

## Book Reviews

EXTRA SENSORY PERCEPTION: SUPPORT, SKEPTICISM, AND SCIENCE. VOLUME 1: HISTORY, CONTROVERSY, AND RESEARCH, edited by Edwin C. May and Sonali Bhatt Marwaha. Santa Barbara, CA: Praeger, 2015. Pp. xvii + 411 (hardcover). \$131.00. ISBN 978-1-4408-3287-1

*Extrasensory Perception. Support, Skepticism, and Science. Volume 1: History, Controversy, and Research* provides an overview of avenues of current research on psi as well as those areas that probe non-psi territory, such as anomalistic psychology (why people may have mistaken impressions of witnessing psi and other phenomena), some relevant philosophy, and a skeptical criticism of the research. You will not find meta-analyses for each psi topic as in other books (Cardeña, Palmer, & Marcusson-Clavertz, 2015; Radin, 1997, 2006, & 2013), but you will obtain an understanding of the statistical issues, confounding problems, and contemporary lines of research in ESP studies.

Chapter 1, “The Fundamentals of Psi”, by Edwin C. May and Sonali Bhatt Marwaha, provides an introduction to research on what is variously called “psi”, “ESP”, “and anomalous cognition”. These terms are not fully interchangeable because psychokinesis is included in “psi” but not “ESP”; regardless, the authors of the two volumes switch use of terms, hopefully in a manner not confusing to the reader. Chapter 1 gives an overview of the major scientific questions posed by psi, *assuming psi is real*. The contrary view to this assumption is given in Chapter 6, otherwise, the chapter is a good overview of the challenges researchers are tackling but does reflect the opinions of May and Marwaha, especially the primacy of precognition as an explanatory problem over telepathy and clairvoyance and a skepticism of ontological dualism, especially aimed at arguments in favor of survival of consciousness.

Chapter 2, “A Brief History of Psi Research”, by Nancy L. Zingrone and Carlos S. Alvarado, reviews the development of parapsychology from its origins in the mysticism of antiquity. In the same way that modern astronomy developed from astrology or modern chemistry from alchemy, a line can be drawn from the mystical practices of the ancient world to the modern era when scientists began to approach psi phenomena quantitatively using the scientific method. Zingrone and Alvarado trace this path through the oracles of the ancient world to the practice of mesmerism, the rise of Spiritualism, and the development of statistical methods started by Rhine and continuing to this day. Especially since many older practices are still with us (there are many Spiritualist churches operating even to this day, for example), it is important for people working in psi research to understand the long history of the field. It is very hard to do justice to the full history of psi in a single chapter but Zingrone and Alvarado do a good job of giving a clear summary.

Chapter 3, “Mind and Knowledge at the Margins: On the Possible Revitalization of Research on Mind and Knowledge through a Reunion between Philosophical and Psychological Research”, by Anand Jayprakash Vaidya begins with a discussion of the classical schools of Hindu philosophy. I expect most readers outside of India will be completely unfamiliar with the schools of Indian philosophy but some similarities may be seen with other philosophies; for example, the Nyāya theory

of universals seems to be similar to that of Platonic forms. At any rate, it is clear from this chapter that Indian philosophers have generally thought about psi phenomena to a much greater extent than those in the West. Anand launches into an argument in favor of neutral monism, which posits that there is but one type of substance in the universe and that the substance has both experiential and physical properties. But, as Vaidya admits, there is still a lot of work to do in bringing the study of psi into contemporary philosophy as not many contemporary philosophers have engaged with the research.

Chapter 4, “ESP, Causation, and the Possibility of Precognition”, by Richard Corry, asks whether ESP, especially precognition, is possible from a logical standpoint. First, Corry defines four types of psi but argues that the primary challenge is Type I ESP, i.e. a person being influenced by states in the outside world. One could argue that precognition would be problematic from a logical standpoint because of the possibility of temporal paradoxes but Corry argues that this is not the case. Physicists would be familiar with this line of thinking; see especially Chapters 4 and 5 of the second volume of *Extrasensory Perception*. However, in the conclusion there is a problematic passage where Corry states that psi has not reached a scientific standard to be believed while neglecting to specify what that standard might be. Wagenmakers et al., in Chapter 6, to their credit, do outline such a standard.

Chapter 5, “The Psychology of Belief and Disbelief in the Paranormal”, by Christopher C. French describes how people come to believe what they do about the paranormal, which is the purview of the field of “anomalous psychology”. As scientists we may be saddened by the fact that most people do not come to their beliefs through a careful weighing of the experimental evidence. Such cognitive lapses are detailed by French who reviews the various perceptual biases that cause people to identify events as paranormal when they have mundane explanations. He also calls for more research into stubborn disbelievers as well, a topic that has not received much attention from the scientific community. It is my naive opinion, however, that determining the existence of psi should take priority over anomalous psychology because paranormal phenomena being real would be an excellent explanation for why some people might believe in them; French does not appear to share such a view. Nonetheless, anomalous psychology is an important contribution to understanding public belief in psi.

Chapter 6, “A Skeptical Eye on Psi”, by Eric-Jan Wagenmakers, Ruud Wetzels, Denny Borsboom, Regier Andrew Kievit, and Han L. J. van der Maas, is divided into two sections, one section assuming psi does not exist and asking what can be learned about science, the second section detailing what might convince a skeptic. I argue that the logical premise of the first section is problematic but the second section can be very useful for aspiring psi researchers.

Wagenmakers et al. write that, “In short psi research is an excellent control condition for science”. So are we to ultimately reject any scientific method that obtains evidence of psi? The only way to scientifically verify whether or not psi exists is through the scientific method, which the first question insinuates is impossible! Using psi as a control condition for science is a logical contradiction. This argument holds no matter which phenomenon, real or not, is used instead of psi. But stepping back, there is a concept that is still valid: the connection of psi research to the rest of science. The experimental and analytical techniques used in psi research are also used in mainstream fields; in fact, most scientists doing psi research also work or have worked in mainstream research. So in agreement with Wagenmakers et al., problems in psi research also reflect on other fields, especially, but not only, mainstream psychology. Wagenmakers et al. list ten threats to research find-

ings that could create bias in published databases, some of which have recently gained widespread recognition in psychology (Simmons, Nelson, & Simonsohn, 2011). I generally agree with all of them and think that psi researchers (but not only them!) should keep them in mind. Moving into the section on how skeptics can be convinced, Wagenmakers et al. list helpful procedural reforms to improve reliability of results, such as pre-registration of studies and division of exploratory and confirmatory studies. Wagenmakers et al. focus on Daryl Bem's famous "Feeling the Future" paper (Bem, 2011) but it is clear that the field of parapsychology has already been adopting the reforms mentioned, for example, a recent meta-analysis (Mossbridge, Tressoldi, & Utts, 2012) used only pre-planned studies. Finally, Wagenmakers et al.'s criticism based on lack of practical application is contradicted by McMoneagle's claims in Chapter 11 of this volume. Presumably Wagenmakers et al. believe that these claims are mistaken but this merely underscores the importance of continued scientific experimentation.

Chapter 7: "What Constitutes Replications in Parapsychology?", by Jessica Utts might have perhaps been titled "What Constitutes Replications?" since it is applicable to general statistical analysis. Utts explains that what an experimenter is actually replicating in an experiment is the effect size, not the  $p$ -value. This chapter is recommended for those wishing to understand the meta-analyses of parapsychology but who are not that familiar with statistical science.

Chapter 8, "Anomalous Cognition and Psychokinesis Research in European Labs", by Patrizio Tressoldi and Michael Duggan, describes psi research in the European continent from Iceland to Russia. The Russia section draws heavily on the work of May and Vilenskaya (May & Vilenskaya, 1992) into Soviet parapsychology efforts where it appears that funding fell with the collapse of the Soviet Union. Moving west, the chapter describes the many historical psi research societies in other European nations. Europe has a relatively large number of psi researchers in academic settings, described in this chapter. A key focus is on parapsychological research in the U.K., which is much stronger than the size of the nation might suggest. It was especially interesting to read how the Koestler Parapsychology Unit seeded researchers throughout universities in England and Scotland, making the U.K. a world center of psi research.

Chapter 9, "Anomalous Cognition/ESP and Psychokinesis Research in the United States", by Loyd Auerbach, Dominic Parker, and Sheila Smith reviews the psi research efforts ongoing in the United States at both universities and private institutes. But, as Auerbach et al. point out, the research being done is far less than the population, wealth, and public interest in psi of the United States would suggest. Though Auerbach and collaborators do not do this, it would be interesting to speculate why this is the case. The United States stands out among industrialized countries in religiosity (Wike, 2016) and at least one top parapsychologist has speculated on the connection of scientific hostility to parapsychology to (lost) religious beliefs (Radin, 2009). At any rate, after years of decline in psi research activity it remains to be seen whether there can be a sustained recovery.

Chapter 10, by Lance Storm and Adam J. Rock, is "Anomalous Cognition and Psychokinesis Research in Australian and Asian Labs". Australian research is described as being somewhat hampered by geographic isolation. Nonetheless, three major researchers are described, Harvey Irwin (who has mainly worked on anomalous psychology), the late Michael Thalbourne, and Lance Storm, both of whose work covers multiple areas.

Psi research in Japan and China is also described. Japan and China have vastly different religious traditions from the West but the academic establishment, especially at elite institutions, has

largely followed Western models. Nonetheless, this chapter describes how Chinese and Japanese researchers have, in particular, conducted studies on the traditional Asian concept of life energy, “Chi” or “Qi” in Chinese and “Ki” in Japanese.

Chapter 11, “Evidence for Precognition from Applied Remote Viewing”, by Joseph W. McMoneagle, has two parts. The first part details some of his current work using remote viewing for practical applications such as looking for mineral deposits, missing persons, and economic planning. The rest of the volume does not discuss applied psi so this section is an important justification for the question, “why study it?” The second part is a transcript of McMoneagle’s remote viewing of a Soviet Typhoon-class nuclear submarine under construction during the Cold War. This section is good for feeling the cadence of a remote viewing session, but it would have been better if pictures of the facility had been included so a reader could get an idea of the accuracy of remote viewing. One would need some familiarity with the Typhoon-class to get the understanding that this remote viewing (like other remote viewings) both brought forth accurate information (the object under construction is accurately described as a new submarine) and inaccurate information (the submarine is described as not having nuclear missile launch capability when, in fact, the Typhoon-class does).

Chapter 12, “Psychophysiology and Anomalous Cognition”, by Dean Radin, details a rapidly expanding area of psi research, using physiological measurements to understand psi. The chapter starts with a short section on Distant Mental Interactions with Living Systems (DMILS), in which an influencer tries to affect an organism through attentional influence alone. As Radin writes, research in this area is promising but sparse.

The next, much longer section, describes research in presentiment, which is unconscious precognition measured via physiological means such as skin conductance, heart rate, EEG, etc. This research has only become (relatively) widespread in the past two decades. Radin uses his encyclopedic knowledge of the field to cover all the lines of research. The credibility of this field has been boosted recently by publications of a meta-analysis using only pre-planned studies (Mossbridge, Tressoldi, & Utts, 2012). Interest is likely to continue increasing among researchers, including the organization of new research labs at the University of Groningen (Heymans Anomalous Cognition Group) and the University of California at Santa Barbara (Theoretical and Applied Neurocausality Laboratory).

Chapter 13, “Neuroscientific Investigation of Anomalous Cognition”, by Michael A. Persinger, approaches the physiological study of anomalous cognition from a different angle compared to chapter 12. Whereas the experiments described by Radin in the previous chapter generally involve testing large numbers of participants, Persinger focuses on a small number of individuals of apparent psychic ability. Although this makes replication of specific results difficult if not impossible, Persinger hopes his research will narrow down specific brain regions or brain wave frequencies responsible for psi. A key theme of Persinger’s work is an ambitious focus on finding the physical mechanisms in the brain responsible for all psi phenomena, including macroscopic PK, which is avoided by most researchers.

Chapter 14, “Variation of ESP by Season, Local Sidereal Time, and Geomagnetic Activity”, by Adrian Ryan and S. James P. Spottiswoode, examines claims that strength of psi is dependent on external conditions. The conclusions reached are mixed, with some effects showing enhancement based on season, local sidereal time, and geomagnetic activity but no significant pattern when analyzing ESP as a whole. This chapter ties in well with Chapter 13 in a search for an explanatory bridge between psychology and physics for ESP, but more theoretical work is obviously needed,

leading into Volume 2 of the series.

Taken together, the chapters of Volume 1 of Extrasensory Perception make the case that even if one does not believe psi has been proven, surely further research is justified. At the very least, this volume will provide a good snapshot of the field as it exists contemporaneously.

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Extrasensory Perception Volume 2: Theories of Psi is an excellent compendium of, if not strictly speaking, "theories of psi", outlines of what final potential theories could look like. Based



on Chapter 7 of the volume (“The Multiphasic Model of Precognition” by Sonali Marwaha and Edwin May), we can divide theories of psi into domains. There is: (a) the physics domain, which describes how information or influence traverses space and time, and (b) the neuroscience (or psychology) domain, which describes how the brain and mind use the information obtained from the physics domain. I found the domain concept useful in classifying the other chapters based on their foci on either psychology or physics.

### **Neuroscience Domain Theories**

In “Theories of Psi,” Chapters 9, “Activational Model of ESP”, by Zoltán Vassy, and 12, “First Sight: A way of Thinking About the Mind, and a Theory of Psi”, by James Carpenter, are examples of psychology-domain theories of psi. Both attempt to link psi to phenomena in mainstream neuroscience and psychology, an accumulator-based model of decision making in Vassy’s case (Usher & McClelland, 2001), and of unconscious psychological processes in Carpenter’s case (Carpenter, 2004, 2005). Carpenter’s First Sight theory is especially striking in its explicit rejection of the popular perception that psychic phenomena are exclusive to a special class of “psychics” but are instead present in everybody’s unconscious mind. This is a concept I wish had a much greater profile within both the scientific community and general public, as it would dispel many misconceptions about the field of parapsychology. Those interested in further reading should peruse James Carpenter’s book, *First Sight: ESP and Parapsychology in Everyday Life* (Carpenter, 2012). Vassy explores an anomaly pertaining to negative-aim target guessing experiments. If one naively assumes that during a card-guessing experiment a person either successfully identifies the target or fails to identify the target for each trial (and thus gets a chance result), one can derive a ratio between positive-aim and negative-aim experimental hit rates. Vassy shows that this is not what happens and that an accumulator model is needed to explain the results. Both chapters are convincing pushes to incorporate parapsychology into the rest of psychology.

### **Physics Domain Theories**

#### **The Metaphysics of Physics Domain Theories**

The other 10 chapters of the volume primarily discuss psi in the “physics domain”, to use the terminology of May and Marwaha. Here, the situation becomes more controversial because one must decide which lines of evidence need to be legitimately included in a theory of psi. If there is any broad consensus within the field of parapsychology, it is that the evidence for precognition is convincing. Beyond that, the waters get murky. A theory of psi that relies on transfer of information from a physical brain at one point of time to the same brain at a different point of time (as some of the theories outlined in the volume posit) would struggle to explain phenomena such as macro-psychokinesis or children who remember previous lives (such as in Stevenson, 2000), to name a couple of examples. So the chapters of this volume do not answer all the same question, especially when they focus on different lines of evidence. Still, I found all chapters strongly argued.

Maybe the first decision one has to make in formulating a physics-domain theory of psi is whether one needs to be constrained by the physics of our universe at all. David Rousseau’s Chapter 13, “Anomalous Cognition and the Case for Mind-Body Dualism,” takes a step back and looks at all of the various metaphysical models of reality. Chapter 13 provides a good overview of the often esoteric categories used to approach questions such as “Do souls exist?” and “What is the relationship between mind and matter?” Rousseau’s argument in favor of dualism ultimately hing-

es on the rejection of the superpsi hypothesis, an alternative interpretation of the data that explain veridical information received in mediumship and near-death experiences as being not necessarily caused by a connection with an alternate spiritual realm but by precognition and clairvoyance alone (as described in Sudduth, 2009). Readers may have various views on survival of consciousness, but Rousseau's clarification of metaphysical models is certainly helpful.

### **Time Symmetry**

Moving on to physics-based theories of psi, perhaps the most obvious starting place (to a physicist) would be the time symmetry of fundamental physics equations. That is, it does not matter whether time is run forward or backwards, the physics of a system remains equally valid. It is only in the increase of entropy from the Second Law of Thermodynamics where an arrow of time becomes apparent. Chapters 3, 4 and 8 are the most direct examinations of time symmetry in the book. Chapter 3, "Physics Beyond Causality: Making Sense of Quantum Mechanics and Certain Experimental Anomalies", by the late Richard Shoup focuses on explaining the experimental and theoretical background of setting up correlations in quantum mechanics which seem to violate common-sense notions of causality, using the famous EPR experiment (Einstein, Podolsky, & Rosen, 1935) and Wheeler's delayed choice experiment (Jacques, Wu, Grosshans, Treussart, Grangier, Aspect, & Roch, 2007; Wheeler, 1984) as examples. Shoup suggests that these correlations can be extended to explain psi effects. Daniel Sheehan, in his Chapter 4, "Remembrance of Things Future: A Case for Retrocausation and Precognition" restates much the same themes as Chapter 3 but from a different perspective that includes the transactional interpretation of quantum mechanics (Cramer, 1986), which posits that our macroscopic world of the present is being continuously formed via interactions between past and future. Dick Bierman in Chapter 8, "Consciousness Induced Restoration of Time Symmetry", while remaining more agnostic on whether psi effects are quantum mechanical or not, admirably makes specific predictions for future experimental discoveries using his theories, namely the presence of time-symmetric effects in the highly coherent fluid of a Bose-Einstein condensate, the prediction that the structure of physiological effects after a person is affected by a stimulus will be reflected in the structure of data recorded before the stimulus occurs, and finally that highly correlated brain states should exhibit greater precognitive effects.

### **Entropic Theories**

The relation of the arrow of time with changes in entropy suggests possible entropic theories of psi. This is the theme of Chapter 6, "Entropy and Precognition: The Physics Domain of the Multiphase Model of Precognition", by Edwin May and Joseph Depp. The suggestion that entropy gradients called "Shannon entropy" (Shannon, 1948) could be correlated with the strength of psi is a fascinating testable hypothesis. Otherwise the chapter is usually highly speculative in a broad-brush fashion on what could be the mechanism of information transfer.

### **Extra Dimensions**

One way to enact the information transfer across the distant points in space-time apparent in psi is to use multiple dimensions, allowing psi to "shortcut" across the other dimensions. Theoretical and experimental work has investigated extra dimensions utilizing high-energy physics experiments but no discovery of extra dimensions has been made (Patrignani, 2016). Nonetheless, Bernard Carr's Chapter 2, "Higher Dimensions of Space and Time and Their Implications for Psi" is well written and offers explanations for a broad range of phenomena. I would be interested to read about experimental predictions being made for interactions involving how the "subtle matter"

that Carr posits connects with the higher dimensions.

### **Quantum Theory**

Two chapters of the volume describe theories very explicitly based on quantum theory. In Chapter 5, “What you Always Wanted to Know about the Observational Theories”, Brian Miller uses quantum theory to formulate a view of psi based on feedback. According to Millar, it is the observation of the system during feedback, particularly by the experimenter, which determines whether an experiment displays correlations interpretable as psi. Observational theories such as Millar’s posit the experimenter rather than the experimental individual as the source of psi. Perhaps individual experiments in the future will need to take the measure of participant motivation versus experimenter motivation. One might apply such an analysis to Bem’s retrocausal recall experiments in evaluating the replicability of the erotic experiment against the others (Bem, 2011; Bem, Tressoldi, Rabeyron & Duggan, 2016).

Another observational model is “The Model of Pragmatic Information” (MPI) described in Chapter 11 by Walter von Lucadou. In this model, psi is the manifestation of meaningful correlations. A correlation is meaningful if information is conveyed to the observer. This correlation can be in the form of a synchronicity (in Carl G. Jung’s sense). Differentiating itself from other models, MPI does not posit any transfer of information. This provides a clear solution to the issue of time paradoxes that bedevil any theory that posits retrocausal information transfer. But a question remains in my mind: What do we make of anecdotal reports of psi being used to avoid danger? Are these events not what they seem?

### **Decision Augmentation Theory**

To round out models of psi, we come to one that experimentalists such as me have nightmares over: decision augmentation theory (DAT). As explained in Chapter 10, “Experimenter Psi: A View of Decision of Augmentation Theory”, by Edwin May, DAT posits that experimenters use their unconscious psi to help optimize their experiments to achieve their desired results. Although the chapter uses the example of the Global Consciousness Project, the nightmare is that DAT could affect any statistical measurement across multiple fields from psychology, to medicine, to certain subfields of physics. What does this mean for the objectivity of science? The scientific community should be much more aware of this threat.

### **Future of Psi Research**

The volume closes out with “Part II: The Future of Psi Research.” Chapter 14 is a reproduction of the Parapsychological Association Presidential Address from 1975 given by Charles Honorton titled, “Has Science Developed the Competence to Confront the Paranormal?” I was very depressed reading it, thinking that almost no progress has been made towards acceptance of psi research by the broader scientific community in 40 years and how new strategies might be needed. But this may be merely my own geographical bias. Volume 1 of Extrasensory Perception gives highly contrasting views regarding the status of psi research in the United States versus Europe with much more optimism shown towards non-U.S. research. It may be safe to say that much progress has been made in the normalization of psi research in many (but not all) nations.

The final Chapter 15, “Next Step: Process Oriented Research”, by Edwin May and Sonali Marwaha, reviews the U.S-government-funded Star Gate Program and proposes a program of process-based research. The chapter does not explicitly state what I think was one of the greatest



“problems” with the Star Gate program from a scientific standpoint: It was classified and so there could be no interaction with the broader scientific community, meaning that other scientists never got the chance to be inspired by and interact with the results. I think May’s suggestion of bringing in researchers from multiple mainstream fields would be a major breakthrough. The problem with realizing this comes from the cultural and social taboos against psi research.

All chapters of *Extrasensory Perception Volume 2* are worth reading and are recommended for any scientist interested in psi research. Though each reader will have his or her own favored theory out of the collection, a compendium like this will allow the research community to start testing theories in the best traditions of the scientific method. I thank Edwin May and Sonali Marwaha for preparing this excellent collection.

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