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# CHAPTER 14: A FIELD GUIDE TO SKEPTICISM

> I am attacked by two very opposite sects – the scientists and the know-nothings. Both laugh at me – calling me "the frogs' dancing-master." Yet I know that I have discovered one of the greatest forces in nature. – **Luigi Galvani**, Italian physician (1737–1798)

This chapter does not argue against skepticism. On the contrary, it demonstrates that critical thinking is a double-edged sword: It must be applied to any claim, including the claims of skeptics. We will see that many of the skeptical arguments commonly leveled at psi experiments have been motivated by non-scientific factors, such as arrogance, advocacy and ideology. The fact is that much of what scientists know – or think they know – about psi has been confused with arguments promoted by uncritical enthusiasts on one hand, and uncritical skeptics on the other. History shows that extremists, despite the strength of their convictions, are rarely correct. So, are all scientists who report positive evidence for psi naïve or sloppy? No. Are all skeptics intolerant nay-sayers? No. Does psi justify the belief that angels from the Andromeda galaxy are among us? No.

## Doubt

> There are two ways to be fooled. One is to believe what isn't true; the other is to refuse to believe what is true. – **Søren Kierkegaard** (1813–55)

### *The necessity of doubt*

Skepticism, meaning doubt, is one of the hallmarks of the scientific approach. Skepticism sharpens the critical thought required to sift the wheat from the chaff, and it forces experimental methods, measurements, and ideas to pass through an extremely fine sieve before they are accepted into the "scientific worldview." A little critical thinking applied to many of the claims of New Age devotees reveals why many scientists are dubious of psi phenomena. Science requires substantial amounts of repeatable, trustworthy evidence before taking claims of unexpected effects seriously. Depending on the claim, providing sufficient evidence can take years, decades, or half-centuries of painstaking, detailed work. Learning how to create this evidence requires long training and experience in conventional disciplines like experimental design, analysis and statistics. Conducting research on controversial topics like psi requires all this plus an appreciation for interpersonal dynamics, politics, aesthetics, philosophy, and physics, combined with intellectual clarity and a strong creative streak to help break the bounds of conventional thinking.

From the lay perspective, science appears as a logical, dispassionate, analytic process. This is true sometimes, but it is also a harshly adversarial, emotional battlefield when it comes to evaluating unusual claims. The process of gaining acceptance for effects that are not easily accommodated by dominant theories takes an enormous amount of energy and persistence. This is why most scientists and psi researchers alike grimace upon reading breathless advertisements hawking, "The amazing miracle blue crystal, found deep beneath an ancient Mayan pyramid, proven by top researchers to

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relieve headaches and enhance psychic powers, and now available for a limited time for only $129.95!"

The claim about a blue crystal is not the problem. After all, if someone were to claim that a moldy piece of bread could cure all sorts of horrible diseases, they'd be labeled a charlatan, unless the mold happened to be penicillin. The problem with many popular psi-related claims, especially claims for health-related products and devices, is that it doesn't take much digging to discover that sound, scientific evidence for the claim is either entirely absent, fabricated or based solely upon anecdotes and testimonials.

## *The danger of uncritical doubt*

> It's one thing not to see the forest for the trees, but then to go on to deny the reality of the forest is a more serious matter. – **Paul Weiss**

However, the same scientific mind-set that thrives on high precision and critical thinking is also extremely adept at forming clever rationalizations that get in the way of progress. In extreme cases, these rationalizations have prevented psi research from taking place at all. Ironically, the very same skeptics who have attempted to block psi research through the use of rhetoric and ridicule have also been responsible for perpetuating the many popular myths associated with psychic phenomena. If serious scientists are prevented from investigating claims of psi out of fear for their reputations, then who is left to conduct these investigations? Extreme skeptics? No, because the fact is that most extremists do not conduct research, they specialize in criticism. Extreme believers? No, because they are usually not interested in conducting rigorous scientific studies.

The word "extreme" is important to keep in mind. Most scientists seriously interested in psi are far more skeptical about claims of psychic phenomena than most people realize. Scientists who study psi phenomena grind their teeth at night because television shows predictably portray psi researchers as wacky "paranormal investigators" with dubious credentials. Psi researchers cringe at seeing the word "parapsychologist" used in the telephone yellow pages to list psychic readers. And unfortunately, because the only thing most people know about parapsychology is its popular association with credulous "investigators" and psychic over-enthusiasts, it is understandable why some skeptics have taken combative positions to fight what they see as rising tides of nonsense.

This book is intended to help illustrate that common stereotypes about psi research are overly simplistic at best, and in many cases, they are just plain wrong. As an example of "just plain wrong," here is one stereotype that many mainstream scientists have simply accepted as conventional wisdom. As philosopher Paul Churchland put it,

> Despite the endless pronouncements and anecdotes in the popular press, and despite a steady trickle of serious research on such things, there is no significant or trustworthy evidence that such phenomena even exist. The wide gap between popular conviction on this matter, and the actual evidence, is something that itself calls for research. For there is not a single parapsychological effect that

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> can be repeatedly or reliably produced in any laboratory suitably equipped to perform and control the experiment. Not one.[1]

Wrong. As we've seen, there are a half-dozen psi effects that have been replicated dozens to hundreds of times in laboratories around the world. As another example, conventional wisdom often assumes that professional magicians and conjurers "know better" than to accept that some psychic phenomena are real. In fact, as parapsychologist George Hansen wrote,

> Although the public tends to view magicians as debunkers, the opposite is more the case. Birdsell (1989) polled a group of magicians and found that 82% gave a positive response to a question of belief in ESP. Truzzi (1983) noted a poll of German magicians that found that 72.3% thought psi was probably real. Many prominent magicians have expressed a belief in psychic phenomena. …. It is simply a myth that magicians have been predominantly skeptical about the existence of psi.

## *Skepticism about skepticism*

Why it is necessary to spend any time at all on the criticisms of psi research when we can simply refer to the previous chapters to demonstrate that there are valid experimental effects in search of answers? One answer is that very few are aware that the standard skeptical arguments have been addressed in exquisite detail, and they no longer hold up. Another is that the tactics of the extreme skeptics have been more than merely annoying. The professional skeptics' aggressive public labeling of parapsychology as a "pseudoscience," implying fraud or incompetence on the part of the researchers, has been instrumental in preventing this research from taking place at all. In a commentary in the prominent journal, *Nature*, skeptical British psychologist David Marks wrote,

> Parascience has all the qualities of a magical system while wearing the mantle of science. Until any significant discoveries are made, science can justifiably ignore it, but it is important to say why: parascience is a pseudo-scientific system of untested beliefs steeped in illusion, error and fraud.

Such statements are pernicious because significant discoveries do not occur by themselves. Such statements published in influential journals have had strong effects on the ability of scientists to conduct psi research. Many funding agencies, both public and private, have been reluctant to fund parapsychological studies because they fear being associated with what conventional wisdom has declared to be a "pseudoscience." Fortunately, there are notable exceptions among funding agencies who know that there is a difference between popular stereotypes and serious researchers.

# Skepticism today

> The discovery of truth is prevented more effectively, not by the false appearance of things present and which mislead into error, not directly by weakness of the reasoning powers, but by preconceived opinion, by prejudice. **Arthur Schopenhauer**, German philosopher (1788–1860)

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[1] The detailed bibliographic references for this chapter may be seen in Radin, D. (1997) *The conscious universe: The scientific truth of psychic phenomena*. San Francisco: HarperEdge.

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In 1993, the late parapsychologist Charles Honorton from the University of Edinburgh considered what skeptics of psi experiments used to claim, and what they no longer claimed. He demonstrated that virtually all of the skeptical arguments used to explain away psi over the years had been resolved through design of new experiments. This does not mean the experiments conducted today are "perfect," because there is nothing perfect in the empirical sciences. But it does mean that the methods available today satisfy the most rigorous skeptical requirements for providing "exceptional evidence." As we've seen, such experiments have been conducted, with successful results.

## *What skeptics used to claim*

Honorton pointed out that for many decades the standard skeptical assertion was that psi was impossible because it violated some ill-specified physical laws, or because the effects were not repeatable. It was also easy to claim that any successful experiments were really due to chance or fraud. Today, informed skeptics no longer claim that the outcomes of psi experiments are due to mere chance because we know that some parapsychological effects are, to use skeptical psychologist Ray Hyman's words, "astronomically significant." This is a key concession because it shifts the focus of the debate away from the mere *existence* of interesting effects to their proper *interpretation.*

The concession also drops the decades-long skeptical questions over the legitimacy of parapsychology as a science. It states, quite clearly, that skeptics who continue to repeat the same old assertions that parapsychology is a pseudoscience, or that there are no repeatable experiments, are not only uninformed about the state of parapsychology, *they are also uninformed about the current state of skepticism!*

Honorton then pointed out that skeptics no longer claim that there are any meaningful relationships between design flaws and experimental outcomes. This criticism was again based on the premise that psi did not exist, thus any psi effects observed in experiments must have been due to sloppy experimenters, flawed techniques or poor measurements. The assertion implied that if a scientist performed the proper, "perfect" psi experiment, that all claims for psi effects would disappear. The basic argument is flawed, of course, because all measurements contain some error. Nevertheless, the assertion is testable by comparing experimental outcomes with assessments of experimental quality. As we've seen, the meta-analyses described earlier have shown that design flaws cannot account for the cumulative success rates in psi experiments.

The skeptics are not eager to advertise their recent concessions. Over the past few decades Ray Hyman and other "professional" skeptics have tried with great creativity and diligence to explain away psi. They tried to show that the experiments were not really all that interesting, and that all of the apparently successful studies were due to one or another design flaws. Having failed on both counts, informed skeptics have been forced to admit that they have simply run out of plausible explanations.

It is not easy to change life-long, strongly held beliefs, even when there is strong evidence that the belief is wrong, so the publicly proclaimed skeptics are not likely to ever admit that psi *per se* is genuine. Nevertheless, it is important to emphasize that the focus of today's controversy has significantly shifted from the flat dismissals of the past.

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## *What skeptics now claim*

Because no plausible explanations remain for the experimental results, today the few remaining hard-core skeptics rehash the same old polemical arguments used in past decades. The core assertion is the tired claim that after 100 years of research, parapsychology has failed to provide convincing evidence for psi phenomena.

This argument follows a certain logic. Skeptics refuse to believe that psi experiments, which they admit are successfully demonstrating *something*, are in fact actually demonstrating psi itself. By stubbornly insisting that the results are real and unexplainable on the one hand, but those results could not possibly be due to *psi* on the other, then of course they can claim that parapsychology is a failure. This is like a skeptic who refuses to call a group of nine players who win the World Series a "baseball team." In that case, the skeptic can simply smile, shrug and doggedly claim that yes, people do apparently go running after balls that other people occasionally hit with a bat. But still, after 100 years there is no solid evidence that anything called a *baseball* team actually exists.

Remember that most parapsychologists do not claim to understand what "psi" is. Instead, they design experiments designed to test experiences that people have reported throughout history. If rigorous tests for what we have called "telepathy" results in effects that look like, sound like, and feel like the experiences reported in real life, then call it what you will, but the experiments confirm that this common experience is not an illusion.

Another way to demonstrate the purely rhetorical nature of the "century of failure" argument is to see if the same argument also applies to conventional academic psychology. After a hundred years and thousands of experiments, there are still vigorous controversies over such elementary phenomena as conscious awareness, memory, learning, and perception. After a hundred years, psychology has not produced even the crudest model of how processes in the brain are transformed into conscious experience. If we adopt the skeptics' reasoning, many of whom are psychologists, then conventional psychology is also a dismal failure.

## *An unusual controversy*

After deftly exposing and dissolving the skeptical position, Honorton then pointed out an important difference between the controversy over psi and debates in more conventional disciplines. Most scientific debates occur within groups of researchers who test hypotheses, develop and critique other researchers' methods, and collect data to test their hypotheses. This is standard operating procedure, as witnessed by persistent debates over dozens of hot topics in all scientific disciplines. The same sort of vigorous debating is evident in the journals and at the annual meetings of the Parapsychological Association, the professional society of scientists and scholars interested in psi phenomena.

However, the psi controversy is different in one important respect. The vast majority of skeptics often write about the plausibility of various alternative hypotheses, but they almost never test their ideas. This "armchair quarterbacking" is especially true of the current generation of psi skeptics, the vast majority of whom have made no original research contributions to this topic.

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Their reasoning is simple: If you start from the position that an effect cannot exist, then why bother going to all the time and expense to actually study it? It makes more sense to use every rhetorical trick in the book to convince others that your opinion is correct, and that all the evidence to the contrary is somehow flawed. This may seem like a perfectly reasonable strategy, but it is not science. It is much closer to an argument based on faith, like a religious position.

The fact that most skeptics do not conduct counter-studies to prove their claims is not well known. For example, in 1983 the well known skeptic Martin Gardner wrote the following:

> 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 [sic]? 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.

As Honorton points 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." In addition, there is no "larger group of skeptics." There are perhaps 10 to 15 skeptics who have accounted for the vast bulk of the published criticisms.

Beyond the "century of failure" argument, some skeptics still stubbornly insist that parapsychology is not a "real science." As Ray Hyman wrote,

> Every science except parapsychology builds upon its previous data. The data base continually expands with each new generation but the original investigations are still included. In parapsychology, the data base expands very little because previous experiments are continually discarded and new ones take their place.

This isn't true, because otherwise the meta-analyses described in this book wouldn't exist. As we've seen, the early tests on thought-transference gave rise to picture-drawing telepathy tests. They spawned telepathy experiments in the dream state, which later led to the ganzfeld experiments. The dice tests begat RNG experiments. All of these experimental variations evolved as researchers took stock of previous experimental outcomes and criticisms and refined their test designs and theories.

Of course, some skeptics have made important contributions to the development of progressively stronger evidence by systematically ferreting out design loop-holes, and by insisting upon stronger and stronger empirical evidence. But because skeptics today can no longer demonstrate *plausible* alternative explanations, all that remains is rhetoric and defense of *a priori* beliefs. Persisting in this stance in the face of overwhelming evidence has produced some excellent examples of minds struggling with logical contradictions. Honorton summarized his view of the state of skepticism as follows:

> There is a danger for science in encouraging self-appointed protectors who engage in polemical campaigns that distort and misrepresent serious research efforts. Such campaigns are not only counterproductive, they threaten to corrupt the spirit and function of science and raise doubts about its credibility. The distorted history, logical contradictions, and factual omissions exhibited in the arguments of the … critics represent neither scholarly criticism nor skepticism, but rather counteradvocacy masquerading as skepticism.

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# Skeptical tactics

Extreme skeptics who believe that all psi experiments are flawed have used an effective bag of rhetorical tactics to try to convince others to dismiss the evidence. These include accusations that even if real, psi effects are so weak that they are trivial or uninteresting, statements of frank prejudice, long lists of common but scientifically invalid criticisms, and severely distorted descriptions of psi experiments which make psi researchers appear to be incompetent. Let's examine how some these tactics have been used.

## *Accusations of triviality*

Some skeptics have reluctantly accepted that psi effects may be genuine. But then they attempted to reduce their discomfort by claiming that psi is simply too weak to be interesting. For example, the psychologist E. G. Boring wrote that ESP data were merely "an empty correlation," and psychologist S. S. Stevens asserted that "the signal-to-noise ratio for ESP is simply too low to be interesting."

More recently, the skeptical British psychologist Susan Blackmore wrote "What if my doubt is displaced and there really is extrasensory perception after all? What would this tell us about consciousness?" To answer this question, Blackmore took a giant step backwards to the 1950s psychological fad of behaviorism, and concluded that consciousness doesn't have any meaning at all, that it is merely an illusion. Not surprisingly then, she also concluded that psi, even if genuine, would tell us *nothing at all* about the nature of consciousness. This is a perplexing position that hardly anyone accepts anymore, not even other hard-nosed skeptics.

In another example of trivializing psi, mathematician A. J. Ayer wrote in *Scientific American*,

> The only thing that is remarkable about the subject who is credited with extra-sensory perception is that he is consistently rather better at guessing cards than the ordinary run of people have shown themselves to be. The fact that he also does "better than chance" proves nothing in itself.

Such an assertion is confused, because *any* form of genuine psi, weak or strong, carries revolutionary potential for our understanding of the natural world. In addition, effects that are originally observed as weak may be turned into extremely strong effects after they are better understood. Consider, for example, what was known about harnessing the weak, erratic trickles of electricity 150 years ago, and compare that to the trillion-watt networks that run today's power-hungry world.

## *Prejudice*

> Ignorance more frequently begets confidence than does knowledge; it is those who know little, and not those who know much, who so positively assert that this or that problem will never be solved by science. **Charles Darwin**, Introduction, *The Descent of Man* (1871).

Prejudice – holding an opinion without knowledge or examination of the facts – is deeply embedded within human nature. It is much easier to follow the natural impulse to form a quick judgment and stick with it, rather than take the time and trouble to study the

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actual evidence. Prejudice continues to haunt psi researchers. Sometimes it is acknowledged as such, and sometimes it is not.

Philip Anderson, a prominent theoretical physicist at Princeton University, assumed that psi was incompatible with physics, and so in an 1990 editorial in *Physics Today*, he wrote,

> If such results are correct, we might as well turn the National Institute of Standards and Technology into a casino and our physics classes into seances, and give back all those Nobel Prizes…. It is for this kind of reason that physicists, quite properly, do not take such experiments seriously until they can be (1) reproduced (2) by independent, skeptical researchers (3) under maximum security conditions and (4) with totally incontrovertible statistics. Oddly enough, the parapsychologists who claim positive results invariably reject these conditions.

It is clear that Anderson was simply ignorant of the evidence, and yet he still felt quite confident about his opinion. We can only imagine what Anderson thinks of well-regarded physicists who *do* take such experiments seriously.

Some critics have acknowledged that they simply do not *wish* to believe the evidence. For example, in 1951, the psychologist Donald O. Hebb wrote: "Why do we not accept ESP as a psychological fact? Rhine has offered us enough evidence to have convinced us on almost any other issue..... I cannot see what other basis my colleagues have for rejecting it..... My own rejection of [Rhine's] views is in a literal sense prejudice."

In 1955, psychologist G. R. Price suggested that because psi was clearly impossible, fraud was the best, and really the only remaining explanation for psi effects. In a lead article in the important journal, *Science*, Price began sensibly:

> Believers in psychic phenomena ... appear to have won a decisive victory and virtually silenced opposition.... This victory is the result of an impressive amount of careful experimentation and intelligent argumentation.... Against all this evidence, almost the only defense remaining to the skeptical scientist is ignorance, ignorance concerning the work itself and concerning its implications. The typical scientist contents himself with retaining ... some criticism that at most applies to a small fraction of the published studies. But these findings (which challenge our very concepts of space and time) are - if valid - of enormous importance ... so they ought not to be ignored.

Price then flatly asserted that because ESP was "incompatible with current scientific theory," it was more reasonable to believe that parapsychologists cheated than that ESP might be real. Price based his argument on a famous essay on the nature of miracles by philosopher David Hume. Hume argued that since we know that people sometimes lie, but we have no independent evidence of miracles, then it is more reasonable to believe that claims of miracles are based on lies than that miracles actually occurred. Based on this reasoning, Price concluded,

> My opinion concerning the findings of the parapsychologists is that many of them are dependent on clerical and statistical errors and unintentional use of sensory clues, and that all extrachance results not so explicable are dependent on deliberate fraud or mildly abnormal mental conditions.

Another critic of the same era was skeptical British psychologist Mark Hansel, from the University of Wales. Like Price, Hansel wrote,

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> If the result could have been through a trick, the experiment must be considered unsatisfactory proof of ESP, whether or not it is finally decided that such a trick was, in fact, used (p. 21). [Therefore,] it is wise to adopt initially the assumption that ESP is impossible, since there is a great weight of knowledge supporting this point of view.

Such opinions – that existing scientific knowledge is complete and that psi necessarily conflicts with it – has motivated skeptics to imagine all sorts of good reasons to make the psi "go away." A prime example of the power of this motivation is illustrated by a 1987 report on parapsychology issued by the National Research Council.

*National Research Council report*

In the mid-1980s, the U. S. Army recruitment slogan was "Be all that you can be." The slogan reflected the Army's desire to train soldiers to achieve enhanced performance. These highly trained warriors would be fearless and cunning, fight without fatigue, and employ a variety of enhanced, exotic, or possibly even psychic skills.

In 1984, the U. S. Army Research Institute asked the premier scientific body in the United States, the National Academy of Sciences, to evaluate a variety of training techniques and claims about enhanced human performance. These techniques included sleep learning, accelerated learning, biofeedback, neurolinguistic programming, and parapsychology. The National Academy of Sciences responded to the Army's request by directing its principal operating agency, the National Research Council (NRC), to form a committee to examine the scientific evidence in these areas. Because the NRC is often asked to investigate leading-edge and controversial topics, it maintains an explicit policy of assembling balanced scientific committees. In fact, the policy requires members of its committees to affirm that they have no conflicts of interest either for or against the objects of study. This helps ensure that the scientific reviews are fair.

On December 3, 1987, the NRC convened a well-attended press conference in Washington, DC, to announce its conclusions. John A. Swets, Chairman of the NRC Committee, said, "Perhaps our strongest conclusions are in the area of parapsychology." The bottom line: "The Committee finds no scientific justification from research conducted over a period of 130 years for the existence of parapsychological phenomena."

Whoops. Where did this come from? To help understand the disparity between the actual data and the NRC's conclusion, the Board of Directors of the Parapsychological Association (PA) selected three senior members of the PA to study the report in detail and respond to it. The three members were John Palmer, a psychologist at the Rhine Research Center, Durham, North Carolina, Charles Honorton, who at the time was Director of the Psychophysical Research Laboratories in Princeton, New Jersey, and Jessica Utts, professor of statistics at the University of California, Davis.

After some study, the PA committee issued its report, with three main findings. First, the two principal evaluators of psi research for the NRC Committee, psychologists Ray Hyman and James Alcock, both had long histories of skeptical publications accusing parapsychology of not even being a legitimate science. In contrast, there were no active psi researchers on the Committee. This violated the NRC's policy of assigning members to committees "with regard to appropriate balance."

Second, the NRC's report avoided mentioning studies favorable to psi research but quoted liberally from two background papers that supported the Committee's position.

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As if this were not enough, the Chairman of the NRC Committee phoned one of the authors of a third commissioned background paper, Robert Rosenthal from Harvard University, and asked him to withdraw his conclusions because they were favorable to parapsychology.

And third, the NRC report was self-contradictory. The Committee widely advertised its conclusion that there was no evidence for psi phenomena, yet the report itself admits that the Committee members could offer no plausible alternatives to the research it surveyed. The Committee failed to mention in the press conference that they recommended that the Army continue to monitor psi research in the United States and the former Soviet Union. They even recommended that the Army propose specific experiments to be conducted. The contrast between the NRC's advertised position and their actual position suggests that there were conflicts between reporting a fair evaluation of the data and what was politically expedient to report.

This was clearly revealed later when a newspaper reporter for *The Chronicle of Higher Education* asked the NRC Committee Chairman, John Swets, why he asked Rosenthal to withdraw his favorable conclusions. Swets replied: "We thought the quality of our analysis was better, and we didn't see much point in putting out mixed signals". Swets explained, "I didn't feel we were obliged to represent every point of view." This meant the NRC Committee in effect had created a "filedrawer" of ignored *positive* studies that they didn't wish to talk about. Apparently, the only acceptable views about psi for this committee were negative ones. Given the true nature of the evidence, this was bound to lead to some major contradictions.

And it did. The NRC Committee commissioned ten background papers by experts in a variety of fields. One of these papers, by Dale Griffin of Stanford University, explained how difficult it is to objectively evaluate evidence when one is already publicly committed to a particular belief. According to Griffin,

> Probably the most powerful force motivating our desire to protect our beliefs – from others' attacks, from our own questioning, and from the challenge of new evidence – is commitment .... This drive to avoid dissonance is especially strong when the belief has led to public commitment.

The Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP) is an organization well-known for its impassioned commitment against parapsychology. Ray Hyman was one of the original "Fellows" of CSICOP, and he was an active member of its Executive Council at the same time he was evaluating psi research for the NRC. So the source of many contradictions in the NRC report is clear: Hyman's publicly committed position as a psychic debunker. For example, at the NRC press conference, Hyman confirmed his public stance by announcing that the "poor quality of psi research was 'a surprise to us all – we believed the work would be of much higher quality than it turned out to be.' " Yet, in contrast to this public statement, the report itself actually says, "… the best research [in parapsychology] is of higher quality than many critics assume …."

Furthermore, in contrast to the NRC's public assertions about "poor quality research," and "no scientific justification," was the actual paper commissioned by the NRC to review psi experiments and other studies of performance-enhancing techniques. Authored by psychologists Monica Harris and Robert Rosenthal of Harvard University, the report concluded that,

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> The situation for the ganzfeld domain seems reasonably clear. We feel it would be implausible to entertain the null [hypothesis] given the combined [probability] from these 28 studies.... When the accuracy rate expected under the null [hypothesis] is 1/4, we estimate the obtained accuracy rate to be about 1/3.

In non-technical language, Harris and Rosenthal concluded that there was persuasive evidence for something very interesting going on in the ganzfeld experiments because they found an average hit rate of about 33% rather than the 25% expected by chance (as we discussed in Chapter 6). They also compared the quality of the ganzfeld experiments to experiments in four other, non-parapsychological research areas and concluded that "only the ganzfeld ESP studies regularly meet the basic requirements of sound experimental design."

Without belaboring the point, it is clear that abject prejudice exists in science as is does in all human endeavors. It was detected fairly easily in the case of the NRC Report by comparing the public pronouncements with what the report actually says. Sometimes it is not so easy to detect, because we usually do not stop to think that some skeptical criticisms are simply invalid.

## *Valid and invalid criticisms*

It is commonly thought that all criticisms in science are equal. This is not so. In fact, criticisms must have two properties to be valid. First, it must be *controlled*, meaning that the criticism cannot also apply to well-accepted scientific disciplines. In other words, we cannot use a double standard and apply one set of criticisms to fledgling topics and an entirely different set for established disciplines. If we did, nothing new could ever be accepted as legitimate. Second, a criticism must be *testable*, meaning that a critic has to specify the conditions under which the research could avoid the criticism, otherwise the objection is just a philosophical argument that falls outside the realm of science.

A thorough examination of the usual skeptical allegations about laboratory psi research reveals that only one is both controlled and testable: Have independent, successful replications been achieved? We now know that the answer is yes, so the criticisms should stop here. However, skepticism dies hard, and surprisingly few scientists realize that all criticisms are not created equal. So let's briefly review why some other common criticisms are invalid.

One popular assertion is that "Many phenomena that were once thought to be paranormal have been shown to have normal explanations." This is invalid because it's uncontrolled – the same criticism can be applied to many discoveries in other well-accepted scientific disciplines. If we were forced to reject psi just because we originally thought it was one thing but later we discovered that it was something else, this does not invalidate the *existence* of the effect, it merely redefines how we think about it.

Another criticism is that "Some paranormal effects have been shown to be the outcome of fraud or error," so we can safely ignore any successful results. This is invalid because if we were forced to dismiss scientific claims because there have been a few cases of experimenter fraud, then we would have to throw out virtually every other realm of science as well because fraud exists in all human endeavors.

Another favorite complaint is, "There are no theories of psi." This is invalid because for the term "psi" we could substitute the words "consciousness," "gravity,"

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"anesthesia," or dozens of other well-accepted concepts or phenomena. The fact that scientists do not understand some phenomena very well has not reduced scientific interest in them. Another charge is that "Psi cannot be switched on and off, and the variables that effect it cannot be controlled." This is invalid because there are all kinds of effects we have no direct control over, yet this does not disqualify them as legitimate objects of study, including most of the really interesting aspects of human behavior. In any case, psi is somewhat controllable in the sense that we can cause predictable effects to appear by asking people to do something in their mind. If they do not pay attention to the task, which is how control periods are conducted in some psi experiments, then no unusual effects appear.

Some skeptics have protested that "It's impossible to distinguish between psi and chance effects even in a successful experiment without the use of statistics." This criticism is invalid because the same can be said for almost all experiments in biology, psychology, sociology and biomedicine. Obviously, if there were some way of cleanly separating a signal from random noise before the experiment was conducted, then statistics would not have been used in the first place.

This litany of common criticisms can go on for many pages, but the point is clear. The vast majority of complaints about psi research are invalid because they equally pertain to conventional, well-accepted disciplines, or the complaints are untestable. Another reason that psi has been ignored by mainstream science, and why decades of scientifically sound experiments have been considered controversial, is because the portrayal of these studies in the media and in college textbooks has been heavily distorted.

## *Distortions*

### *Popular media*

In the July 8, 1996 issue of *Newsweek*, an article appeared entitled, "Science on the fringe. Is there anything to it? Evidence, please." Written by reporter Sharon Begley, this article is a good example of how widely disseminated information about psi experiments is sometimes seriously misleading. Begley's story began with the following,

> Say this about assertions that aliens have been, are or will soon be landing on Earth: at least a scenario like that of [the movie] "Independence Day" would not violate any laws of nature. In contrast, claims in other fringe realms, such as telepathy and psychokinesis, are credible only if you ignore a couple or three centuries of established science.

This is a commonplace assertion, but it is worth noting that critics never specify which "laws of nature" would be violated by psi, because the assertion is groundless – the laws of nature are not fixed absolutes. They are basically fairly stable ideas that are always subject to expansion and refinement based on evidence from new observations. For example, after the advent of relativity and quantum mechanics, some of our new physical "laws" forced the classical concepts developed in the 17$^{th}$ century to radically expand. Have we magically reached the end of the trail at the turn of the 21$^{st}$ century, and the present "laws" of science can now be permanently chiseled into stone? I don't think so.

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Begley apparently believes that aliens landing on Earth is more credible than psi. Does this make sense? In the case of aliens, the evidence is based exclusively on eyewitness stories and ambiguous photographs. Some of the stories and photos are engaging, but taking the leap of faith from this form of evidence to the actual presence of extraterrestrial aliens is unwarranted. There are dozens of alternative possibilities, none of which involve either extraterrestrial or Earth-bound aliens. By comparison, the evidence for psi is based upon a century of repeated scientific evidence. The seduction of the status quo is so strong, however, that a skeptical journalist would rather believe stories about little green men over controlled observations in the laboratory.

Later in the *Newsweek* article, the ganzfeld telepathy experiments were described. After a good explanation of the basic procedure, and mentioning that the observed hit rate for Honorton's autoganzfeld studies was about 35% instead of the chance expected 25%, Begley asked,

> Was it telepathy? Some experiments failed to take into account that people hearing white noise think about water more often than sex (or so they say); if beaches appear more often as a target than a couple in bed, a high hit rate would reflect this tendency, not telepathy. Also, receivers tend to choose the first or last image shown them; unless the experimenter makes sure that the target does not appear in the first or last place more often as decoys do, the hit rate would be misleadingly high.

While these criticisms are valid because they are testable, a skeptical reader might legitimately wonder, did targets with water content *actually* appear more often than targets with sexual content? (No.) Did targets *actually* appear more often in the first or last place? (No.) Were researchers so naïve as to not think of these possibilities? (No.) The implication was that the criticisms had been overlooked, but they weren't.

Begley continued,

> Skeptic Ray Hyman of the University of Oregon found that, in the Edinburgh runs, video targets that were used just once or twice had hit rates of about chance, while those appearing three or more times yielded a "telepathic" 36 percent. How come? A video clip run through a player several times may look different from one never played for the sender; a canny receiver would choose a tape that looked "used" over one that didn't.

In fact, as we saw in Chapter 6, the ganzfeld system at the University of Edinburgh used *two separate video players* to address this criticism, and successful effects virtually identical to what Honorton had reported earlier were still observed. Again, the implication of the criticism is that the ganzfeld results are explainable by this potential flaw, and it is not true. Next, Begley repeated another common criticism:

> Of the 28 studies Honorton analyzed in 1985, nine came from a lab where one time believer Susan Blackmore of the University of the West of England had scrutinized the experiments. The results are "clearly marred," she says, by "accidental errors" in which the experimenter might have known the target and prompted the receiver to choose it.

What Begley fails to report is that after Blackmore's allegedly "marred" studies were eliminated from the meta-analysis, the overall hit rate in the remaining studies remained *exactly the same as before*. In other words, Blackmore's criticism was tested and it did not explain away the ganzfeld results. It is also important to note that Blackmore never actually demonstrated that the flaw existed.

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Begley continued by describing the mind-matter interaction experiments using random number generators conducted Robert Jahn's PEAR Lab. Then she added,

> As for Jahn's results, there are a couple of puzzles. First, one of the subjects, rumored to be on Jahn's staff, is responsible for half of the successes even though he was in just 15 percent of the trials. Second, some peculiarities in how the machine behaved suggest that the experimenters might have ignored negative data. Jahn says this is virtually impossible. But other labs, using Jahn's machine, have not obtained his results.

As discussed in Chapter 9, analysis of the PEAR Laboratory data clearly showed that no one person's results were wildly different from anyone else's. Nor was any one person responsible for the overall results of the experiment. Again, the criticism was tested and found to be groundless. The comment about "peculiarities" is pure rhetoric, because without mentioning the nature of the alleged problems, it is an untestable criticism. The assertions that other labs have not obtained Jahn's results is a commonly repeated skeptical mantra, but it is also false, as we've seen. Jahn's results are entirely consistent with a larger body of more than 70 other investigators, and overall there is no question that replication has been achieved. If anything, Jahn's results are somewhat smaller in magnitude than those reported by others.

It is rather easy to pick apart Begley's article, because it is difficult to fairly portray controversial topics in the few paragraphs available in weekly news magazines. Some distortions are to be expected. But one would hope that book-length discussions by academic psychologists would be more thorough and neutral. Unfortunately, this is not always the case.

*Books by academic psychologists*

In 1985, psychologist Irvin Child, Chairman of the Psychology Department at Yale University, reviewed the Maimonides dream telepathy experiments for *American Psychologist,* a prominent journal published by the American Psychological Association. Child was especially interested in comparing what actually took place in those experiments with how they were later described by skeptical psychologists.

The first book he considered was a 1980 edition of British psychologist Mark Hansel's critical book on psi research. One page in Hansel's book was devoted to description of the method and results of the dream telepathy experiments. Hansel's strategy was to suggest possible flaws that *might* have accounted for the experimental results, without demonstrating that the flaws actually existed, and then assume that such flaws *must* have occurred because they were more believable than genuine psi. Child found that Hansel's descriptions of the methods used in the Maimonides studies were crafted in such a way as to lead unwitting readers to assume that fraud was a *likely* explanation, whereas in fact it was extremely unlikely given the controls employed by the researchers. Even other skeptics, such as Ray Hyman, agreed with Child. In a 1984 broadcast of the popular science program, *Nova*, Hyman said,

> Hansel has a tendency to believe that if any experiment can be shown to be susceptible to fraud, then that immediately means it no longer can be used for evidence for psi. I do sympathize with the parapsychologists who rebut this by saying, well, that can be true of any experiment in the world, because there's always some way you can think of how fraud could have gotten into the experiment. You cannot make a perfectly 100 percent fraud-proof experiment. This would apply to all science.

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Child next reviewed a 1981 book by York University psychologist James Alcock. Alcock's basic theme in this and later publications is his belief that parapsychologists are driven by religious urges, a secular "search for the soul." With this theme driving much of his writings, Alcock considered any psi experiments with positive outcomes to be flawed due to religious motivations. One of Alcock's main criticisms of the Maimonides experiments was the assertion that they did not include a control group. For example, Alcock wrote that "a control group, for which no sender or no target was used, would appear essential." Child responded,

> Alcock … did not seem to recognize that the design of the Maimonides experiments was based on controls exactly parallel to those used by innumerable psychologists in other research with similar logical structure ….

The next book was by psychologists Leonard Zusne and Warren H. Jones. Zusne and Jones wrote that the Maimonides researchers discovered that dreamers were not influenced telepathically unless they knew *in advance* that an attempt would be made to influence them. This led, they wrote, to the receiver's being "primed prior to going to sleep" by the experimenters "… preparing the receiver through experiences that were related to the content of the picture to be telepathically transmitted during the night." Child pointed out that it would be immediately obvious to anyone that such an experiment, if it were actually performed, would be catastrophically flawed. Obviously if you prime someone *before* they dream with target-relevant information, the entire experiment is worthless. But given that the description is so described, readers of Zusne and Jones' book unfamiliar with the actual descriptions of the dream telepathy experiments could reach no other conclusion than the researchers were completely incompetent. Child responded,

> The simple fact, which anyone can easily verify, is that the account Zusne and Jones gave of the experiment is grossly inaccurate. What Zusne and Jones have done is to describe … some of the stimuli provided to the dreamer *the next morning*, after his dreams had been recorded and his night's sleep was over.

As he discovered one flawed description after another, Child finally concluded that the books he reviewed contained "nearly incredible falsification of the facts about the experiments." But this was just the tip of an iceberg. It turns out that many introductory psychology textbooks have presented similarly flawed descriptions of psi experiments. These books are used in college courses, and for most students all they will ever know about any topic in detail is contained in these texts. If basic textbooks state or imply that psi researchers are stupid or naïve, is it any wonder that future scientists and professors mistakenly assume that the evidence for psi is worthless?

### *Introductory psychology textbooks*

> There is no better soporific and sedative than skepticism. – **Friedrich Nietzsche**

In 1991, psychologist Miguel Roig and his colleagues published a detailed analysis of the treatment of parapsychology in introductory psychology textbooks. They surveyed 64 textbooks published between 1980 and 1989, then looked for words like "ESP" and "psychic" in the index and scanned through the chapters on research methods, sensation and perception, and states of consciousness. Of the 64 texts surveyed, 43 included some mention of parapsychology. This is interesting in its own right, because it means that fully one third of introductory psychology textbooks did not even *mention* a topic that all college students find fascinating.

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A mere 8 of the 43 texts mentioned that since the 1970s parapsychologists have used the term *psi* as a neutral label for psychic phenomena. Twenty-one books mentioned the ESP card tests conducted by J. B. Rhine and his colleagues in the 1930s to 1960s. A few books incorrectly claimed that ESP card tests are still representative of contemporary research, whereas anyone even casually familiar with recent journal articles and books knows that such tests have hardly been used for decades. The remaining topics covered included discussions of spontaneous psychic experiences, which were uniformly explained away in terms of misunderstood sensory processes, coincidence, and self-deception. Other topics included brief reviews of a few selected experiments and alleged problems of methodology.

Most of the texts ended with a wait-and-see stance towards psychic phenomena, with 35 of the 43 books mentioning lack of replication as the most serious problem. The second and third most serious problems were described as poor experimental designs and fraud. Surprisingly, only a few texts mentioned the development of experiments since the 1970s. Nine books mentioned RNG experiments, three mentioned the Maimonides dream telepathy studies, and only one mentioned the ganzfeld telepathy studies. Roig and his colleagues concluded their survey as follows:

> Much of the coverage reflects a lack of familiarity with the field of parapsychology, … there is an unacceptable reliance on secondary sources, most of which were written by nonparapsychologists who are critical of the field and who, at least in some cases, have been found to distort and sometimes fail to present promising lines of research. We conclude that most textbooks that cover the topic present an outdated and often grossly misleading view of parapsychology.[4]

This is unfortunate but not surprising. College textbooks reflect the status quo, and the status quo has not yet caught up with the latest developments in psi research. but what sustains the status quo? What has driven some academic psychologists to see psi research in such distorted ways?

## Motivations

Skeptics are fond of claiming that believers in psi are afflicted with some sort of abnormal mental condition that prohibits them from seeing the truth. Skeptical psychologist James Alcock has suggested that one motivation for this "affliction" is that psi researchers are really motivated by hidden desires to justify some form of spiritual belief. This belief, according to Alcock, has biased psi research to such an extent that he believes there *must* be something wrong with it.

But Alcock's belief about hidden spiritual motivations have produced an equally strong counter-bias. This is clear in a lengthy background report that Alcock prepared for the NRC Committee mentioned earlier. For 40 pages, Alcock's report rips apart the mind-matter interaction studies reported by physicist Helmut Schmidt and Princeton University engineer Robert Jahn, then it concludes that,

> *There is certainly a mystery here*, but based on the weaknesses in procedure mentioned above, there seems to be no good reason at this time to conclude that the mystery is paranormal in nature.

In dismissing the mystery, Alcock missed the forest for the trees. It is true that any one or two experiments can be explained away as being due to chance or poor design, but the entire body of evidence, as discussed in Chapter 9, cannot be dismissed so easily.

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And in contrast to Alcock's belief about what motivates psi researchers, parapsychology was formally recognized by the mainstream as a legitimate scientific discipline in 1969 when the Parapsychological Association, an international scientific society, was elected an affiliate of the American Association for the Advancement of Science (AAAS). Religious sects, New Age societies, and skeptical advocacy groups are not affiliates of the AAAS.

We may now turn the tables on Alcock and ask what motivates skeptics to spend so much time trying to dismiss the results of another scientific discipline. For Alcock, it seems that his feelings towards organized religion and his fears about genuine psi are motivations. For example, Alcock has written,

> In the name of religion human beings have committed genocide, toppled thrones, built gargantuan shrines, practiced ritual murder, forced others to conform to their way of life, eschewed the pleasures of the flesh, flagellated themselves, or given away all their possessions and become martyrs.

And,

> There would, of course, be no privacy, since by extrasensory perception one could see even into people's minds. Dictators would no longer have to trust the words of their followers; they could "know" their feelings…. What would happen when two adversaries tried to harm the other via PK?

Given Alcock's feelings about religion and psi, he should be suspicious about the motivations of the prominent physicist, Stephen Hawking. In Hawkings widely-acclaimed book, *A Brief History of Time*, the final paragraph reads,

> … if we do discover a complete theory, it should in time be understandable in broad principle by everyone.... Then we shall all, philosophers, scientists, and just ordinary people, be able to take part in the discussion of the question of why it is that we and the universe exist. If we find the answer to that, it would be the ultimate triumph of human reason-for then we would know the mind of God.

In other writings, Hawkings has declared his skepticism about psi, so apparently his religious feelings do not interfere with his skepticism. On the other end of the spectrum, what would Alcock say about the motivations of his fellow super-skeptic, Martin Gardner, who wrote:

> As for empirical tests of the power of God to answer prayer, I am among those theists who, in the spirit of Jesus' remark that only the faithless look for signs, consider such tests both futile and blasphemous. …. Let us not tempt God.

In other words, religious faith can motivate scientists both towards or against psi research. Ultimately, there are as many reasons for why people may be for or against something as there are people. Then, from the skeptical perspective, what else might account for the widespread belief in psi? Is society going crazy?

## Is society crazy?

If there is no scientific evidence that psi exists, then strong public belief in such topics must be a sign of mass delusion. This is a common but rather peculiar skeptical position, as we could draw a parallel with, say, belief in God. There is no scientific evidence that God exists, yet there is strong public belief in God. For some reason, skeptics do not openly point to mental delusion as a reason for the widespread, "unscientific" belief in God.

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But is there any evidence that society is delusional? Can paranormal experiences be attributed only to known psychological processes? This question was examined by Catholic priest Andrew Greeley, a sociologist at the University of Arizona. Greeley was interested in the results of surveys consistently indicating that the majority of the population believed in ESP. In a 1978 survey asking American adults whether they had ever experienced psychic phenomena such as ESP, 58% said yes; a 1979 survey of college and university professors showed that about two-thirds accepted ESP; a 1982 survey of elite scientists showed that more than 25% believed in ESP; and a 1987 survey showed that 67% of American adults reported psychic experiences. The same surveys showed, according to Greeley, that

> People who've tasted the paranormal, whether they accept it intellectually or not, are anything but religious nuts or psychiatric cases. They are, for the most part, ordinary Americans, somewhat above the norm in education and intelligence and somewhat less than average in religious involvement.

Because Greeley was surprised about this outcome, he explored it more closely by testing people who had reported profound mystical experiences such as being "bathed in light." He used the "Affect Balance Scale" of psychological well-being, a standard psychological test used to measure healthy personality. People reporting mystical experiences achieved top scores. Greeley reported that "The University of Chicago psychologist who developed the scale said no other factor has ever been found to correlate so highly" as reports of mystical experience.

Greeley then investigated whether prior beliefs in the paranormal or the mystical *caused* the experiences, or whether the experiences themselves caused the belief. He found that many widows who reported contact by their dead husbands had not previously believed in life after death. This suggests that they were not unconsciously creating hallucinations to confirm their prior beliefs. He also studied whether people who had lost a child or parent reported contact with the dead more often than people whose siblings had died. The assumption was that people who had lost family members closer to them might have had a stronger need to communicate, and hence a greater frequency of reported contacts.

According to Greeley, "We were surprised: People who'd lost a child or parent were less likely to report contact with the dead than those who'd lost siblings." Such findings are incompatible with the skeptics' hypothesis that reports of paranormal experiences are due solely to hallucination, self-delusion, wish-fulfillment, or other forms of mental aberrations.

## Summary

Most of the commonly repeated skeptical reactions to psi research are extreme views, driven by the belief that psi is impossible. The effect of repeatedly seeing skeptical dismissals of the research, in college textbooks and in prominent scientific journals, has diminished mainstream academic interest in this topic. However, informed opinions, even among skeptics, shows that virtually all of the past skeptical arguments against psi have dissolved in the face of overwhelming positive evidence, or they are based on incredibly distorted versions of the actual research.