What Can the Paranormal Teach Us About Consciousness?

Parapsychologists seem to assume that psychic phenomena—if they exist—would prove the "power of consciousness." Yet this may be no more than trying to use one mystery to solve another. Susan Blackmore reviews some of the evidence for psi and asks just what it does tell us about consciousness.

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Consciousness is a hot topic. Relegated to the fringes of science for most of the twentieth century, the question of consciousness crept back to legitimacy only with the collapse of behaviorism in the 1960s and 1970s, and only recently became an acceptable term for psychologists to use. Now many neuroscientists talk enthusiastically about the nature of consciousness, there are societies and regular conferences on the topic, and some say that consciousness is the greatest challenge for twenty-first century science. Although confusion abounds, there is at least some agreement that at the heart of the problem lies the question of subjectivity—or what it's like for *me*. As philosopher Thomas Nagel (1974) put it when he asked his famous

question "What is it like to be a bat?"—if there is something it is like *for the bat* then we can say that the bat is conscious. This is what we mean by consciousness—consciousness is private and subjective and this is why it is so difficult to understand.

Meanwhile parapsychologists not only claim to have found evidence for psi (paranormal phenomena), but seem to assume that paranormal phenomena have obvious and important implications for consciousness. For example, Dean Radin's (1997) comprehensive popular review of parapsychology is called "The Conscious Universe: The Scientific Truth of Psychic Phenomena" and there are numerous papers on extrasensory perception (ESP) and psychokinesis (PK) that use such phrases as "consciousness interactions" (Braud and Schlitz 1991) or "the anomalous effect of conscious intention" (Pallikari-Viras 1997) or "consciousness related anomalies" (Radin and Nelson 1989). But why are these two contentious topics so often thrown together? Are ESP and PK really the effect of consciousness? Would paranormal phenomena, if they exist, force us to a new understanding of the nature of consciousness? If so they would be most important. I therefore wish to explore this assumed relationship between consciousness and psi.

I would love to be able to provide a fair and unbiased assessment of the evidence for psi and decide whether it exists or not. But this is simply impossible. Many people have tried and failed. In some of the best debates in parapsychology the proponents and critics have ended up simply agreeing to differ (e.g., Hyman and Honorton 1986; Hyman 1995; Utts 1995) or failing to reach any agreement (Milton and Wiseman 1999). The only truly scientific position seems to be to remain on the fence, and yet to do so makes progress difficult, if not impossible.

For this reason, if for no other, you have to jump to one side or other of the fence—and preferably be prepared to jump back again if future evidence proves you wrong. I have jumped onto the side of concluding that psi does not exist. My reasons derive from nearly thirty years of working in, and observing, the field of parapsychology (Blackmore 1996). During that time various experimental paradigms have been claimed as providing a repeatable demonstration of psi and several have been shown to be false. For example, in the 1950s the London University mathematician Samuel Soal claimed convincing evidence of telepathy with his special subject Basil Shackleton, with odds estimated at 10^{35} against the effect being due to chance (Soal and Bateman 1954). These results convinced a whole generation of researchers and it took more than thirty years to show that Soal had, in fact, cheated (Markwick 1978). Promising animal precognition experiments were blighted by the discovery of fraud (Rhine 1974) and the early remote viewing experiments were found to be susceptible to subtle cues which could have produced the positive results (Marks and Kammann 1980). As Hyman (1995, 349) puts it, "Historically, each new paradigm in parapsychology has appeared to its designers and contemporary critics as relatively flawless. Only subsequently did previously unrecognized drawbacks come to light."

The Ganzfeld Experiments

The most successful paradigm during that time, and the one I shall concentrate on, has undoubtedly been the ganzfeld. Subjects in a ganzfeld experiment lie comfortably, listening

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to white noise or seashore sounds through headphones, and wear halved ping-pong balls over their eyes, seeing nothing but a uniform white or pink field (the ganzfeld). By reducing patterned sensory input, this procedure is thought to induce a psi-conducive state of consciousness. A sender in a distant room, meanwhile, views a picture or video clip. After half an hour or so the subject is shown four such pictures or videos and is asked to choose which was the target. It is claimed that they can do this far better than would be expected by chance.

The first ganzfeld experiment was published in 1974 (Honorton and Harper 1974). Other researchers tried to replicate the findings, and there followed many years of argument and of improving techniques, culminating in the 1985 "Great Ganzfeld Debate" between Honorton (one of the originators of the method) and Hyman (a well-known critic). By this time several other researchers claimed positive results, often with quite large effect sizes. Both Hyman (1985) and Honorton (1985) carried out meta-analyses but came to opposite conclusions. Hyman argued that the results could all be due to methodological errors and multiple analyses, while Honorton claimed that the effect size did not depend on the number of flaws in the experiments and that the results were consistent, did not depend on any one experimenter, and revealed certain regular features of ESP. In a "joint communiqué" (Hyman and Honorton 1986) they detailed their points of agreement and disagreement and made recommendations for the conduct of future ganzfeld experiments.

The ganzfeld achieved scientific respectability in 1994 when Bem and Honorton published a report in the prestigious journal *Psychological Bulletin*, bringing the research to the notice of a far wider audience. They republished Honorton's earlier meta-analysis and reported impressive new results with a fully automated ganzfeld procedure—the Princeton autoganzfeld—claiming finally to have demonstrated a repeatable experiment.

Not long afterwards Wiseman, Smith, and Kornbrot (1996) suggested that acoustic leakage might have been possible in the original autoganzfeld. This hypothesis was difficult to assess after the fact because by then the laboratory at Princeton had been dismantled. However, Bierman (1999) carried out secondary analyses which suggested that sensory leakage could not account for the results. Since then further successes have been reported from a new ganzfeld laboratory in Gothenburg, Sweden (Parker 2000), and at Edinburgh, where the security measures are very tight indeed (Dalton, Morris, Delanoy, Radin, Taylor, and Wiseman 1996). The debate continues.

How can one draw reliable and impartial conclusions in such circumstances? I do not believe one can. My own conclusion is based not just on reading these published papers but also on my personal experience over many years. I have carried out numerous experiments of many kinds and never found any convincing evidence for psi (Blackmore 1996). I tried my first ganzfeld experiment in 1978, when the procedure was new. Failing to get results myself I went to visit Sargent's laboratory in Cambridge where some of the best ganzfeld results were then being obtained. Note that in Honorton's database nine of the twenty-eight experiments came from Sargent's lab. What I found there had a profound effect on my confidence in the whole field and in published claims of successful experiments.

Questions About the Ganzfeld Research

These experiments, which looked so beautifully designed in print, were in fact open to fraud or error in several ways, and indeed I detected several errors and failures to follow the protocol while I was there. I concluded that the published papers gave an unfair impression of the experiments and that the results could not be relied upon as evidence for psi. Eventually the experimenters and I all published our different views of the affair (Blackmore 1987; Harley and Matthews 1987; Sargent 1987). The main experimenter left the field altogether.

I would not refer to this depressing incident again but for one fact. The Cambridge data are all there in the Bem and Honorton review but unacknowledged. Out of twenty-eight studies included, nine came from the Cambridge lab, more than any other single laboratory, and they had the second highest effect size after Honorton's own studies. Bem and Honorton do point out that one of the laboratories contributed nine of the studies but they do not say which one. Not a word of doubt is expressed, no references to my investigation are given, and no casual reader could guess there was such controversy over a third of the studies in the database.

Of course the new autoganzfeld results appear even better. Perhaps errors from the past do not matter if there really is a repeatable experiment. The problem is that my personal experience conflicts with the successes I read about in the literature and I cannot ignore either side. I cannot ignore other people's work because science is a collective enterprise and publication is the main way of sharing our findings. On the other hand I cannot ignore my own findings—there would be no point in doing science, or investigating other people's work, if I did. The only honest reaction to the claims of psi in the ganzfeld is for me to say "I don't know but I doubt it."

Similar problems occur in all areas of parapsychology. The CIA recently released details of more than twenty years of research into remote viewing and a new debate erupted over these results (Hyman 1995; Utts 1995). (See Ray Hyman, "Evaluation of the Military's Twenty-Year Program in Psychic Spying" and "The Evidence for Psychic Functioning: Claims vs. Reality," both in SKEPTICAL INQUIRER March/April 1996.) Whenever strong claims are made critics from both inside and outside of parapsychology get to work—as they should—but rarely is a final answer forthcoming.

These are some of the reasons why I cannot give a definitive and unbiased answer to my question "Are there any paranormal phenomena?" I can only give a personal and biased answer—that is, "probably not."

But what if I am wrong and psi does really exist? What would this tell us about consciousness?

A common view seems to be something like this: If ESP

exists it proves that mental phenomena are independent of space and time, and that information can get "directly into consciousness" without the need for sensory transduction or perceptual processing. If PK (psychokinesis) exists it proves that mind can reach out beyond the brain to affect things *directly* at a distance, i.e., that consciousness has a power of its own.

I suspect that it is a desire for this "power of consciousness" that fuels much enthusiasm for the paranormal. Parapsychologists have often been accused of wanting to prove the existence of the soul, and convincingly denied it (Alcock 1987). I suggest instead that parapsychologists want to prove the power of consciousness. In philosopher Dan Dennett's (1995) terms they are looking for "skyhooks" rather than "cranes." They want to find that consciousness can do things all by itself, without dependence on a complicated, physical, and highly evolved brain.

I have two reasons for doubting that they will succeed. First, parapsychologists must demonstrate that psi has something to do with consciousness and they have not yet done this. Second, there are theoretical reasons why I believe the attempt is doomed.

The Missing Link Between Psi and Consciousness

To make their case that psi actually involves consciousness, experiments rather different from those commonly done will be needed. Let's consider the ganzfeld again. Do the results show that consciousness, in the sense of subjectivity or subjective experience, is involved in any way?

I would say no. There are several ways in which consciousness might, arguably, be involved in the ganzfeld, but there appears to be no direct evidence that it is. For example, are subjects conscious of their own success? Even in a very successful experiment the hits are mixed with many misses and the subjects themselves cannot say which is which (if they could the successful trials could be separated out and even better results obtained). In other words, the subject is unaware of the ESP even when it is occurring. Indeed in other contexts there have been claims that psi occurs unconsciously and can

Giving Up the Ghosts: End of a Personal Quest

Since writing "Why Psi Tells Us Nothing About Consciousness," Susan Blackmore has "given up the ghosts" altogether. This personal note tells why. She published this in slightly shorter form in New Scientist, *November 4, 2000, and wanted to share it with* Skeptical Inquirer*'s readers.*

—Editor

At last. I've done it. I've thrown in the towel, kicked the habit, and gone on the (psychic) wagon. After thirty years I have escaped from a fearsome addiction.

Come to think of it I'm not sure I've gone cold turkey yet. Only last month I was at my last psychical research conference. Only days ago did I empty out the last of those meticulously organized filing cabinets, fighting a little voice that warned: "Don't do it—you might want to read that again" as a great wave of relief swept it away with the thought "You've given up!" Paper after paper on ESP, psychokinesis, psychic pets, aromatherapy, and haunted houses hit the recycling sack. If the cold turkey does strike, the dustbin men will have taken away my fix.

Actually I feel slightly sad. Thirty years ago I had the dramatic out-of-body experience that convinced me of the reality of psychic phenomena—and launched me on a crusade to show all those closed-minded scientists that consciousness could reach beyond the body and death was not the end. Just a few years of careful experiments changed all that. I found no psychic phenomena—only wishful thinking, self-deception, experimental error, and even an occasional fraud. I became a skeptic.

So why didn't I just give up then? There are lots of bad reasons. Admitting you are wrong is always hard—even though it's a skill that every scientist has to learn (or are some scientists always right?). But it does get easier with practice and I no longer fear having to change my mind. 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 enjoy my hard-won knowledge. Yes, I have read Michael Faraday's 1853 report on table tipping, and the first 1930s studies in parapsychology, and the latest arguments over meta-analysis of computer-controlled ESP experiments, not to mention the infamous Scole report (*New Scientist*, January 22, 2000). Should I feel obliged to keep using this knowledge if I can? No. Enough is enough. None of it ever gets anywhere. That's good enough reason for leaving.

But perhaps the real reason is that I am just too tired—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 true then whole swatches of science would have to be rewritten.

Another psychic claimant turns up. I must devise more experiments, take his claims seriously. He fails—again. I see a picture of Cherie Blair wearing her "bio-electric shield." It matters that people pay high prices for fake gadgets. I run the tests. The shields don't work. No one wants to know, for negative results aren't news. A man explains to me how alien abductors implanted something in the roof of his mouth. Tests show it's just a filling—but it might have been. . . .

No, I don't have to think that way any longer. And when the psychics and clairvoyants and New Agers shout at me (as they do), "The trouble with all you scientists is you don't have an open mind," I won't be upset. I won't argue. I won't rush out and do yet more experiments just in case. I'll smile sweetly and say, "I don't do that anymore."

—Susan Blackmore

be detected only by physiological monitoring, such as in remote staring experiments (Braud, Shafer, and Andrews 1993) or by using sophisticated brain recording techniques (e.g., Don, McDonough, and Warren 1998).

The ganzfeld does involve a kind of mild altered state of consciousness. Indeed Honorton first used the technique as a way of deliberately inducing a "psi conducive state." However, it has never been shown that this is a necessary concomitant of ESP in the ganzfeld. Experiments to do this might, for example, compare the scores of subjects who reported entering a deep altered state with those who did not. Or they might vary the ganzfeld conditions to be more or less effective at inducing altered states and compare the results. These kinds of experiments have not been done. In the absence of appropriate control conditions we have no idea what it is about the ganzfeld that is the source of its apparent success. It might be consciousness or the state of consciousness; it might be the time spent in the session, the personality of the experimenter, the color of the light shining on the subject's eyes, or any of a huge number of untested variables. There is simply no evidence that consciousness is involved in any way.

Another example is recent experiments on the remote detection of staring (e.g., Braud, Shafer, and Andrews 1993). It has long been claimed that people can tell when someone else is looking at them, even from behind. Ingenious experiments now use video cameras and isolated subjects to test this claim. Results suggest that the staring and non-staring periods can be distinguished by physiological responses in the person being stared at. In other words, they are able to detect the staring—but not consciously. Oddly enough, these results are often described in terms of "consciousness interactions" even though the detection is explicitly non-conscious.

In related experiments subjects are asked to influence biological systems such as another person's blood pressure or muscular activity, the spatial orientation of fish, movements of small mammals, or the rate of haemolysis of red blood cells. Influence and non-influence periods are randomly allocated and effects detected from the comparison. Braud and Schlitz (1991) call these "consciousness interactions with remote biological systems." Yet again, I am not convinced that these data need have anything to do with consciousness. If the data are genuine then I agree with the authors that they show "a profound interconnectedness between the influencers and the influencees in these experiments" (p. 41). But what could be responsible? Any number of things may change in the influencer—such as muscle tone, cortical arousal, expectation, the firing of specific neurons, the activity in different neural nets, and so on. If there is such a thing as PK it might be related to any of these variables. For example some unknown force might emanate when a particular cortical firing pattern occurs and this be more likely when the influencer is trying to influence the system. Such an effect need have nothing to do with consciousness or subjectivity at all.

In PK experiments the claim that consciousness is involved is again made explicit, as in the title "The effects of consciousness on physical systems" (Radin and Nelson 1989). Yet, as far as I can see, there is no justification for this. In these experiments a subject typically sits in front of a computer screen and tries to influence the output of a random number generator (RNG), whose output is reflected in the display. Alternatively they might listen to randomly generated tones with the intention of making more of the tones high, or low, as requested, or they might try to affect the fall of randomly scattered balls or various other systems. The direction of aim is usually randomized and appropriate control trials are often run. It is claimed that, in extremely large numbers of trials, subjects are able to influence the output of the RNG. Is this an effect of consciousness on a physical system?

I don't see why. The experiments demonstrate a correlation between the output of the RNG and the direction of aim specified to the subject by the experimenter. This is certainly mysterious, but the leap from this correlation to a causal explanation involving "the effect of consciousness" is so far unjustified. The controls done show that the subject is necessary but in no way identify what it is about the subject's presence that creates the effect. It might be their unconscious intentions or expectations; it might be some change in behavior elicited by the instructions given; it might be some hitherto unknown energy given off when subjects are asked to aim high or aim low. It might be some mysterious resonance between the RNG and the subject's pineal gland.

As far as I know, no appropriate tests have been made to find out. For example, does the subject need to be conscious of the direction of aim at the time? Comments in the published papers suggest that some subjects actually do better when not thinking about the task, or when reading a magazine or being distracted in some other way, suggesting that conscious intent might even be counterproductive.

Perhaps this is not what is meant by consciousness here, but if not, then what *is* meant? Perhaps it is enough for the person to be conscious (i.e., awake), or perhaps the very presence of a person implies the presence of consciousness. In any case, to identify that the effect is actually due to consciousness, relevant experiments will have to be done. They might compare conditions in which subjects did or did not consciously know the target direction. Subjects might be asked on some trials to think consciously about the target and on others be distracted, or they might be put into different states of consciousness (or even unconsciousness) to see whether this affected the outcome. Such experiments might begin to substantiate the claim that consciousness is involved. Until then, it remains speculation.

Some parapsychologists have suggested to me that when they talk about consciousness affecting something they mean to include unconscious mental processes as well. Their claim would then be equivalent to saying that something (anything) about the person's mind or brain affects it. However, if the term *consciousness* is broadened so far beyond the subjective, then we leave behind the really interesting questions that consciousness raises and, indeed, the whole reason why so many psychologists and philosophers are interested in consciousness at all. If we stick to subjectivity then I see no reason at all why paranormal claims, whether true or false, necessarily help us understand consciousness.

Theoretical Problems

The second reason I doubt that the paranormal power of consciousness will ever be proven is more theoretical. As our understanding of conscious experience progresses, the desire to find the "power of consciousness" sets parapsychology ever more against the rest of science (which may, of course, be part of its appeal). The more we look into the workings of the brain the less it looks like a machine run by a conscious self and the more it seems capable of getting on without one (e.g., Churchland and Sejnowski 1992; Crick 1994). There is no place inside the brain where consciousness resides, where mental images are "viewed," or where instructions are "issued" (Dennett 1991). There is just massive parallel throughput with no obvious center.

Experiments such as those by Libet (1985) suggest that conscious experience takes some time to build up and is much too slow to be responsible for making things happen. For example, in sensory experiments he showed that about half a second of continuous activity in sensory cortex was required for conscious sensation, and in experiments on deliberate spontaneous action he showed that about the same delay occurred between the onset of the readiness potential in motor cortex and the timed decision to act—a long time in neuronal terms. Though these experiments are controversial (see the commentaries on Libet 1985; and Dennett 1991) they add to the growing impression that actions and decisions are made rapidly and only later does the brain weave a story about a self who is in charge and is conscious. In other words, consciousness comes after the action; it does not cause it.

This is just what some meditators and spiritual practitioners have been saying for millennia; that our ordinary view of ourselves, as conscious, active agents experiencing a real external world, is wrong. In other words we live in the illusion that we are a separate self. In mystical experiences this separate self dissolves and the world is experienced as one—actions happen but there is no separate actor who acts. Long practice at meditation or mindfulness can also dispel the illusion. Now science seems to be coming to the same conclusion—that the idea of a separate conscious self is false.

Parapsychology, meanwhile, is going quite the other way. It is trying to prove that consciousness really does have power; that our minds can reach out and "do" things, not only within our own bodies but beyond them as well. In this sense it is deeply dualist even while making reference to interconnectedness. Parapsychology is often perceived as being more "spiritual" than conventional science. I think it may be quite the other way around.

With the welcome upsurge of interest in consciousness, and the number of scientists and philosophers now interested in the field, I look forward to great progress being made out of our present confusion. I hope it will be possible to bring together the spiritual insights with the scientific ones—so that research can reveal what kind of illusion we live in, how it comes about, and perhaps even help us to see our way out of it. As far as this hope is concerned parapsychology seems to be going backwards—hanging onto the idea of consciousness as an agent separate from the rest of the world. This is why I doubt that evidence for psi, even if it is valid, will help us to understand consciousness.

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