

Parapsychology and the Paranormal

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Parapsychological phenomena - once convincingly demonstrated in laboratory settings - can help to upset current scientific laws and theories.

I. Introduction

The words "supernatural", "paranormal", and "parapsychology" are prime examples of oxymorons. Nature, by its extended definition, is all-inclusive and all-pervasive. Nothing is outside its orbit and everything that is logically and physically possible is within its purview. If something exists and occurs then, ipso facto, it is normal (or abnormal, but never para or "beyond" the normal). Psychology is the science of human cognition, emotion, and behavior. No human phenomenon evades its remit.

As if in belated recognition of this truism, PEAR (the Princeton Engineering Anomalies Research laboratory), the ESP (Extra-Sensory Perception) research outfit at Princeton University, established in 1979, closed down in February 2007.

The arguments of the proponents of the esoteric "sciences", Parapsychology included, boil down to these:

(1) That the human mind can alter the course of events and affect objects (including other people's brains) voluntarily (e.g., telekinesis or telepathy) or involuntarily (e.g., poltergeist);

(2) That current science is limited (for instance, by its commitment to causation) and therefore is structurally unable to discern, let alone explain, the existence of certain phenomena (such as remote viewing or precognition). This implies that everything has natural causes and that we are in a perpetual state of receding ignorance, in the throes of an asymptotic quest for the truth. Sooner or later, that which is now perplexing, extraordinary, "miraculous", and unexplained (protoscience) will be incorporated into science and be fully accounted for;

(3) That science is dogmatically biased against and, therefore, delinquent in its investigation of certain phenomena, objects, and occurrences (such as Voodoo, magic, and UFOs - Unidentified Flying Objects).

These claims of Parapsychology echo the schism that opened in the monotheistic religions (and in early Buddhism) between the profane and the sacred, the here and the beyond. Not surprisingly, many of the first spiritualists were ministers and other functionaries of Christian Churches.

Three historic developments contributed to the propagation and popularity of psychical research:

(1) The introduction into Parapsychology of scientific methods of observation, experimentation, and analysis (e.g., the use of statistics and probability in the studies conducted at the Parapsychology Laboratory of North Carolina's Duke University by the American psychologist Joseph Banks Rhine and in the more recent remote viewing ganzfeld sensory deprivation experiments);

(2) The emergence of counter-intuitive models of reality, especially in physics, incorporating such concepts as nonlocal action-at-a-distance (e.g., Bell's theorem), emergentism, multiverses, hidden dimensions, observer effects ("mind over matter"), and creation ex nihilo. These models are badly understood by laymen and have led to the ostensible merger of physics and metaphysics;

(3) The eventual acceptance by the scientific community and incorporation into the mainstream of science of phenomena that were once considered paranormal and then perinormal (e.g., hypnotism).

As many scholars noted, psi (psychic) and other anomalous phenomena and related experiments can rarely be reproduced in rigorous laboratory settings. Though at least 130 years old, the field generated no theories replete with falsifiable predictions. Additionally, the deviation of finite sets of data (e.g., the number of cards correctly guessed by subjects) from predictions yielded by the laws of probability - presented as the field's trump card - is nothing out of the ordinary. Furthermore, statistical significance and correlation should not be misconstrued as proofs of cause and effect.

Consequently, there is no agreement as to what constitutes a psi event.

Still, these are weak refutations. They apply with equal force to the social "sciences" (e.g., to economics and psychology) and even to more robust fields like biology or medicine. Yet no one disputes the existence of economic behavior or the human psyche.

II. Scientific Theories

All theories - scientific or not - start with a problem. They aim to solve it by proving that what appears to be "problematic" is not. They re-state the conundrum, or introduce new data, new variables, a new classification, or new organizing principles. They incorporate the problem in a larger body of knowledge, or in a conjecture ("solution"). They explain why we thought we had an issue on our hands - and how it can be avoided, vitiated, or resolved.

Scientific theories invite constant criticism and revision. They yield new problems. They are proven erroneous and are replaced by new models which offer better explanations and a more profound sense of understanding - often by solving these new problems. From

time to time, the successor theories constitute a break with everything known and done till then. These seismic convulsions are known as "paradigm shifts".

Contrary to widespread opinion - even among scientists - science is not only about "facts". It is not merely about quantifying, measuring, describing, classifying, and organizing "things" (entities). It is not even concerned with finding out the "truth". Science is about providing us with concepts, explanations, and predictions (collectively known as "theories") and thus endowing us with a sense of understanding of our world.

Scientific theories are allegorical or metaphoric. They revolve around symbols and theoretical constructs, concepts and substantive assumptions, axioms and hypotheses - most of which can never, even in principle, be computed, observed, quantified, measured, or correlated with the world "out there". By appealing to our imagination, scientific theories reveal what David Deutsch calls "the fabric of reality".

Like any other system of knowledge, science has its fanatics, heretics, and deviants.

Instrumentalists, for instance, insist that scientific theories should be concerned exclusively with predicting the outcomes of appropriately designed experiments. Their explanatory powers are of no consequence. Positivists ascribe meaning only to statements that deal with observables and observations.

Instrumentalists and positivists ignore the fact that predictions are derived from models, narratives, and organizing principles. In short: it is the theory's explanatory dimensions that determine which experiments are relevant and which are not. Forecasts - and experiments - that are not embedded in an understanding of the world (in an explanation) do not constitute science.

Granted, predictions and experiments are crucial to the growth of scientific knowledge and the winnowing out of erroneous or inadequate theories. But they are not the only mechanisms of natural selection. There are other criteria that help us decide whether to adopt and place confidence in a scientific theory or not. Is the theory aesthetic (parsimonious), logical, does it provide a reasonable explanation and, thus, does it further our understanding of the world?

David Deutsch in "The Fabric of Reality" (p. 11):

"... (I)t is hard to give a precise definition of 'explanation' or 'understanding'. Roughly speaking, they are about 'why' rather than 'what'; about the inner workings of things; about how things really are, not just how they appear to be; about what must be so, rather than what merely happens to be so; about laws of nature rather than rules of thumb. They are also about coherence, elegance, and simplicity, as opposed to arbitrariness and complexity ..."

Reductionists and emergentists ignore the existence of a hierarchy of scientific theories and meta-languages. They believe - and it is an article of faith, not of science - that

complex phenomena (such as the human mind) can be reduced to simple ones (such as the physics and chemistry of the brain). Furthermore, to them the act of reduction is, in itself, an explanation and a form of pertinent understanding. Human thought, fantasy, imagination, and emotions are nothing but electric currents and spurts of chemicals in the brain, they say.

Holists, on the other hand, refuse to consider the possibility that some higher-level phenomena can, indeed, be fully reduced to base components and primitive interactions. They ignore the fact that reductionism sometimes does provide explanations and understanding. The properties of water, for instance, do spring forth from its chemical and physical composition and from the interactions between its constituent atoms and subatomic particles.

Still, there is a general agreement that scientific theories must be abstract (independent of specific time or place), intersubjectively explicit (contain detailed descriptions of the subject matter in unambiguous terms), logically rigorous (make use of logical systems shared and accepted by the practitioners in the field), empirically relevant (correspond to results of empirical research), useful (in describing and/or explaining the world), and provide typologies and predictions.

A scientific theory should resort to primitive (atomic) terminology and all its complex (derived) terms and concepts should be defined in these indivisible terms. It should offer a map unequivocally and consistently connecting operational definitions to theoretical concepts.

Operational definitions that connect to the same theoretical concept should not contradict each other (be negatively correlated). They should yield agreement on measurement conducted independently by trained experimenters. But investigation of the theory of its implication can proceed even without quantification.

Theoretical concepts need not necessarily be measurable or quantifiable or observable. But a scientific theory should afford at least four levels of quantification of its operational and theoretical definitions of concepts: nominal (labeling), ordinal (ranking), interval and ratio.

As we said, scientific theories are not confined to quantified definitions or to a classificatory apparatus. To qualify as scientific they must contain statements about relationships (mostly causal) between concepts - empirically-supported laws and/or propositions (statements derived from axioms).

Philosophers like Carl Hempel and Ernest Nagel regard a theory as scientific if it is hypothetico-deductive. To them, scientific theories are sets of inter-related laws. We know that they are inter-related because a minimum number of axioms and hypotheses yield, in an inexorable deductive sequence, everything else known in the field the theory pertains to.

Explanation is about retrodiction - using the laws to show how things happened. Prediction is using the laws to show how things will happen. Understanding is explanation and prediction combined.

William Whewell augmented this somewhat simplistic point of view with his principle of "consilience of inductions". Often, he observed, inductive explanations of disparate phenomena are unexpectedly traced to one underlying cause. This is what scientific theorizing is about - finding the common source of the apparently separate.

This omnipotent view of the scientific endeavor competes with a more modest, semantic school of philosophy of science.

Many theories - especially ones with breadth, width, and profundity, such as Darwin's theory of evolution - are not deductively integrated and are very difficult to test (falsify) conclusively. Their predictions are either scant or ambiguous.

Scientific theories, goes the semantic view, are amalgams of models of reality. These are empirically meaningful only inasmuch as they are empirically (directly and therefore semantically) applicable to a limited area. A typical scientific theory is not constructed with explanatory and predictive aims in mind. Quite the opposite: the choice of models incorporated in it dictates its ultimate success in explaining the Universe and predicting the outcomes of experiments.

III. Parapsychology as anti-science

Science deals with generalizations (the generation of universal statements known as laws) based on singular existential statements (founded, in turn, on observations). Every scientific law is open to falsification: even one observation that contravenes it is sufficient to render it invalid (a process known in formal logic as *modus tollens*).

In contrast, Parapsychology deals exclusively with anomalous phenomena - observations that invalidate and falsify scientific laws. By definition these don't lend themselves to the process of generation of testable hypotheses. One cannot come up with a scientific theory of exceptions.

Parapsychological phenomena - once convincingly demonstrated in laboratory settings - can help to upset current scientific laws and theories. They cannot however yield either because they cannot be generalized and they do not need to be falsified (they are already falsified by the prevailing paradigms, laws, and theories of science). These shortcomings render deficient and superfluous the only construct that comes close to a Parapsychological hypothesis - the psi assumption.

Across the fence, pseudo-skeptics are trying to prove (to produce evidence) that psi phenomena do not exist. But, while it is trivial to demonstrate that some thing or event exists or existed - it is impossible to show that some thing or event does not exist or was never extant. The skeptics' anti-Parapsychology agenda is, therefore, fraught with many

of the difficulties that bedevil the work of psychic researchers.

IV. The Problem of Human Subjects

Can Parapsychology generate a scientific theory (either prescriptive or descriptive)?

Let us examine closely the mental phenomena collectively known as ESP - extrasensory perception (telepathy, clairvoyance, precognition, retrocognition, remote viewing, psychometry, xenoglossy, mediumism, channeling, clairaudience, clairsentience, and possession).

The study of these alleged phenomena is not an exact "science", nor can it ever be. This is because the "raw material" (human beings and their behavior as individuals and en masse) is fuzzy. Such a discipline will never yield natural laws or universal constants (like in physics).

Experimentation in the field is constrained by legal and ethical rules Human subjects tend to be opinionated, develop resistance, and become self-conscious when observed. Even ESP proponents admit that results depend on the subject's mental state and on the significance attributed by him to events and people he communicates with.

These core issues cannot be solved by designing less flawed, better controlled, and more rigorous experiments or by using more powerful statistical evaluation techniques.

To qualify as meaningful and instrumental, any Parapsychological explanation (or "theory") must be:

- * All-inclusive (anamnetic) – It must encompass, integrate and incorporate all the facts known.
- * Coherent – It must be chronological, structured and causal.
- * Consistent – Self-consistent (its sub-units cannot contradict one another or go against the grain of the main explication) and consistent with the observed phenomena (both those related to the event or subject and those pertaining to the rest of the universe).
- * Logically compatible – It must not violate the laws of logic both internally (the explanation must abide by some internally imposed logic) and externally (the Aristotelian logic which is applicable to the observable world).
- * Insightful – It must inspire a sense of awe and astonishment which is the result of seeing something familiar in a new light or the result of seeing a pattern emerging out of a big body of data. The insights must constitute the inevitable conclusion of the logic, the language, and of the unfolding of the explanation.
- * Aesthetic – The explanation must be both plausible and "right", beautiful, not

cumbersome, not awkward, not discontinuous, smooth, parsimonious, simple, and so on.

* Parsimonious – The explanation must employ the minimum numbers of assumptions and entities in order to satisfy all the above conditions. * Explanatory – The explanation must elucidate the behavior of other elements, including the subject's decisions and behavior and why events developed the way they did.

* Predictive (prognostic) – The explanation must possess the ability to predict future events, including the future behavior of the subject.

* Elastic – The explanation must possess the intrinsic abilities to self organize, reorganize, give room to emerging order, accommodate new data comfortably, and react flexibly to attacks from within and from without.

In all these respects, Parapsychological explanations can qualify as scientific theories: they both satisfy most of the above conditions. But this apparent similarity is misleading.

Scientific theories must also be testable, verifiable, and refutable (falsifiable). The experiments that test their predictions must be repeatable and replicable in tightly controlled laboratory settings. All these elements are largely missing from Parapsychological "theories" and explanations. No experiment could be designed to test the statements within such explanations, to establish their truth-value and, thus, to convert them to theorems or hypotheses in a theory.

There are four reasons to account for this inability to test and prove (or falsify) Parapsychological theories:

* Ethical – To achieve results, subjects have to be ignorant of the reasons for experiments and their aims. Sometimes even the very fact that an experiment is taking place has to remain a secret (double blind experiments). Some experiments may involve unpleasant or even traumatic experiences. This is ethically unacceptable.

* The Psychological Uncertainty Principle – The initial state of a human subject in an experiment is usually fully established. But the very act of experimentation, the very processes of measurement and observation invariably influence and affect the participants and render this knowledge irrelevant.

* Uniqueness – Parapsychological experiments are, therefore, bound to be unique. They cannot be repeated or replicated elsewhere and at other times even when they are conducted with the SAME subjects (who are no longer the same owing to the effects of their participation). This is due to the aforementioned psychological uncertainty principle. Repeating the experiments with other subjects adversely affects the scientific value of the results.

* The undergeneration of testable hypotheses – Parapsychology does not generate a sufficient number of hypotheses, which can be subjected to scientific testing. This has to

do with its fabulous (i.e., storytelling) nature. In a way, Parapsychology has affinity with some private languages. It is a form of art and, as such, is self-sufficient and self-contained. If structural, internal constraints are met, a statement is deemed true within the Parapsychology "canon" even if it does not satisfy external scientific requirements.