially designed to hold the slate, leaving Slade's fingers free to write on it, and to produce raps during the séances.

The table itself was then produced as an exhibit, and Maskelyne was called as a witness. He then proceeded to demonstrate how he thought the trick must have been done: with the aid of a pencil shaped like a thimble. The prosecution pointed out that the table had been constructed according to the specifications of Slade's assistant, who had been prosecuted with him, and so conspiracy was added to the charge of vagrancy.

This was a blow to the defense, but soon there was a new twist in the trial. The prosecution subpoenaed R.H. Hutton as a witness. Hutton was the shrewd, skeptical editor of the *Spectator*, a man with an unblemished reputation, who could be counted upon to testify accurately to whatever he had seen. He had attended séances, he told the court, and although he had doubts about some of the things he had seen, there were many that he could not account for by sleight-of-hand. The testimony of the foreman carpenter, on whose premises the table had been made, also turned out to be an embarrassment for the prosecution. He confirmed that the table had indeed been constructed to a particular specification – for instance, to have one support for each flap instead of two – but it was difficult to see how this could help a conjuror. What about the wedges, which Maskelyne alleged had been used to make the raps? The carpenter had to admit that these had not been in the specification, but had to be inserted after the table had been made, to compensate for some faulty workmanship.

The high point of the trial was the testimony of Wallace for the defense. His integrity and candor were well-known. Wallace testified that the effects which he had observed could not have been produced by sleight-of-hand, although he refused to speculate on whether the slate-writings were caused by spirits.

In his summation, Slade's attorney argued that there was no convincing evidence against his client. The prosecution had not proved that the table was rigged, and Maskelyne's demonstrations of how the trick *could* have been done were irrelevant. The timing of the answer's appearance proved nothing about its origin, and Lankester and Donkin could not even agree on exactly what they had seen during the séance. Finally, the testimony of such an eminent scientist as Wallace should be considered at least as credible as that of young Lankester.

But nothing could save the accused. The judge ruled that Slade must be guilty, since "according to the well-known course of nature" there could be no other explanation. Three months hard labor was the sentence.

Two months later, the Court of Appeal rejected the verdict, because the words "by palmistry or otherwise" had inadvertently been omitted from the indictment. Lankester announced he would initiate a fresh prosecution, putting Slade in a difficult situation. If he left for Germany, accepting an invitation to visit, enemies would allege that he was a fugitive from justice. Before his trial, Slade had been urged by his friends to leave England, on the grounds that he would not receive a fair trial. Slade had refused; but now he had been shown that an English court *could not* give him a fair trial, as a judge had ruled that regardless of the evidence, he *must* be guilty since the alleged phenomena were contrary to the laws of nature. Seeing no hope of escaping conviction, Slade left for Germany. He wrote to Lankester offering to come back to England to be tested, but only if Lankester would end his legal crusade. Lankester did not reply, and Slade did not return.

The physicists test Slade

This was not the end of Slade's story. He had been invited to Germany by Johann Zollner, professor of Physics and Astronomy. Zollner had heard of Slade's predicament, and of Slade's insistence that he could prove his innocence by duplicating his feats before a scientific body. Intrigued, Zollner decided to take up the challenge.

Although only in his early forties, Zollner had already acquired an international reputation for his work, some of which centered on the possibility of a fourth spatial dimension. Nothing in mathematics or theoretical physics excluded the possibility – but what Zollner needed was empirical evidence. The most convincing evidence, he thought, would be "the transport of material bodies from a space enclosed on every side."

To understand why, consider the analogy of beings existing on a flat plane, limited to a world of only two spatial dimensions. In such a world, a square or a circle would appear to be a sealed container. Once inside, it would seem impossible to the two-dimensional beings that an object would be able to escape, unless the square or circular-shaped container was opened. But if the enclosed object could move in the third spatial dimension, it could be raised perpendicularly to the plane, passed over and let down on the other side of the container. To the inhabitants of this flat land, it would appear as though the object suddenly vanished, and then reappeared outside of the container. The existence of a third spatial dimension would be, for such beings, as incomprehensible as a fourth spatial dimension seems to us.

Since Zollner wanted to find empirical evidence to support his theories, it could be argued that he was predisposed in Slade's favor, and therefore susceptible to his guile. But some of Zollner's best work had been done in research into sensory illusions, so he was no innocent. He shrewdly realized that he would need independent testimony, and so asked some of his colleagues to collaborate with him. These included Gustav Fechner, professor of physics and psychology, and Wilhelm Weber, who along with Gauss, had been one of the leading innovators in electro-magnetism. (Today, the official unit of magnetism is named the "weber" after him).

The tests began with slate writing, and then moved on to tests with a compass needle, which after some difficulty, Slade apparently caused to oscillate. Other phenomena reported included a string tying itself in knots, objects moving out of sealed containers, and a seashell passing through a table, after which it was found to be hot to the touch, almost too hot to hold.

But, critics pointed out that:

> Scientists, because they are trained to trust their senses, are the worst possible people to evaluate a magician. A magician is trained specifically to distract, deceive, and confuse those very senses. A scientist may carefully observe the magician's right hand, but it is the left hand that secretly performs the trick. …only another magician is clever enough to detect the sleight-of-hand tricks of a fellow magician. Only a thief can catch a thief.[4]

Accordingly, Slade was also tested by several professional magicians, the most famous being Samuel Bellachini. After testing Slade in a series of sittings, Bellachini provided Slade with a witnessed affidavit, claiming that the phenomena were "impossible" to produce with sleight-of-hand.[5]

An astonishing number of the most prominent physicists of the day expressed interest in Zollner's work with Slade, including: William Crookes, inventor of the cathode ray tube, which until recently was used in television and computer monitors; J.J. Thomson, who won the Nobel Prize in 1906 for the discovery of the electron; and Lord Rayleigh, considered one of the greatest physicists of the late nineteenth century, and winner of the Nobel Prize in physics in 1904.

For their efforts in investigating these and other unusual phenomena, these men were criticized and ridiculed mercilessly by their colleagues.[6a] One particularly savage piece of criticism, which appeared in the science quarterly *Bedrock*, was leveled at prominent physicists William Barrett and Oliver Lodge, for their work in telepathy. In part, it read,

> It is not necessary either to regard the phenomena of so-called telepathy as inexplicable or to regard the mental condition of Sir W.F. Barrett and Sir Oliver Lodge as indistinguishable from idiocy. There is a third possibility. *The will to believe* has made them ready to accept evidence obtained under conditions which they would recognize to be unsound if they had been trained in experimental psychology.[7]

Of course, Barrett and Lodge could easily have retorted that *the will to disbelieve* has made the critics ready to reject evidence obtained under conditions which they would recognize to be sound if they had been trained in experimental physics *or* psychology.

The New Quantum Controversy

One hundred twenty five years after Slade's trial, another storm was brewing. In the intervening period physics had undergone two major revolutions. First, Einstein introduced his theory of relativity; then, shortly afterward, came the even more fundamental revision known as quantum mechanics. Newtonian physics had been overthrown by two new upstarts, yet the subject matter of parapsychology was just as controversial as ever. And a few daring physicists were still stirring up that controversy.

In September 2001 Britain's Royal Mail decided to honor the 100th anniversary of the Nobel Prize by asking a British winner of each of the six different Nobel Prize categories – physics, chemistry, medicine, peace, literature, and economics – to write a small article about the implications of research in their

[a] Zollner died soon after, and was posthumously discredited as a lunatic for his work with Slade. Nevertheless, his theories are echoed today in modern string theory, with its mathematical models of n-dimensional space.

field. Brian Josephson, who won the prize in 1973 for his work in quantum physics, contributed the following short article:

> Physicists attempt to reduce the complexity of nature to a single unifying theory, of which the most successful and universal, the quantum theory, has been associated with several Nobel prizes, for example those to Dirac and Heisenberg. Max Planck's original attempts a hundred years ago to explain the precise amount of energy radiated by hot bodies began a process of capturing in mathematical form a mysterious, elusive world containing 'spooky interactions at a distance', real enough however to lead to inventions such as the laser and transistor.
>
> Quantum theory is now being fruitfully combined with theories of information and computation. These developments may lead to an explanation of processes still not understood within conventional science such as telepathy, an area where Britain is at the forefront of research.

The last sentence of this article ignited a firestorm of controversy. It had been over a century since Zollner worked with Slade, but it was clear that even in the 21st century a prominent scientist still could not endorse research into telepathy – the direct communication between minds that is said to occur independently of the sense organs – without arousing strong emotions in many of his colleagues. The first to denounce Josephson in print was David Deutsch, quantum physics expert at Oxford University. "It is utter rubbish," Deutsch spluttered to the London newspaper *The Observer*. "Telepathy simply does not exist. The Royal Mail has let itself be hoodwinked into supporting ideas that are complete nonsense. The evidence for the existence of telepathy is appalling."[a]

The science editor of *The Observer* even suggested patronizingly that Josephson had "gone off the rails".[8]

The controversy was not confined to Britain. Professor Herbert Kroemer of Santa Barbara University, California, was quoted as saying:

> I am highly skeptical. Few of us believe telepathy exists, nor do we think physics can explain it. It also seems wrong for your Royal Mail to get involved. Certainly, if the US postal services did something like this, a lot of us would be very angry.[9]

But in the controversy that followed, other prominent scientists were quoted as expressing opinions supporting Josephson's position. Bernard Carr, a cosmologist at the University of London, argued that even if one regards the probability of extrasensory perception being real as small, "its significance if

[a] *The Observer*, Sept 30, 2001. Deutsch embodies a curious double standard about the need for scientific evidence. He is a proponent of a theory that there are billions of parallel universes to our own, expounded in his book *The Fabric of Reality: The Science of Parallel Universes.* He also speculates freely on time travel, although there is not the slightest evidence for either of these phenomena.

established would be so immense that it is surely worth investing some effort into studying it."[10]

In an article in *Physics World,* Carr defended Josephson and other physicists interested in telepathy, explaining that the interaction between mind and matter is one of the main reasons why some physicists are interested in the paranormal.

> Quantum mechanics, after all, is the first theory in physics in which the role of the observer has to be taken into account. You cannot separate the observer from the system being observed, although the precise role of consciousness in this process remains controversial.[11]

A few weeks later Josephson defended himself in a letter to *The Observer*, in which he pointed out that complete skeptical denial regarding the existence of telepathy is by no means the rule among working scientists, contrary to what some skeptics would have us believe. In part, he wrote that:

> Surveys show that a large proportion of scientists accept the possibility that telepathy exists; if it appears that the contrary is the case, this is because such scientists wisely keep quiet about their opinions when in scientific company.
>
> The problem is that scientists critical of this research do not give their normal careful attention to the scientific literature on the paranormal: it is much easier instead to accept official views or views of biased sceptics.
>
> The CIA's Stargate Project provided clear evidence that people can intermittently pick up with their minds images of distant objects such as military installations, some times with striking accuracy. The research arm of the project found that under controlled conditions the extent to which this ability exceeded chance guessing was statistically highly significant.
> There is much other supporting research: the views you present are uninformed ones.
>
> Recently Henry Stapp of the University of California has given strong arguments for it being necessary to take mind into account in physics, which opens up a whole field of possibilities; ironically, he also gives strong arguments against Deutsch's many-worlds philosophy, which has no experimental support whatever. My speculations in the brochure are by no means incompatible with current science. My contacts at Royal Mail do not consider they made an error in allowing the statement to stand.
>
> Brian Josephson
> Department of Physics
> University of Cambridge

In the same issue Phillip Parker of the Royal Mail defended the Post Office's decision.

> Royal Mail was fully aware that Professor Josephson's views in the Nobel Stamps presentation pack could cause a debate among physicists. This is why telepathy was referred to as an area 'not understood by conventional science'. Six Nobel laureates were invited to write a personal reflection. Professor Josephson ended his piece on Quantum Theory with a few words speculating on the possible future direction of this particular subject.
>
> The Nobel Stamps issued on 2 October celebrate 100 years of Nobel prizes. We are delighted that six laureates made unique contributions to our pack.
>
> Philip Parker
> Royal Mail

The controversy also played out over the airwaves. BBC radio confronted Josephson with psychologist Nicholas Humphrey and conjuror James Randi, neither of whom, it should be remembered, are Nobel laureates, Fellows of the Royal Society, or even physicists.

Randi was first quoted, in part, as saying, "There is no firm evidence for the existence of telepathy, ESP, or whatever we want to call it, and I think it is the refuge of scoundrels in many respects for them to turn to something like quantum mechanics, which uses a totally different language from the regular English that we are accustomed to using from day to day."

Humphrey was more coherent: "Well, I think the idea that quantum physics explains the paranormal is an unnecessary idea, because there's nothing to explain. We haven't got any evidence."[12]

Since reports of telepathy, clairvoyance, and so forth date back over at least two thousand years, and since these phenomena have been studied experimentally for over one hundred years, the remark that "We haven't got any evidence" may seem somewhat surprising.

It may be even more surprising to learn that this remark came from a former holder of the Cambridge University Perrott-Warrick Fellowship for Psychical Research.[a]

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[a] However, it has been said that Humphrey "pocketed an estimated £75,000 without doing any noticeable research at all." ("Telepathy, Stamps, and Fuzzy Logic", by Guy Lyon Playfair, in The Skeptical Observer, published on-line). During the three years Humphrey held the Research Fellowship he did no psychical research, but instead wrote a book, *Soul Searching*, in which he claimed to have proved on theoretical grounds that phenomena like telepathy were impossible. Few were impressed with his proofs. Even his fellow skeptic, Susan Blackmore, in a review of his book in *New Scientist*, described his dismissal of the experimental evidence for telepathy as misleading and unfair.

Nothing of course was resolved in the brief exchange that followed. Humphrey patronizingly implied that Josephson “and other well-meaning physicists” are being fooled by conjuring tricksters if they believe in telepathy. In response, Josephson taunted Humphrey: “Now a few years ago he wrote a book ... I looked at the book very carefully and I believe I disposed of all the arguments. I haven't heard any comeback from him.”

“This isn't the time to review my book!” Humphrey squealed. The psychologist then proceeded to make some rather inaccurate remarks about the controversial role of consciousness in quantum physics, and time ran out on the talk show before Josephson was allowed to respond.

The issue was no more settled at the end of the radio talk show than it had been 125 years earlier, at the end of Slade’s trial. Despite the fact that the controversy has now spanned three centuries, and has been carried on in scientific academies, courtrooms, academic journals, newspapers and radio stations, the opponents and proponents of parapsychology seem just as implacably opposed in the twenty-first century as they were in the nineteenth. Today, in the world of science, nothing seems more controversial than parapsychology.

Indeed, the story of parapsychology’s struggle for legitimacy is an epic tale spanning centuries and continents, containing victories, sudden reversals, intrigue, scandals, heated arguments, wild accusations, ruined reputations and some of the most bizarre characters that have ever walked the earth. But *why* is parapsychology so controversial? *Why* has the controversy lasted centuries? And are we capable, at long last, of rationally resolving the issue?

In order to discover why parapsychology is so controversial, and why the controversy has lasted centuries, it is necessary to first understand the nature of the dispute. This is the key to a final rational resolution of the matter, a resolution that, by wide agreement, is long overdue.

I

Origins of the Debate

Until the eighteenth century, the great majority of philosophers and scientists took for granted the existence of phenomena that could only be explained in terms of a spirit world. These phenomena might operate in accordance with God's will, or they might occur to serve the nefarious plans of Lucifer and his demons. A few individuals, such as witches, sorcerers, and alchemists, were thought to be able to induce these phenomena for better or for worse: to cure the sick, to see into the future, or to place a hex on someone. When these powers were wielded by a saintly individual, the results were deemed miraculous; on the other hand, the suspicion that these powers were being used for dark purposes could result in someone being burnt at the stake. Other sorts of phenomena, such as glimpses of the future in dreams, were considered too commonplace to be either miraculous or diabolic.

Among educated men, all of this changed with the dawn of the Scientific Revolution. This momentous mutation in human affairs spans the period between the birth of Galileo in 1564 and the death of Newton in 1727. Scientific advances during this period had the greatest impact on human affairs since the invention of agriculture and the dawn of civilization. And this period gave birth to a new worldview that drew a sharp distinction between the natural and the supernatural, between the normal and the paranormal.

The culmination of this revolution was surely the publication of Newton's *Principia* in 1687. Building upon the earlier works of Kepler and Galileo, Newton created a system that predicted the motions of the heavenly bodies with astonishing accuracy. No longer were comets considered portents of disaster: Newton and Halley calculated the orbits of certain comets and showed that they were as obedient as the planets to the law of gravitation. The universe was now viewed as a gigantic clockwork mechanism. There might still be a need for God to set the machine running – according to Newton the planets were originally hurled by the hand of God – but once started, the solar system was kept going by its own momentum, and operated as a self-regulating machine in accordance with inviolable laws. The rule of natural law had established its hold on men's imaginations, and there seemed to be no room left in the universe for magic and sorcery.

These views became prevalent in the eighteenth century, during what became known as the Enlightenment, which can be thought of as the ideological aftermath of the Scientific Revolution. Its most striking feature was the rejection of dogma and tradition in favor of the rule of reason in human affairs, and it was the precursor of modern secular humanism. Inspired by the dazzling success of the new physics, prominent spokesmen such as Diderot and Voltaire argued for a new worldview based upon an uncompromising mechanism or determinism that left no room for any intervention of mind in nature, whether human or divine. In the previous century, Descartes had written that the bodies of animals and

men were machines, governed entirely by the laws of physics. Animals he regarded as mindless automata, but men, he maintained, had a soul and were thus the sole exceptions in an otherwise deterministic universe. But his successors during the Enlightenment did not hesitate to ask whether man himself might also be, in the final analysis, nothing more than a self-regulating machine.

One of the brightest stars of the Enlightenment was the Scottish philosopher David Hume, a contemporary of Diderot and Voltaire. As one biographer has remarked, the eighteenth century "must have seemed to Hume like the dawning of an era of opportunity: an age when human culture could at long last emerge from the darkness of superstition."[13] There were no miracles, Hume argued in 1748, because miracles were contrary to the uniform experience of mankind, "and as a uniform experience amounts to a proof, there is here a direct and full proof, from the nature of the fact, against the existence of any miracle."

Hume's criticism was directed specifically toward religious miracles, but his followers today apply this argument to those secular miracles that are today called paranormal events. In an earlier age, the fallacy of his argument would have been obvious: miraculous events may not have been common, but they had been reported often enough to show that human experience had *not* been uniform.[14] But by this time scientists longed for mechanistic certainties, and the assumption grew that there were natural laws that could not be broken and that *now* mankind knew these laws. Miraculous events did not fit into the new scientific worldview.

However, down through the ensuing centuries "miraculous" events such as thought transference, second sight, spiritual healing, hauntings and so forth continued to be reported. But the science of Newton, Galileo, and Kepler had given birth to a new *metaphysics* – philosophical assumptions about the nature of the universe – which simply could not accommodate the reality of these phenomena. Skepticism based on the Humean model had taken hold, and so these reports were, for the most part, simply dismissed as incredible. Lingering widespread belief in the reality of these phenomena was considered to be the unfortunate legacy of a superstitious, irrational, pre-scientific era.

Parapsychology, which has its roots in the psychical research of the nineteenth century, is the scientific study of these "anomalous" phenomena, considered anomalous by some in the sense that they seem to defy a mechanistic explanation. However, parapsychologists part company with the astrologers, palm readers, and other practitioners of the occult arts in the manner in which they treat the evidence, a manner which they claim is scientific. But the claim that parapsychology is a science – or even that parapsychology has a subject matter to investigate – is of course controversial.

II

The Modern Critics

The opponents of parapsychology at the present time are those who see themselves as heirs of the Enlightenment, guardians of rationality who must at all costs discredit any dangerous backsliding into superstition. To this end, they even resort to mockery, the weapon Voltaire so-often wielded against his opponents. Although physics has changed in ways Newton could never have dreamed, and although the "laws of nature" have been rewritten several times since the publication of the *Principia*, the modern skeptics still invoke the principles of Newtonian physics and other arguments literally straight out of the eighteenth century – such as those of the skeptical philosopher David Hume – to argue against the claims of parapsychology.[15] They also occasionally blur the distinction between parapsychology and the various New Age cults, whose adherents, for the most part, are simply not interested in a careful and critical examination of the evidence.

VIII

The Research of the Skeptics

Charles Honorton, in his classic article "Rhetoric Over Substance," noted an important difference between the psi controversy and more conventional scientific disputes. Controversies in science normally occur between groups of *researchers* who formulate hypotheses, design experiments, and then collect data in order to test their hypotheses. But as Honorton wrote, "In contrast, the psi controversy is largely characterized by disputes between a group of researchers, the parapsychologists, and a group of critics who do not do experimental research to test psi claims or the viability of their counterhypotheses."[16]

This lack of research may surprise anyone whose main source of information has been the skeptical literature. For instance, in 1983 the well-known skeptic Martin Gardner wrote:

> How can the public know that for fifty years skeptical psychologists have been trying their best to replicate classic psi experiments, and with notable unsuccess? It is this fact more than any other that has led to parapsychology's perpetual stagnation. Positive evidence keeps coming from a tiny group of enthusiasts, while negative evidence keeps coming from a much larger group of skeptics.[17]

But as Honorton pointed out, "Gardner does not attempt to document this assertion, nor could he. It is pure fiction. Look for the skeptics' experiments and see what you find."

For the most part, skeptics have simply criticized from the sidelines, and have produced no experimental research of their own.

The Research of Susan Blackmore

One notable exception to this rule has been British psychologist Susan Blackmore. She began working on a PhD in parapsychology in the 1970's, but has repeatedly claimed that she has failed to find any evidence for the existence of psi. For instance, she wrote in 1996: "When I decided to become a parapsychologist I had no idea it would mean 20 years of failing to find the paranormal."[18] Blackmore has made a career for herself as one of the world's most well-known skeptics of psi, and in 1988 was elected a Fellow of CSICOP.[19]

In a number of publications, Blackmore claims to have become increasingly skeptical of the existence of psi phenomena after "ten years of intensive research in parapsychology."[20] These claims led parapsychologist Rick Berger to critically examine the Blackmore experiments in great detail, and he found that "The claim of 'ten years of psi research' actually represents a series of hastily constructed, executed, and reported studies that were primarily conducted during a 2-year period."[21] These consisted of a set of experiments conducted between October 1976 and December 1978 for her PhD dissertation.[22]

Blackmore reported 29 experiments completed over this two-year period, of which 21 were eventually published as separate experiments in five parapsychology journal papers. Seven of these experiments produced statistically significant results. Although these experiments form the basis of Blackmore's claim of "failing to find the paranormal", the odds against 7 successes out of 21 attempts happening by chance are over 20,000 to one!

So, how does Blackmore reconcile the fact of 7 successful experiments out of 21 total experiments with her often-repeated claim that her own research led her to become a skeptic? Simple: as Berger pointed out, Blackmore applied a double-standard to her experiments. When one of her experiments showed evidence of psi, the results were dismssed as due to flaws in the experiment. But when one of her experiments did *not* seem to show evidence of psi, she simply ignored the quality of the experiment.

There are many design flaws that can lead to false positive results, but there are also many that can lead to false negatives, such as inadequate sample size (low statistical power), inappropriate sampling and so forth. Berger writes "Blackmore's database is replete with examples of such flaws,"[23] and continues:

> Some skeptics, including Blackmore, argue that differing standards of experimental design can be held depending on study outcome: Significant positive outcomes must have tighter designs than the same study with a negative outcome. This post hoc determination of experimental criticism leads to the paradox exemplified by the Blackmore work: Had such work produced consistently positive outcomes, the results could all be dismissed as having arisen from design flaws… Negative conclusions based on flawed experiments must not be given *more* weight than positive conclusions based on the same flawed experiments.[24]

In other words, our decision to invoke study flaws to dismiss the results of an experiment should not be influenced by our preconceptions of what the result "should have been." But this seems to have been exactly what Blackmore has done in order to justify her beliefs, as evidenced in the following remark of hers:

> Well, if you don't find evidence of ESP, what can you say? Only that you have failed to find something which, according to science, shouldn't have been there in the first place![25]

As we shall see, this appeal to "science" as a monolithic body of conclusions that tell you in advance how experiments should turn out is a rhetorical tactic often used by Blackmore. Berger finally concluded:

> Blackmore's claims that her database shows no evidence of psi are unfounded, because the vast majority of her studies were carelessly designed, executed, and reported, and in Blackmore's own assessment, individually flawed. As such, no conclusions should be drawn from this database…. Blackmore is extremely vocal in decrying psi research in her writings, on television and radio, and before the

> skeptical advocacy group CSICOP (the Committee for Scientific Investigation of Claims of the Paranormal), citing her own work as the basis for her strong convictions.[26] … [She] has achieved a notable position in the skeptical community based on her conversion from believer to skeptic during her "ten years of negative research." Her insistence to the contrary notwithstanding, I believe that my review of her psi research has achieved a constructive end by showing that her conversion from parapsychologist to CSICOP Fellow had no scientific basis in her own experimental work.[27]

The same journal issue also includes a response by Blackmore to Berger's critique, in which Blackmore conceded, "I agree that one cannot draw conclusions about the reality of psi based on these experiments."[28] Near the end of his critique, Berger had written "During my aborted meta-analysis of Blackmore's published work, I was struck by patterns in the data suggestive of the operation of psi…. Without a serious meta-analysis of the original unpublished source material, complete with weighting for flaws,…the issue of whether the Blackmore experiments show evidence *for* psi cannot be resolved."[29] Presumably eager to nip this embarrassment in the bud, Blackmore hastened to add: "I am glad to be able to agree with his final conclusion – 'that drawing *any* conclusion, positive or negative, about the reality of psi that are based on the Blackmore psi experiments must be considered unwarranted.'"[30]

It is interesting to examine Blackmore's writings before and after Berger's critique. Two years earlier, in an article for the *Skeptical Inquirer* entitled "The Elusive Open Mind: Ten Years of Negative Research in Parapsychology," she wrote:

> How could I weigh my own results against the results of other people, bearing in mind that mine tended to be negative ones while everyone else's tended to be positive ones? I had to find some kind of balance here. At one extreme I could not just believe my own results and ignore everyone else's…. At the other extreme I could not believe everyone else's results and ignore my own. That would be even more pointless. There would have been no point in *all those years of experiments* if I didn't take my own results seriously." [31]
> [emphasis added]

In another article written at about the same time she wrote:

> The other major challenge to the skeptic's position is, of course, the fact that opposing positive evidence exists in the parapsychological literature. I couldn't dismiss it all. This raises an interesting question: just how much weight can you or should you give the results of your own experiments over those of other people? On the one hand, your own should carry more weight, since you know exactly how they were done… On the other hand, science is necessarily a collective enterprise…. So I couldn't use my own failures as justifiable evidence that psi does not exist. I had to consider everyone else's success.

> I asked myself a thousand times, as I ask the reader now: is there a right conclusion?
>
> The only answer I can give, after ten years of intensive research in parapsychology, is that I don't know.[32]

After Berger's critique, Blackmore was willing to concede in an academic journal that "I agree that one cannot draw conclusions about the reality of psi based on these experiments." But her writings in the popular press have not reflected this admission. Commenting on the ganzfeld experiments in a newspaper article in 1996, she wrote:

> My own conclusion is biased by my own personal experience. I tried my first *ganzfeld* experiment in 1978, when the procedure was new…. Of course the new autoganzfeld results are even better. Why should I doubt them because of events in the past? The problem is that my personal experience conflicts with the successes I read about in the literature and I cannot ignore either side. The only honest reaction is to say "I don't know".[33 a]

Wouldn't a more honest reaction be for Blackmore to admit in the popular press that "one cannot draw conclusions about the reality of psi" based on her own experiments, and that a scientific opinion should be based only upon a critical evaluation of *other* peoples' published works?

But perhaps this is asking too much. After all, Blackmore pursued a PhD in parapsychology in order to become a "famous parapsychologist".[34] Having failed to produce research supporting the psi hypothesis, she evidently decided to try to make a name for herself by *attacking* the psi hypothesis, which must at the time have seemed to be an easy target. Apparently, though, in a recent article she claims to have given up. "At last, I've done it. I've thrown in the towel," she wrote.

> Come to think of it, I feel slightly sad. It was just over thirty years ago that I had the dramatic out-of-body experience that convinced me of the reality of psychic phenomena… *Just a few years of careful experiments changed all that.* I found no psychic phenomena… I became a sceptic. [emphasis added]
>
> So why didn't I give up then? There are lots of bad reasons. Admitting you are wrong is always hard, even though it's a skill every scientist needs to learn. And starting again as a baby in a new field is a daunting prospect. So is losing all the status and power of being an expert. I have to confess I enjoyed my hard-won knowledge.

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[a] In her autobiography, in a chapter titled "I Don't Know", she is much more emphatic, writing "I don't know, I don't know, *I don't know!*"

…None of it ever gets anywhere. That's a good enough reason for leaving.

But perhaps the real reason is that I am just too tired – and tired above all of working to maintain an open mind. I couldn't dismiss all those extraordinary claims out of hand. After all, they just might be true, and if they were then swathes of science would have to be rewritten.[35]

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[1] [1] However, as late as 1807 Thomas Jefferson, as president of the American Philosophical Society, reacted to the theory propounded by two New England astronomers that a meteorite found in Weston, Connecticut, was of extraterrestrial origin, by remarking: *"I could more easily believe that two Yankee professors would lie than stones would fall from heaven."*

[2] It is stated in the *Report of the Experiments on Animal Magnetism*, made by a Committee of the Medical Section of the French Royal Academy of Sciences, 1831: "We have seen two somnambulists who distinguished, with their eyes closed, the objects which were placed before them; they mentioned the color and the value of cards, without touching them; they read words traced with the hand, as also some lines of books opened at random. This phenomenon took place even when the eyelids were kept exactly closed with the fingers."

[3] Milner, 1998, p. 99.

[4] Kaku, Michio, 1994, p. 53.

[5] Bellachini's statement read:

"After I had, at the wish of several highly-esteemed gentlemen of rank and position, and also for my own interest, tested the physical mediumship of Mr Slade in a series of sittings by full daylight, as well as in the evening, in his bedroom, I must, for the sake of truth, hereby certify that the phenomenal occurrences with Mr Slade have been thoroughly examined by me with the minutest observation and investigation of his surroundings, including the table, and that I have *not in the smallest degree* found anything to be produced by means of prestidigitative manifestations, or by mechanical appartatus; and that any explanation of the experiments which took place under the circumstances then obtaining by any reference to prestidigitation, *to be absolutely impossible*.

I must rest with such men of science as Crookes and Wallace, in London; Perty, in Berne; Butlerof, in St Petersburg; to search for the explanation of this phenomenal power, and to prove its reality. I declare, moreover, the published opinions of laymen, as to the 'How' of this subject to be premature, and according to *my* view and experience, false and one-sided. This, my declaration, is signed and executed before a notary and witnesses."

(signed) SAMUEL BELLACHINI
Berlin, 6 December, 1877.

[6] Slade's and Zollner's story after this is not a happy one. Zollner died in 1882 from a brain hemorrhage. Three years later Slade arrived in Philadelphia to be examined by the Seybert Commission, created under the terms of the will of Henry Seybert to make an impartial assessment of the evidence for spiritualism. Most of its members, though, were anything but impartial. Slade was able to produce some phenomena for the Commission, and considered the enquiry a personal success, even writing a thank you note for the Commission, offering to return to give further demonstrations. However, the Commission's report described Slade's phenomena as "fraudulent throughout." No one had caught Slade red-handed, but various members of the Commission claimed to have seen suspicious movements of his hands or feet, and this was all they needed. The report, published in 1877, completely demolished Slade's reputation. A broken man, Slade became increasingly addicted to alcohol and morphine, dying in a Michigan sanatorium in1905.

The Seybert Commission then set out to discredit Zollner and his colleagues. The Commission's secretary, Professor Fullerton, traveled to Leipzig and subsequently issued a statement declaring that Zollner had been mentally unbalanced at the time of the Slade experiments. The other scientists were dismissed on the grounds of age or physical infirmity, portraying them as a group of infirm old men led by a lunatic. Zollner's friends were infuriated at the suggestion that he was unbalanced, and offered to swear oaths that he had been perfectly sane until the day of his death.

But the campaign to discredit Zollner was highly successful, and today his name is rarely mentioned in science text books.

[7] As quoted in Michio, 1994, p. 53.

[8] Robin McKie, *The Observer*, September 30 2001

[9] "Royal Mail's Nobel Guru in Telepathy Row", by Robin McKie, *The Observer*, Sunday September 30, 2001.

[10] "Pioneer of the Paranormal", by Edwin Cartlidge, *Physics World*, May 2002, pp.10-11.

[11] "Physicists probe the paranormal", by Martin Durrani, *Physics World*, May 2000.

[12] Transcript of BBC Radio 4's Today program, October 2nd. 2001.

[13] Hutcheon, 1996, page 48.

[14] To be fair, Hume did consider reports of miraculous events, but these he dismissed as due to the 'knavery and folly of mankind.' Hume's arguments will be considered in greater depth in a later chapter.

[15] See for instance Price, 1955; Kurtz, 1985, pages xviii – xix; and Flew, 1989.

[16] Honorton, 1993, page 194.

[17] Gardner, 1983, page 60.

[18] Blackmore, 1996a.

[19] *Skeptical Inquirer*, 13, 1988.

[20] Blackmore, 1987. The title of her article is *"The Elusive Open Mind: Ten Years of Negative Research in Parapsychology."*

[21] Berger, 1989a, page 140.

[22] In her writing she often presents herself as an open-minded scientist who gradually became more skeptical. Yet following the failure of her "very first experiment" she recorded in her diary: "I concluded that parapsychology is all a lot of rubbish and I should do something else!" (Blackmore, 1996, p. 35).

[23] Berger, 1989a, page 137.

[24] Berger, 1989a, page 137.

[25] Blackmore, 1989, page 71.

[26] Berger, 1989a.

[27] Berger, 1989b.

[28] Blackmore, 1989b., page 145.

[29] Berger, 1989a, page 140.

[30] Blackmore, 1989b, page 152.

[31] Blackmore, 1987, page 250.

[32] Blackmore, 1989a, page 74.

[33] Blackmore, 1996a.

[34] Blackmore, 1996b, page 163, 187.

[35] Blackmore, 2000.