

THE PEAR PROPOSITION

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Journal of Scientific Exploration, 19, No. 2 (2005), reprinted with permission.

As the sunset of the PEAR laboratory program was approaching, we were requested by the Editor of the *Journal of Scientific Exploration (JSE)* to prepare a comprehensive review article that would present the romance of this scholarly enterprise in all of its entwined scientific, philosophical, technical, political, economic, and cultural dimensions. This required more than a

year to compose, but eventually reached the following publication. It is reproduced here in full because of its ubiquitous relevance to the thesis of this issue of *EXPLORE*, and because it and the previous “Margins” item stand as the literary book-ends on all of the other technical and philosophical material to be presented in this anthology.

Abstract

For more than a quarter century, the Princeton Engineering Anomalies Research (PEAR) laboratory has engaged in a broad range of experiments on consciousness-related physical anomalies and has proposed a corresponding selection of theoretical models that have combined to illuminate the fundamental nature of the provocative phenomena that emerge. Productive pursuit of this topic has inescapably involved a spectrum of political, cultural, personal, and interpersonal factors that are normally not encountered in more conventional scientific scholarship, but have both enriched and complicated the enterprise in many ways. Some of the insights gleaned from the work are objectively specifiable, such as the scale and structural character of the anomalous effects; their relative insensitivity to objective physical correlates, including distance and time; the oscillating sequential patterns of performance they display; the

major discrepancies between male and female achievements; and their irregular replicability at all levels of experience. But many others relate to subjective issues, such as the responsiveness of the effects to conscious and unconscious intention and to individual and collective resonance; the relevance of ambience and attitude in their generation; and the importance of intrinsic uncertainty as a source of the anomalies. This blend of empirical features predicates radical excursions of the dedicated models, and hence of the more general scientific paradigms, to allow consciousness and its subjective information processing capacities a proactive role in the establishment of objective reality, with all of the complications of specificity, causality, and reproducibility that entails. The attendant complexities of conceptualization, formulation, and implementation notwithstanding, pragmatic applications of these phenomena in many sectors of public endeavor now can be foreseen.

I. PROLOGUE

Any attempt to retrace the 26-year path of the Princeton Engineering Anomalies Research (PEAR) program must recognize that this has by no means been a monofilamentary technical endeavor. Rather, the primary scientific strands have been tightly interwoven with a number of philosophical, economical, political, cultural, personal, and interpersonal fibers that have both constrained and enriched the course of research. Some of these components lend themselves comfortably to exposition in an academic journal; others less so, requiring the reader to interpolate between the lines of necessarily sanitized descriptions. Beyond that, it is difficult to sequence the reportage to follow the courses of the individual elements coherently, while still retaining some chronological fidelity to their composite evolution. Notwithstanding, whatever intellectual and intuitive wisdom has been acquired in this program has devolved from the dynamic, synergistic intertwinement of its multi-varied threads of past, present, and future contexts and perspectives, rather than from any particular one of them, *per se*, and it is to this interplay that this article is addressed. Indeed, this evolution could well be represented from a variety of other perspectives wherein a philosophical, psychological, mystical, biographical, or historical tone would dominate the reportage, with the technical and analyt-

ical details interwoven as credibility embellishments, as is commonly done in popularized addresses to the topic.

For our *Journal of Scientific Exploration (JSE)* readership, however, this article will retain a basically scientific perspective, albeit one requiring greater breadth and depth to accommodate the empirical correlates than is typically allowed in most other technical areas. To minimize the dimensions of this paper, we shall make frequent reference to our original attempt to display the inescapable multidisciplinary of this topic in the book *Margins of Reality: The Role of Consciousness in the Physical World*, first published in 1987.² While the empirical results, theoretical models, and conceptual interpretations presented therein have been greatly extended by two decades of subsequent work, much of the ancillary contextual material remains quite valid to more contemporary renditions. Similarly, extensive reference will be made to the numerous archival publications and technical reports written over the course of the program, many of which now may be downloaded from our website <<http://www.princeton.edu/~pear/>>.

II. GENESIS

As recounted in more detail in *Margins*, the establishment of the PEAR program was stimulated by some rudimentary studies

involving a microelectronic random event generator (REG), undertaken in an undergraduate independent project supervised by one author (R.J.) over the period 1977–79. The enigmatic mind/matter results that surfaced in the course of that project raised provocative epistemological implications for the basic sciences, pragmatic implications for technological applications, and metaphysical implications for personal, interpersonal, and cultural belief systems and behavior. Clearly, more substantial investigation was predicated, but the prospect of mounting a research program of a scale and character competent to render definitive answers to the host of strategic and philosophical questions swirling around such an investigation was daunted by a recalcitrant university administration and a dearth of scholarly colleagues willing and competent to collaborate in such an enterprise. More serendipitously, however, there was also at that time a compensatory eruption of intellectual, emotional, and not least, financial encouragement from a number of powerful supporters outside of the university who were unflinching in bringing their stature, influence, and fiscal resources into play (*cf.* “Acknowledgments”). After a tedious period of frequently frustrating and occasionally amusing negotiations within the university, the program was authorized and officially launched in June 1979. Minimal laboratory space was carved out of a storage area in the basement of the Engineering School complex, which to this day remains the storied technical and social home of the fully international PEAR operations. Recruitment of appropriate staff was begun, an initial sequence of experiments was designed and implemented, and a stream of data began to flow.

Early on, the title “Princeton Engineering Anomalies Research” was selected to emphasize that this program was (a) academically based; (b) impelled by, and primarily addressed to, technological implications; (c) focused on initially inexplicable physical phenomena; and (d) pursued *via* rigorous scientific methods. (In a classic piece of Jungian synchronicity, while the decision to adopt this nomen and its acronym was being debated at a private lunch in a small coffee shop, the authors noticed that the salt and pepper shakers were in the shape of pears, that the salad involved pears, and that the dessert menu featured pear cake. (Nor was the linguistic similarity of the label to its intellectually bonded *pair* of authors overlooked in its adoption.)

All of the technical, philosophical, and political steerage of the program through its birth pangs and infancy was shared in close dialogue between the two authors, even before the latter (B.D.) began her formal appointment as Laboratory Manager. During this same period, the Director (R.J.) endeavored to maintain some scholarly credibility and administrative authority in his tetravalent roles as Dean of the School of Engineering and Applied Science, Professor of Aerospace Sciences, director of a major research program in advanced space propulsion systems, and leader of this embryonic engineering anomalies research enterprise. From its conception, it was agreed that the overarching purpose of the program was to be a scientifically rigorous, empirical and theoretical study of anomalous interactions of human consciousness with random physical processes, with particular attention to the following hierarchy of questions:

1. Are such mind/matter anomalies legitimate?
2. Are they amenable to systematic scientific investigation?

3. What is their scale?
4. Do they display characteristic structural features?
5. What are their primary physical correlates?
6. What are their primary subjective correlates?
7. What is their empirical replicability?
8. Can theoretical models be constructed?
9. What are their scholarly interfaces with other technical disciplines?
10. Are they related to other creative or aesthetic domains?
11. What are the implications for scientific methodology?
12. What pragmatic applications can be foreseen?
13. What are the broader cultural or metaphysical implications?

The subsequent course of this program has attended to this sequence of queries rather closely and, to varying degrees, substantial responses to each of them can now be made with some confidence, as outlined throughout this article.

To address this matrix of questions, it also was agreed at the outset that the research agenda should comprise three synergistic parts:

1. Experimental studies of the interaction of human operators with a broad variety of devices that embodied some forms of random physical processes, with the goal of assessing how much information, in the classical objective sense, could be imparted by anomalous means to their output data streams.
2. Complementary experimental studies of the remote perception genre, to assess the degree of information about specified physical sites that could be acquired by a human perceiver by other than physiological sensory means.
3. Construction of theoretical models that could dialogue with both classes of experiments, to aid in their design, evaluation, and interpretation, and eventually to enhance fundamental understanding of the phenomena.

Throughout the history of the program, the symbiotic technical and philosophical reinforcement of these three components has continued to be demonstrated and utilized, and has remained an important aspect of the phenomenological and theoretical representations.

It was clear from the start that the inescapably multidisciplinary character of the topic demanded a comparably multidisciplinary staff, and such was sequentially recruited and phased into an atypical but remarkably coherent and effective research team. In addition to a director drawn from the basic and applied physical sciences and engineering, and a laboratory manager trained in developmental psychology and broadly cognizant of philosophical, spiritual, and mystical traditions, the laboratory staff has comprised a selection of psychologists, physicists, engineers, and social scientists. Some of these have been associated with the program for many years, others have been more transitory, but all have contributed in important ways to the effectiveness of the operations and to the growth of understanding.

III. EARLY RESULTS

The original human/machine experiments performed in the young PEAR program employed a first-generation random event

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