
How Parapsychology Could Become a Science

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An important methodological argument is outlined in support of general theoretical challenges to the dominant materialist paradigm. The idea is that the empirical inadequacies of a dominant theory can be hidden from view by various factors, and will emerge from the shadows only when viewed from the perspective of a systematic conceptual alternative. The question then posed is whether parapsychology provides a conceptual alternative adequate to this task. The provisional conclusion drawn is that it does not. Some further consequences are drawn from this concerning the experimental side of the parapsychological tradition.

My title gives me away, but not entirely. Parapsychology, as currently practiced, does not seem to me to be a genuine science. Or more accurately, since these things are a matter of degree, parapsychology seems to me to display an exceedingly low grade of scientific activity, worthy of most of the skepticism and the indifference it engenders in the rest of the scientific community. On the other hand, I think it could become a respectable science. What I wish to explore is how it might do so.

I. An Argument for Tolerance

My initial approach to these issues is from the standpoint of a materialist. That is to say, I am profoundly moved by the extraordinary empirical success of the various physical sciences, from subatomic physics up through biochemistry, evolutionary biology, the neurosciences, astronomy, cosmology, and natural history. The systematic and interlocking success of these sciences requires us to take very seriously the hypothesis that all phenomena in the universe, without exception, arise from the intricate articulation of a relatively small variety of purely

physical elements acting in accordance with a relatively small variety of purely physical laws.

In particular, it seems overwhelmingly likely to me that all of the phenomena displayed in sentient creatures are likewise just a further instance and articulation of the properties of law-governed physical matter. We are evidently made of matter. We evolved, by a complex but purely physical process, from earlier and simpler organisms, also made of matter, whose lineage leads us back to a purely chemical primordial soup. And our sensory, cognitive, and motor activities, to the extent that we understand them, are just a further mix of chemical, electrical, and mechanical goings on. The appeal of this broadly grounded conceptual framework is one of the principal reasons why the vast majority of scientists find claims of "psychic" phenomena to be so implausible, for these claims are incompatible with the materialist's well-grounded conception of the universe and our place in it.

On the other hand, I am sensible that this standpoint may be mistaken. Its explanatory success to date, no matter how broadly based, does not guarantee its truth. Other frameworks, at other points in history, have enjoyed a similar dominion over the range of human experience, yet have proved in the end to be quite wrong. The organismic Aristotelian hegemony comes to mind here. In that case, it was the very comprehensiveness of the overall world-view that tended to blind us to the many failures that became apparent under close focus. Perhaps the modern materialist is similarly blinkered. And perhaps the research carried out under the banner of parapsychology is just the sort we need to set us free.

How likely this is, we shall discuss in due course. We shall have to weigh the systematic success of the physical sciences against the claims of the parapsychologists, who will insist that there are a variety of experimental results that cannot be explained in terms of existing physical science. I am going to avoid this empirical issue for a few more pages, however, since there is a purely *methodological* argument that can be raised in support of the rationality of pursuing parapsychological research, however strong might be the substantive evidential position enjoyed by materialism.

The argument derives from Paul Feyerabend (1963b), and has nothing essential to do with the virtues or vices of parapsychology. Feyerabend

points out that sometimes the only way to discover the truly significant empirical inadequacies in an old and deeply entrenched theory is to construct alternative theories with which to provide entirely *new* interpretations of the old and familiar experimental data. Any successful theory quite properly ignores or suppresses a good deal of faintly troublesome empirical evidence as irrelevant and inevitable "noise." No theory ever fits all of the experimental data perfectly, if for no other reason than that the experimental situations that test them always embody a horizon of subtle detail beyond which we have neither knowledge nor control. Over that horizon lie the inevitable elements that are too minor, too complex, and too inaccessible to be worth trying to unravel or control. Small discrepancies between the favored theory and the results of experiment can therefore often be ascribed to the noisy activity of factors just over the horizon of controllable detail.

There is no essential vice in this. The alternative is to try to control the position and character of every particle in the universe. Instead, we control as much as we think it is necessary and prudent to control, and let the rest go. And those experimental areas where we cannot hope to control the details we do believe to be relevant, we simply avoid as intractable and unrevealing. The favored theory may not illuminate them, but its current "failure" to do so is not regarded as any strike against it.

It remains possible, however, that the important empirical facts that reflect the falsehood of the favored and so far "successful" theory are to be found in precisely those experimental areas thought to be intractable, or are to be found just over the horizon of controlled detail in areas that are tractable. In such cases the favored theory enjoys a safety from refutation that it does not deserve. The refuting facts are there, but for complex reasons they are difficult or impossible to see, at least while we continue to interpret the situation in terms of the favored theory. For it is that same theory that helps us decide which details are relevant and which are irrelevant, and which situations are tractable and which are intractable.

The best way to escape from such a predicament, suggests Feyerabend, is to construct a comparably general *alternative* theory with which to generate entirely new interpretations of the experimental data, of which details are and are not relevant, and of which situations are and are not

tractable. This can have the effect of highlighting certain details hitherto suppressed, of pulling new signal out of old noise, and of discovering important order where before we saw only chaos. In particular, such a reconfigured vision can reveal dramatic failures in the old theory, failures that were invisible, as failures, from within the old framework.

Feyerabend provides a striking example of this phenomenon, which is worth a brief summary. The reader will forgive me if I oversimplify the physics somewhat in order to highlight the methodological point.

The “old entrenched theory” of this story is the classical theory of heat and energy, which contained as one of its central elements the principle that all mechanical interactions involve at least some conversion of the mechanical energy involved into heat. This means that any isolated system of bodies in motion must eventually “run down,” in the way that the balls on a billiard table, after bouncing off the cushion and each other for a time, come eventually to rest, their kinetic (mechanical) energy having been dissipated throughout the system in the form of heat. They, and the cushions, and the surrounding air, have a slightly higher temperature than they did before being set in motion.

The important point here is the generality of the principle—called the second law of Classical Thermodynamics. According to this principle, *any* system of mechanical interactions closed to the entry of outside energy—a turning flywheel, an oscillating pendulum, a swarm of Ping-Pong balls bouncing in a box—must eventually run down and come to rest.

The “important falsifying phenomenon” of this story is Brownian motion, discovered by the botanist Robert Brown in the early nineteenth century. Brownian motion is the ceaseless agitation of microscopic particles suspended in water or air, such as plant spores or smoke particles. The chaotic and apparently undiminished motion of such particles can be seen, and often was seen, through a microscope, but it was not seen to have anything crucial to do with classical thermodynamics and the second law. Brown’s initial guess as to the nature of this barely detectable motion appealed to biology: the spores after all, were alive. The equally active but lifeless smoke particles scotched that hypothesis, but there was still no significant threat to the second law. Who could be sure whether or not new energy was constantly being supplied from some microscopic source, and who could possibly compile an accurate energy budget for such fantastically small particles or the diffuse medium in which they

were suspended, in order to see whether or not it all squared with the demands of the classical theory? Such things were beyond experimental determination. And so Brownian motion remained at most a minor puzzle to the classical theorist, if it was noticed at all, which for the most part it wasn't. The classical theory strode the landscape like an unchallenged giant.

But not for long. An alternative and comparably general theory of heat was eventually developed, from motives that had nothing to do with Brownian motion. This theory—the modern kinetic theory of heat—proposed that heat energy is nothing but a special case of mechanical (kinetic) energy, to wit, the mechanical energy of the *molecules* of which common solids, liquids, and gases are composed. They too have motion, bouncing around chaotically or oscillating busily away down at the submicroscopic level. The temperature of any body was claimed to be nothing but a measure of how vigorously its constituent molecules are knocking about. And the inevitable “conversion” of macrolevel kinetic energy into heat, so insisted upon by the classical second law, turns out to be nothing but the redistribution of kinetic energy from the macro- to the microlevel. A bouncing ball eventually comes to rest, but only because its chaotically bustling molecules, and those of the air and the floor, each take on a tiny part of the motion that used to be so coherently lodged in the unified motion of the ball as a whole. The ball is now still, but faintly warmer, as is the floor and the surrounding air. The ball's original energy lives on as an increase in the activity of its bustling molecules, and of the molecules of the floor and the surrounding air.

But what of the bouncing molecules themselves? Will they not dissipate *their* kinetic energy as they bounce off each other, just as the ball does? Will they not come finally to rest also—still, but faintly warmer? No, said the kinetic theory. Molecular interactions are *perfectly elastic*—which is just another way of saying that no energy is lost in any such interaction—and so the particles go on bouncing happily away forever. Molecules cannot dissipate their kinetic energy away into heat, because their motion is already what constitutes heat. A closed system of bouncing molecules, therefore, will *never run down*.

This theory was not well received by the majority, and understandably so. For one thing, it postulated entities of a size that specifically precluded their ever being observed by humans. And for another, these constitu-

tionally “shy” particles were supposed to be perfectly (*perfectly*) elastic in their mutual collisions, in direct contradiction to the well-founded classical second law. On the face of things, it was both methodologically suspect and factually improbable.

How to test this startling new theory concerning the nature of heat? There were many ways, but only one of them need concern us here. Molecules were too small to be seen, even with a microscope, so there was clearly no hope of seeing directly whether a warm gas consists of molecules in ceaseless motion. However, if we suspend particles in the gas, particles small enough to be knocked around by the bustling gas molecules on every side, but large enough to be seen, at least with a microscope, then the ceaseless motion of the molecules will be reflected in a ceaseless dance on the part of the suspended particles. That is to say, if the kinetic theory of heat is true, then Brownian motion ought to exist! Furthermore, the violence of that motion should be directly proportional to the absolute temperature of the gas (the faster the molecules are moving, the more the smoke particles will be bounced around); and the violence of that motion should be inversely proportional to the size of the suspended smoke particles (the smaller the smoke particles, the more easily they will be shoved around). Further still, the kinetic theory made predictions about the gravitational distribution of smoke particles as a function of temperature, and it yielded a nice derivation of the classical gas law as well. But we need not go into these here. Suffice it to say that all of these predictions were experimentally accessible, and all of them were corroborated in detail.

In this way did a minor curiosity, of dubious relevance to anything, emerge as a major phenomenon. It revealed the hidden character of both matter and heat, and it constituted a standing refutation of the classical second law. But it did so only because a new theory showed us a new way to make sense of it. Had we stuck to the categories and vision of the classical theory, the significance of Brownian motion might never have been appreciated.

The moral of the story is that we should always be tolerant of the proliferation of theoretical viewpoints. Indeed, we should actively encourage it, even if our current theories suffer no obvious empirical shortcomings. This does not mean that we should put aside successful

theories and productive research programs in order to pursue every cockamamy idea that comes down the pike. That would be uncritical, irresponsible, and monstrously inefficient. But it does mean that we should be wary of conceptual monopoly, however well earned. And it means we should always be solicitous of genuine attempts to articulate and explore interesting conceptual alternatives.

II. Parapsychology: The Theoretical Side

Can we properly apply this moral to the case of parapsychology? I believe we can. But it has not been my aim to conjure up a limp apologia for "psychic" explorations, and then walk away. What I have in mind, rather, is this. The kinetic theory of heat is a clear example of a scientific success won against great odds. What general features of that theory, and/or what features of the methodology of its proponents, made it such a success? If we can answer this question, then we can confront the next logical question. Do the theories proposed and the methodology displayed by the proponents of parapsychology have anything like the same virtuous features displayed in our benchmark case? Let us see.

The first advantage possessed by the kinetic theorists was a systematic and detailed alternative *theory* concerning the phenomena in question. The new theory specified that any gas, for example, was constituted by a large number of perfectly elastic particles having mass, volume, and velocity. It told us that the steady pressure exerted by the gas on the walls of any container is just the effect of the particles repeatedly bouncing off it. It stated that the total heat in any system is the sum of the kinetic energy of all its molecules. It told us that the global temperature of the system is just the kinetic energy level of one of its average molecules. And since the notions of mass, velocity, and kinetic energy were quite well understood by then, the whole range of submicroscopic activity could be addressed with the language and the laws of classical Newtonian mechanics. Kinetic theorists could address the phenomena confronting them with an impressive array of theoretical resources.

Of course there were many things that remained to be unraveled—the mass and velocity of the proposed corpuscles, the different heat capacities displayed by different substances, and the disappearance of latent heat

during melting and boiling. But the theory itself suggested very definite theoretical and experimental approaches to these problems, approaches that bore fruit in surprisingly short order. In the absence of such a specific, powerful, and highly detailed theory, such progress could not have been made.

Does parapsychology possess any significant body of theory concerning what the nonmaterial mind is like, a theory of what nonphysical elements compose it, and what nonphysical laws govern their interactions with each other and with the various aspects of the material world? Let me emphasize that this question concerns only the *existence* of relevant theory, not its verification. Does parapsychology have any significant body of generally shared theory with which to even address the empirical phenomena? The embarrassing fact is that it does not. A search through the pages of the *Journal of Parapsychology*, one of the more respectable organs of parapsychological communication, will discover many experiments designed to reveal some surprising capacity on the part of humans or animals. But the reader will find almost nothing in the way of positive, systematic, and well-defined theory concerning the nature of mental substance or mental properties and the quantitative or formal laws that govern their interaction and behavior.

Such theory as one does find is vague, impressionistic, and non-quantitative; it is usually aimed at a very narrow range of phenomena; and it is almost always idiosyncratic to the author. There is no settled core of theory whose past successes have unified the community behind it, whose current form has been shaped in response to past experimental failures, and whose experimental agenda drives the assembled discipline forward. These elements, so central to established sciences, are poignantly missing in the case at issue. To a philosopher or historian of science, parapsychology appears as a strikingly *atheoretical* discipline. Beyond the vague assumption that conscious agents have a nonphysical aspect of some kind, which gets somehow expressed in occasional displays of paranormal perception or paranormal manipulation, there is simply no accepted core of general theory to be found.

What one does find is a great deal of predominantly *experimental* research, aimed at isolating and demonstrating effects that transcend explanation in terms of physical science. Characteristically, such experi-

ments are concerned to identify cases of successful perception of some kind or other, where perception is thought to be physically impossible (e.g., remote viewing, telepathy, clairvoyance); or they are concerned to identify cases of successful control or manipulation of some kind, where control is thought to be physically impossible (e.g., psychokinesis, telepathy). These experiments are often very elaborate, exploiting the same range of high-tech electronic equipment found in established branches of science, and they exploit the very same techniques of statistical evaluation approved elsewhere. In fact, the experimental drill is so well-oiled that it can be directed at any arbitrary set of variables among which one might suspect a statistically significant relationship.

As a result, parapsychological research has the collective character of a mass fishing expedition. Lacking any general theory with which to discriminate one part of the lake from another, one drops one's experimental line wherever local impulse suggests that one do so. The collective result is a jumble of ill-motivated results that move the discipline in no particular direction, because they motivate no widely accepted modifications to the core of guiding theory. For there is no such core.

There are further problems with the methodology of looking for some effect, any effect, that cannot be accounted for in normal physical terms. For when such results are achieved (or rather, are alleged to be achieved), the results may indeed be mysterious from a physical point of view, but they remain equally mysterious from the nonphysical point of view. The reason is that the parapsychologists are no better able to provide an explanation than are the physicists, for parapsychology has no significant theoretical resources with which to construct any explanations. If someone predicts the results of a long series of coin tosses with 100 percent accuracy, it is no *explanation* of this surprising result simply to say that the subject "has precognition." As well explain why sodium amytal puts you to sleep by saying it "has a dormative virtue." A real explanation would cite the nonphysical mechanisms involved, identify the empirical facts that reflect them, appeal to the laws that govern them, and then deduce exactly the surprising effect observed. Parapsychology does none of these things.

Contrast all of this with the case of the kinetic theory of heat. The experimental research conducted by the kinetic theorists was not aimed at

finding experimental results that could not be accounted for by the classical theory. It was aimed at testing the specific provisions of the kinetic theory. When experimental successes were achieved, they were successes not principally or even usually because they defied any classical explanation, but because they yielded even more accurately to explanation and prediction in terms of the kinetic-corpuseular theory. The kinetic theory did not shine by reflected failure; it shone by its own light.

In contrast, parapsychology shines only by the reflected failures of materialism, if it shines at all. Parapsychology has no explanatory successes it can call its own, because it has no substantial theory it can call its own. If there is no detailed theory, there can be no detailed explanations. And if there are no detailed explanations, then parapsychology cannot shine with its own light.

The want of significant theory, therefore, is a very serious deficit. But even more serious, I believe, is the lack of any movement on the part of the parapsychological community, throughout its entire history, to attempt to repair this yawning deficit. Rather, professional concern has always been centered on anecdotes about past or current psychic marvels, and/or on experiments designed to uncover a clearly paraphysical effect. But no effect, no matter how startling, can be confidently identified as "paraphysical" unless the effect finds a uniquely successful explanation in terms of some detailed paraphysical theory. In the absence of such an explanatory success, the surprising effect will be no more than that. It will be just another surprising and currently unexplained effect. There need be nothing remotely "paraphysical" about it.

Accordingly, the dogged experimental pursuit of paraphysical results within a vacuum of genuine paraphysical theory seems to me to be methodologically barren, even if the experiments are performed with meticulous care, and even if they produce some genuinely puzzling results. Brownian motion was also a deeply puzzling result, and it too was found by respectable researchers using respectable techniques. But it did not count a fig against classical thermodynamics, nor would it ever have done so, save that the new kinetic theory finally gave intelligible form to its significance. What parapsychology needs more than anything else, therefore, is some specific and substantial theory, to give form to its vague aspirations, and systematic guidance to its experimental activity.

So long as it lacks such theory, it will never be a science, no matter how many experiments it accumulates.

There is a methodological vice with which all of us are familiar. Philosophers are especially familiar with it, since they have so often been (justly) accused of displaying it. The vice consists in the attempt to make large-scale theoretical progress in the absence of any systematic experimental input to control the ongoing development of theory. The result is "castles in the air." Those who proceed in this fashion will protest that they are theorists. And so they are. They will protest that their theories are coherent and imaginative. And so they may be. But the overall procedure falls well short of being science.

That vice has a converse, less commonly seen, but just as barren in its output. This second vice consists in the attempt to make large-scale experimental progress in the absence of any systematic theory to guide the experimental tradition, and to be modified in light of the outcomes. The result is a bin of meaningless correlations among parameters of questionable significance. Those who proceed in this fashion will protest that they are genuine experimentalists. And so they are. They will protest that the experiments are honestly and accurately performed. And so they may be. But the overall procedure falls well short of being science. Like the preceding aspirants, such people are just playing at being scientists.

In advance of examining the parapsychological tradition, as represented in the pages of its own journal, one might have guessed that it suffers primarily from the first defect. But of these two maladies, it is not the first, I assert, but the second, that most closely characterizes the weakness of parapsychology.

III. Parapsychology: The Experimental Side

I have already leveled my major criticism of the experimental tradition of parapsychology. It is a methodological criticism, and it implies nothing untoward about the honesty or the critical care of those who conduct the relevant experiments. The discussion to this point has been deliberately uncritical in its representation of the reliability of the experimental results of parapsychology. That is because the validity of the methodological criticism I have been concerned to make is quite independent of how

reliable those results might be. But it would be misleading of me to leave the reader with the impression that there are any generally accepted results in this area. Certainly there are none that are widely accepted outside the relatively small parapsychological community. There is as yet no experimental analog to Brownian motion on which they, and we, might chew.

In fact, it is not clear that they have any interesting and repeatable positive results at all. The history of the subject is full of major and minor scandals, ranging from the engineered seances of the '20s and '30s, to the deliberate manufacture of false data by the renowned S.G. Soal in the '40s, to the gizmo-aided "psychophotography" of T. Serios in the '60s, to the hopelessly ill-controlled experiments of R. Targ and H. Puthoff centered on Uri Geller (an undeclared but highly skilled magician) in the '70s. These comic operas, and others, have been discussed at length elsewhere (Randi, 1982), and so I shall not pursue them here. But they are worth mentioning, and not just because they were scandals. These cases are a sobering lesson because each was widely held in its time to constitute the best evidence of paranormal phenomena ever advanced. And they are further worth mentioning because the frailties they record are endemic to the human soul.

On the other hand, we cannot tar everyone with the brush of fools, nor even the majority. Parapsychologists quite often report wholly negative results, and what better testament to honesty than this? What we want to know is, what should we make of those few studies, apparently conducted with scrupulous care and integrity, which show statistically significant deviations from what we think is physically explicable?

There is no completely general answer that is adequate to this question. Each case should be dealt with on its own merits. But one thing we can demand, before we get too excited about any given case, is that the result be replicated, preferably by an independent laboratory. The reasons for this have nothing particular to do with either mendacity or stupidity. If, during five years of parapsychological research, 1000 statistical experiments are performed with perfect care and honesty, we are bound to get a very small percentage of cases that nudge or exceed the level of "significance," on statistical grounds alone. That is to say, there will be a small handful of "positive" results, even if there is nothing to para-

psychology, and even if the investigators are scrupulous and the experimental protocols faultless.

This handful, we may assume, gets published. But consider. If 500 of the original 1000 experiments are forgotten because their disappointed investigators decide to pursue career development in other directions; and if 400 of the remaining 500 experiments are forgotten because they also were negative, and their investigators undertake further experiments which constitute the remaining 100; and if 80 of these, though honestly submitted, are never published because the editors are impatient with yet more negative parapsychological results; then the “accidentally significant” handful of positive results—say, 3 or 4 of the original 1000 experiments—will be published against an apparent sample of only 20 published experiments. They will thus appear to have a significance they have not earned.

The way to unmask such statistical accidents (and real cases, to repeat, are inevitable) is just to repeat the handful of standout experiments and see if the original results are replicated. To my knowledge, no genuinely anomalous result has ever survived this test. There are of course many surprising results that have and continue to be replicated, often in the media or in other public forums. But while impressive, these turn out not to be parapsychological.

Fire-walking is a good example. It has been performed many thousands of times in many different cultures, and is it often associated with paranormal claims. There is a “self-realization institute” here in my own community which occasionally holds fire-walking sessions down on the beach in the wee hours of the morning. Such sessions are put on as the culmination of a five-hour self-realization seminar, and the purpose of having the paying customers walk (briskly) across a carefully prepared bed of coals is to demonstrate to them the powers they have acquired at the hands of their psychic advisors. A few walkers acquire blisters from the experience, but most do not, and they are understandably amazed at the entire spectacle. The explanation, they are told, is that they have learned to enhance the “biomagnetic field” surrounding their feet, which field serves to shield them from the heat.

This is utter nonsense, of course, but the coals are indeed at a fairly high temperature. Though old and dying, they are still glowing red, at

least in the dark. The trick is that there is no trick. At that stage of advanced combustion, the coals have the density of styrofoam and a very low specific heat capacity. Though high in temperature, the coals simply do not contain enough heat energy, and cannot conduct it into the foot quickly enough, to cause significant burns in the roughly 1.6 seconds of total contact each foot touches the coals (four steps per foot \times 0.4 second). People expect to be burned by anything that is even faintly incandescent, but it is not always so. The bed of coals must be very carefully and knowledgeably prepared, however, so I strongly urge against ever trying this yourself, especially with standard charcoal briquets, the material most likely to be at hand. These are hotter than most wood coals, and they crumble underfoot, releasing extra heat. Do not ever step on them.

What I do recommend trying is the following. In the dark, so that you may better judge the radiant state of the coals, pick up a dying coal with some barbeque tongs, and touch it very briefly to the sole of your foot, or the heel of your hand. This mode of experimentation allows for greater control, and is markedly safer. You will be surprised at how benign is the effect of such a coal, at least for contact exposures of *less* than half a second. Fire-walking is both real and replicable, but it is not paranormal (see Leikind and McCarthy) 1985; P. M. Churchland 1986b).

Another common spectacle is some form of mind-reading or clairvoyance displayed by a media magician, professed or unprofessed. Here I can convey no general summary of how the tricks are performed: magicians have endless ways of fooling us. But I can give you the flavor of the class by relating one of its typical instances.

My wife and colleague, Patricia Churchland, once amazed her freshman philosophy class by reading aloud, with eyes closed, the phrases concealed in a pile of sealed manila envelopes that the students had severally submitted to her at the beginning of class. At each "psychic reading" of a still-sealed envelope, she would ask if any student had indeed submitted the announced phrase. While the relevant student expressed amazed acknowledgment, she would then open the envelope to casually check the accuracy of her reading, and then move on to the next envelope, and to the psychic divination of its contents.

She gets every one right. The trick is impressive, and it requires only one confidant among the students, someone to falsely acknowledge suc-

cess on the very first envelope "read." In fact, she simply makes up her first reading, and counts on the voiced agreement of the one confidant. While opening the envelope to "check the accuracy" of this first and wholly confabulatory reading, she is in fact discovering what some other perfectly honest student has written inside the first envelope. This becomes the basis for the second "reading." While holding the second envelope mysteriously to her forehead, she voices the contents of the now-discarded first envelope. The author of that envelope's contents acknowledges this "success," usually with further expressions of amazement, and the envelope is simultaneously opened and "checked" by the psychic for accuracy. This supplies the basis for the third reading. And so on through the entire pile. The classroom result is a delicious pandemonium. Psychic powers, evidently, are easier to come by than you might have thought.

These two examples, psychic reading and fire-walking, do not bear directly on academic parapsychology. But they do help us to see how ostensibly paranormal phenomena can be conjured from the normal and the ordinary. And they do help to arm us against the predators in this general area, of which there are many. We must have a certain sympathy for those attempting to do responsible paranormal research against the background of media nonsense, cultish practices, and the financial exploitation of gullible suckers. It is rather like trying to conduct a legitimate escort service in the midst of a booming red-light district. Any passing constable can be forgiven his initial suspicion. And his second and third.

I began this paper by asking how parapsychology could become a science. My answer is that it needs some organizing theory. And it needs an experimental tradition that is aimed at the positive task of testing and refining that alternative general theory of mind, rather than at the negative task of finding some unpatchable hole in materialism. Parapsychologists have not provided the raw conceptual materials with which to construct a coherent and well-motivated research program, even if materialism is *in fact* false. That is why parapsychology remains a pseudoscience.