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**RESEARCH INTO "PSI" PHENOMENA: CURRENT STATUS AND
TRENDS OF CONGRESSIONAL CONCERN**

**Christopher H. Dodge
Specialist in Life Sciences
Science Policy Research Division
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ABSTRACT

The status of past and present research into psi phenomena, including extrasensory perception (ESP) and psychokinesis (PK), is reviewed and summarized. It is concluded that at present, the psi research community is minimally funded, diffuse in nature, largely unstructured, and somewhat hesitant with regard to research methodologies. Nonetheless, progress is being made slowly to better understand the nature and potential of psi phenomena. Effective realization of the potentials or pitfalls of psi will require an open, humanistic perspective as well as the rigor and scientific discipline provided by conventional research tradition.

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1/ Jahn, Robert. The Persistent Paradox of Psychic Phenomena: An Engineering Perspective. Proceedings of the IEEE, v. 70, no. 2, 1982. p. 136-170.

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The world of psychic phenomena might be likened to a vast, fog-shrouded swamp, wherein are reported to dwell a bewildering array of bizarre phenomenological creatures, all foreign to our normal perceptual and analytical catalogs.

Robert Jahn, 1982

INTRODUCTION

PURPOSE

It is the purpose of this summary report to review the status of research into the broad field of psi phenomena (see definitions below). Current national and international trends in research will be summarized and the future implications of such research will be speculated upon.

CONGRESSIONAL CONCERNS

In December, 1979, the Congressional Clearinghouse on the Future, with the assistance of the Congressional Research Service, sponsored a series of Chautauquas for the Congress dealing with a variety of esoteric subjects, including alternative approaches to medicine (acupuncture, faith healing, etc.) and research into psi phenomena. The last of these Chautauquas was entitled, "Mind Research and the Human Potential," and featured the following presentations by experts in the field:

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- 1) Brain Research and the Human Potential (Jean Houston);
- 2) Psychic Discoveries Behind the Iron Curtain (Lynn Schroder and Sheila Ostrander);
- 3) Remote Viewing (Harold Puthoff);
- 4) Implications of Mind Research (Edgar Mitchell).

These well-attended presentations elicited considerable interest on the part of certain members, their staff, and the staffs of certain House and Senate committees. Over the past three years congressional interest in the subject has remained as the subject has received increasing attention by the news media.

During 1982, congressional requests were received by the Congressional Research Service to conduct a review of the status of research into psi phenomena. As a part of the CRS response, this review focuses on the following general topics:

- 1) nomenclature and definitions;
- 2) history;
- 3) status of current research in the United States and abroad;
- 4) theory;
- 5) public and scientific perceptions: positive and negative;
- 6) possible implications for government and society.

NOMENCLATURE AND DEFINITIONS

By far, the most commonly encountered term in the study of extended sensory awareness or psi research is "parapsychology." This term originated from a cadre of scholars with professional backgrounds in classical psychology. This group

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has tended to approach the field with traditional psychological protocols and vocabulary and to interpret results in the context of classical psychological tradition.

Recently, certain individuals in the field with backgrounds in scientific disciplines other than psychology have expressed the need for a less controversial, more universal term. For the purpose of this report the term, "psi" is used to encompass research into mind-mind and mind-matter interrelationships of an unexplained or currently unexplainable nature.

It is expedient to group categories of the more widely investigated psi phenomena according to the general classification of Jahn in his recent review article on psi research. 2/

TABLE 1. Major Categories of Psi Research

- I. Extrasensory Perception (ESP) = psi gamma
 - A. Telepathy
 - B. Clairvoyance
 - C. Precognition/Retrocognition
 - D. Animal ESP
- II. Psychokinesis (PK) = psi kappa
 - A. Physical systems
 - B. Biological systems
 - C. Psychic healing
- III. Survival After Death
 - A. Reincarnation
 - B. Apparitions (ghost phenomena)
 - C. Mediumship (communication with the departed)
 - D. Out-of-Body Experiences (OBE)

2/ Jahn, Robert, op. cit.

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A brief definition of some of the more commonly encountered terminology in the broad field of psi is provided below: 3/ 4/ 5/

Animal ESP - Exhibition of psychic capabilities by animals that are sometimes similar to human manifestations. Also includes such phenomena as homing and swarming.

Apparition - Abnormal appearance or perception that cannot be referred to any natural objective cause but is distinguished from hallucination.

Clairvoyance - The ability to perceive objects or events beyond the known capabilities of conventional or perceptual faculties.

Conscious - The zone or sector of personality that is aware of its functioning self.

Dowsing - The clairvoyant (or physical) ability to perceive water, minerals, or other natural elements below ground beyond the known capabilities of normal sensory or perceptual faculties. May or may not involve the use of a wand, rod, forked stick, or other instrument held in the hands that points downward when the dowser is over the target being sought. Synonymous with "divining." Related techniques permit acquisition of other types of information.

Extrasensory Perception (ESP) - A general term used to describe the perceptual aspect of psi processes (see "psi").

Ganzfeld screen - A family of procedures designed to produce mild, psi conclusive alterations in consciousness via uniform visual or auditory stimuli.

Ghost - The illusory perception of a past event or person by another person.

Hallucination - A sensory illusion that appears to exteriorize an internal creation or experience.

3/ Leeds, M. and G. Murphy. The Paranormal and the Normal: A Historical, Philosophical, and Theoretical Perspective. Metuchen, N.J., The Scarecrow Press, Inc., 1980. 239 p.

4/ Shepard, L. A., ed. Encyclopedia of Occultism and Parapsychology, vols. 1-2. New York, Avon Publishers, 1980. 1084 p.

5/ Womans, E. J., ed. Handbook of Parapsychology. New York, Van Nostrand, 1977. 560 p.

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Kirlian photography - A photographic technique for converting the non-electrical properties of an object into electrical properties that can be recorded on photographic film (syn. electrophotography). Various Kirlian photography devices are marketed in the U.S. and Europe to record biological fields around humans, animals, and plants. The significance of the phenomenon remains to be determined.

Medium - A person who is able to dissociate easily, and by a number of expressive means (voice or writing) can allegedly "communicate" with other personalities in other planes of existence.

Out-of-Body Experience (OBE) - A sensation of being conscious and of possessing an alternate, separate, and less dense body that is able to move about with relative freedom. An experience, either spontaneous or induced in which one's center of consciousness seems to be in a spatial location separate from that of one's physical body.

Paranormal - Sensory phenomena or physical events not explainable by present concepts of causality or physical laws.

Parapsychology - The scientific study of psi or physical phenomena by persons primarily trained in the psychological sciences (i.e. psi).

Poltergeist - Macroscopic PK usually in the presence of a young person who is able to move physical objects by unknown forces or means.

Precognition - The sensation of becoming aware of an event before it occurs.

Psi - The abbreviation for all psychical or paranormal phenomena (i.e. extended sensory awareness).

Psychokinesis (PK) - The movement or influence of matter or living systems by psi means or mechanisms.

Reincarnation - The concept that the human personality consists of of physical body and a mind, spirit, or some non-physical entity that survives death of the physical body. Later, it becomes associated with a new physical body developing a new personality that is, to a certain extent, continuous with the first one.

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Retrocognition - The perception of past events in the present by psi processes.

Telepathy - The passage or sharing of information between two personalities by extrasensory processes.

Trance - A mental state in which the actor or self is partly or wholly submerged and unconscious (i.e., dissociation).

Unconscious - The aspect of personality below its conscious and preconscious levels.

HISTORY

The study of paranormal behavior and psi phenomena is one of the oldest endeavors. As far back as can be traced, humankind has pondered the supernatural in one form or another. Cave drawings believed to be made as early as 20,000 BC reflect such a preoccupation. The religious rites of early societies, both East and West, were heavily influenced by psi formalisms. The early civilizations of Egypt, Greece, and Rome dealt extensively in psi phenomena.

Virtually every form of organized religion has been thoroughly permeated with various forms of psychic insight. In Western civilization, the Bible is an extensive catalog of psi phenomena.

The first major, recorded scientific inquiry into psi phenomena occurred near the turn of the 17th century by Sir Francis Bacon, generally regarded as the originator of the scientific approach to research. He suggested that "superstitions and the like" should not be excluded from serious study and proposed deliberate investigations into telepathic dreams, psychic healing, and the influence of imagination on the casting of dice.

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Despite the millenia of human concern with psi phenomena, orderly and well-organized efforts to verify and understand such phenomena began only a century ago with the establishment in London of the Society for Psychical Research (SPR). Three years later, the counterpart organization in the United States, the American Society for Psychical Research (ASPR) was founded in Boston.

At the beginning of the 20th century, new perspectives on psi phenomena were provided by the emergence of psychology and psychoanalysis as scholarly disciplines. The patriarchs of this new scientific discipline are recognized as Wilhelm Wundt and Sigmund Freud, the latter of whom was also a member of SPR. It was also early in the century that the first organized academic studies of psi phenomena began to be conducted on a sporadic basis at institutions such as Harvard and Stanford Universities.

The first pioneering undertaking of research into psi phenomena in academic institution took place in the late 1920s at Duke University. At that time, J.B. Rhine and Louisa Rhine were brought in by William McDougall to study the claims to scientific value of the field known as "psychical research." In the Rhine's laboratory, many of the basic concepts and protocols of modern experimental psi research were formulated, and large amounts of research data were systematically collected over a period of decades. In 1937, the Rhines initiated the Journal of Parapsychology, which remains a leading journal in the field today. The Parapsychological Association, an International Professional Society was formed in 1957, and in 1969, it was accepted as an affiliate of the American Association for the Advancement of Sciences (AAAS).

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At present, there are eight major English language publications directly addressing psi research. These are complemented by numerous foreign and less formal magazines and hundreds of monographs of varying quality and relevance. Research is taking place in some 20 U.S. universities and colleges and in at least as many institutions in Western Europe and Great Britain. Research in other foreign countries will be reviewed subsequently. 6/ 7/

6/ Jahn, Robert, op. cit.

7/ Princeton University. Princeton Engineering Anomalities Research Programs statement, 1981. 58 p.

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PRESENT STATUS OF PSI RESEARCH**RESEARCH PATTERNS IN THE UNITED STATES**

Contemporary research into psi research can be categorized, according to table 1 in the Introduction. In the United States the research is characterized as being somewhat diffuse and loosely structured, encompassing, in the main, a variety of specific problems in ESP and PK. 8/

The most sustained attention to the field over time has been accorded by professionals in psychology. This group of scholars has tended to approach the field with traditional psychological protocols and vocabulary. Similarly, the results of experimentation are interpreted in the context of clinical, cognitive psychology, and/or psychophysiology.

The most extensive class of current psi research has attempted to correlate psi performance with personality variables. Such variables as age, sex, creativity, openness, anxiety, extroversion, neuroticism, motivation, mood factors, attitudes, and intelligence have been examined at length as indices of the ability to perform ESP tasks. Some consistent, but weak, productive relationships have been established. Other studies have searched for connections between psi performance and cognitive factors such as imagery processes, dream recall, hearing and response strategies, short-term memory, and biofeedback. More active approaches to current research depart from the assumption that the usual awake/aware state is not amenable to the occurrence of psi because of

8/ Jahn, Robert, op. cit.

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competition with sensory and motor processes. Thus, a variety of altered states of consciousness are being explored to enhance psi performance. These new research strategies seem to minimize sensorimotor interference via approaches such as sleep, meditation, and progressive relaxation. More mechanical sensory inhibition strategies have been employed such as hypnosis, sensory isolation, and the use of the Ganzfeld techniques (see definitions in the Introduction).

The tools available for the conduct of contemporary psi research are constantly being refined and improved upon. The statistical techniques of psi research are highly developed. To the extent permitted by persistent scarcity of funding, psi researchers have rapidly incorporated the latest technologies into their investigations, including laboratory minicard micro-computers and various classes of sophisticated laboratory instruments. Currently, new efforts are underway to identify physiological correlates of psychic states. Such instruments as the conventional electroencephalograph (EEG), electrocardiograph (EKG), galvanic skin response (GSR), and plethysmographic instruments are used to monitor neurological, cardiovascular, and neuromuscular correlates of psi conditions. Kirlian photography has been employed in studies of PK and faith healing. The corona discharge effect has yet to be satisfactorily explained in terms of psi phenomena. The persistent difficulty of obtaining fully consistent replications in every attempt to study positive results has led to studies of the influence of the experimenter as a possible inhibitory influence on subjects under investigation.

Until recently, the involvement of physicists in psi research has been less extensive, although no less intensive and controversial. In the past

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five years, part of the physics community has focused on PK research; identification and correlation of very low-level physical effects; and the application of theoretical physics to modeling psi phenomena. Specific contributions of physics to psi research include the development and application of a variety of electronic random event generators designed to identify and correlate PK abilities in human subjects. Magnetometers, torsion pendula, lasers, interferometers, and piezoelectric strain gauges have found similar applications. On a more theoretical level, quantum mechanics, statistical thermodynamics, electromagnetic theory, and other formalisms have been applied toward a better understanding of the existence and nature of psi phenomena.

The involvement of engineers in psi research is a relatively recent event. Only a few engineering laboratories address the field in a substantial and deliberate manner, although the future will likely bring greater involvement by the engineering community. Thus far, that involvement has primarily taken the form of applied physics and information processing rather than the more technological applications.

Statisticians and logicians have also played a role in psi research. Their main concern has been the proper evaluation and interpretation of research data. In the limited experiments displaying quantitative replicability of macroscopic effects, inferences and hypotheses about psi phenomena have been based on statistical evidence and on field observations of varying quality. Anecdotal evidence remains vulnerable to alternative interpretation, impressionistic bias, and argument, particularly in the face of entrenched skepticism of much of the scientific establishment. It should also be recognized that, in general, statistical evidence, by its nature, is inconsistent.

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A number of other disciplines have played roles in the evolution of investigation into psi phenomena and continue to contribute to the field. The intersection of psi with anthropology, theology, and history encompasses many perspectives ranging from aesthetic to analytical and from dogmatic to scholarly. The relevance of psi phenomena to the study of medicine continues to be a matter of intense debate relative to holistic health strategies and psychic or faith healing. Practical application of psi is occasionally sought by biologists, chemists, geologists, and archeologists. The application of psi to criminology and law enforcement is less rigorous than academic undertakings, but nonetheless contributes anecdotal evidence to the overall psi data base. Finally, the general topic of psi continues to stimulate the arts and humanities.

Thus far, research into psi phenomena has yielded a highly varied assortment of observations that appear to be questionable in terms of the sciences, at their present level of development and evolution. These observations display certain phenomenological and psychological features that hold forth promise for potential and substantial applications. Currently, experimental studies of PK and ESP are receiving primary attention in the psi community because of the relatively consistent informal replication of the phenomena, though replicability associated with contemporary research designs in these areas remains problematic. Recently, this trend appears to be true of psychokinetic metal bending (PKMB) under relatively informal conditions (metal-bending parties). Efforts will be under way in 1983 in various parts of the United States to approach PK in a more disciplined and scientific manner.

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FUNDING FOR PSI RESEARCH

Because of methodological, public image and other difficulties inherent in psi research, the field continues to receive little support from the Federal sector. Total funding for psi research in the United States probably does not greatly exceed \$500,000 per annum, and most funding originates from private sources and foundations. During the period 1973-1978, the most recent years for which reliable data are available, the 13 leading centers for psi research in the United States spent an aggregate total of \$552,000 per annum with a median amount per center of \$17,000. In 1979, the McDonnell Foundation, created by the late James S. McDonnell, chairman of the McDonnell Douglas Foundation, donated \$500,000 to Washington University in St. Louis to set up a psychic research laboratory. It is the largest amount of money ever contributed to a psi research program.

A survey of 21 proposals for Federal funding of psi research between June 1971, and June 1978 revealed that only four were approved, two were approved but not funded, and 14 were disapproved. Total funding for the approved projects amounted to \$179,500 over the seven year period. The total projects not approved for funding represented a dollar value of \$1.3 million. The majority of disapproved proposals received low merit ratings or criticism of experimental design and methodology. 9/

PSI RESEARCH IN FOREIGN COUNTRIES

The recently established Journal of Psi Research, an East-West journal dealing with parapsychology, psychotronics, and psychobiophysics,

9/ Zimmerman, Howard. Gardner Murphy Research Institute. Personal communication.

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provides an example of the international character of serious interest in psi phenomena. The editorial board of that journal represents the countries of Australia, Brazil, Canada, Britain, Holland, Israel, Italy, Norway, the Soviet Union, and the United States. Psi research is also actively practiced in the countries of Bulgaria, Czechoslovakia, India, Japan, Mexico, Poland, and the Peoples Republic of China. 10/ 11/ 12/

The categorical emphasis on psi research varies from country to country. For example, it is widely speculated that the Soviet Union is actively pursuing practical applications of psi phenomena for economic, military, and health purposes. There is considerable Soviet interest in remote hypnotic manipulation, dowsing for water, oil, and other minerals (referred to in the Soviet literature as the "biophysical or biolocational effect"), PK, and psychic healing. The Soviets claim that scientific studies of dowsing have yielded significant results. Accordingly, dowsing is taught to professional mineralogists and geologists at Tomsk Polytechnical Institute. It is also speculated that the Soviet Government is firmly committed to the funding of psi research and that much of this funding, variously speculated to amount to tens of millions of dollars, is directed toward military research, although there is no firm confirmation of this speculation. 13/

10/ Vilenskaya, L. Psi in the USSR: Applied Aspects. Applied Psi Newsletter, v. 1, no. 1, 1982. p. 4-5.

11/ Puthoff, H. E. Investigations Into "Extraordinary Human Body Function" in China. Psi Research, v. 1, no. 4, 1982. p. 4-8.

12/ Ryzl, M. New Advances in East European Parapsychology. Psi Research, v. 1, no. 1, 1982. p. 5-13.

13/ Vilenskaya, L., op. cit.

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In the People's Republic of China, psi research is officially described as "exceptional human functioning" and research focuses on the following subjects:

1. A system of deep breathing exercises to promote psi conditions (known as "quigong").
2. The perception of images without the benefit of vision (eyeless sight).
3. The remote sensing of pain in other people.
4. Remote sensing directed toward identifying the characteristics of previously unknown people.
5. Remote perception of thoughts in other people.
6. Healing by means of laying on of hands (psychic healing).
7. Purposeful mental influence on other people.
8. Teleportation.

The Chinese effort appears to be a relatively recent phenomena. 14/
The focus of interest in psi research in Canada, Great Britain, France, and other West European countries is generally oriented toward mind-mind or mind-matter interactions as in the United States. The Journal of Psi Research has provided an excellent insight into international psi research.

14/ Puchoff, H. E., op. cit.

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THEORY

This summary report will not attempt to discuss in any detail the various theories of mechanisms of psi phenomena. It is sufficient to state at this time that there exists no conclusive physical theory of psi, although extensive scholarly dialogues and debates continue. ^{15/} Next to the aforementioned evasiveness of replicable effects under controlled experimental settings, one frustration in the field is the absence of theoretical models with which to bridge the gap between theory, experiment, and practice, the fundamental cornerstone of all scientific progress. Quantum mechanics and Bell's theorem seem to offer promise at present.

Present physical theories of psi phenomena are clustered in six broad groups that will be briefly reviewed below. The first serious models dealt with electromagnetic fields usually in the extremely low frequency range (i.e., ELF-10 Hz or lower). This model assumes that the propagation of electromagnetic fields of extremely low frequency to or from the brain can act to carry at least some psi effects. Existing experimental results pertinent to this hypothesis render the ELF model unpromising, although it is not totally rejected.

Other types of geophysical waves have been considered in the context of psi phenomena, such as geoseismic waves, infrasonic waves, and barometric fluctuations. All of these seem to be inadequate to deal with certain classes of psi phenomena, particularly remote viewing and precognition.

^{15/} Jahn, Robert, op. cit.

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That these known physical factors in the environment cannot be effectively applied to psi theory does not prove that they do not interact in a more direct manner with the human and animal organism via certain components of the central nervous system. For example, a number of experiments are underway to determine if certain humans and animals can premonitor seismic and volcanic activity. It is hypothesized that this uniquely sensitive group may be able to couple conventional auditory or vestibular function with small fluctuations in electromagnetic fields, gravity fields, acoustic (infrasound or ultrasound) fields, or barometric pressure days or even weeks before major cataclysmic events. Such a direct coupling effect may or may not have a bearing on the psi phenomena discussed thus far.

More recent efforts to develop a workable theory for psi phenomena have involved various categories of physical theory such as:

- statistical mechanics and statistical thermodynamics: the subtle interplay of the thermodynamic concept of entropy with information theory as applied to a broader implication in terms of the role of human consciousness in ordering random processes;
- hyperspace theories: the basic laws of physics are recast in more than four coordinates of normal human experience and the consequent new terms are applied to the representation of psi phenomena;
- quantum mechanics: an inherently probabilistic approach that lends itself to representation of phenomena that depart significantly from strictly deterministic sequences of cause and effect. This is now accepted as scientific theory. Of significance in quantum mechanics is the effect of the observer on the experiment;
- Bell's theorem: emphasizes that "no theory of reality compatible with quantum theory can require spatially separated events to be independent." Rather, it must permit physically separated events to interact with each other in a manner that is contrary to ordinary experience;
- holographic transformations: all reality is regarded as deployed in an infinite field of amplitude/frequency information. The brain is hypothesized to function as a Fourier transform device to provide the familiar space/time localized imagery;

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holistic models: more extreme in conceptual difficulty; these contend that psi processes are inseparably holistic and that no model rooted in any domain of established science can adequately represent manifestations that cut across the established sciences and the creative, aesthetic world without somehow combining the philosophical perspectives and techniques of both domains. 16/ 17/

These theories suggest that the following general hypothesis may become subject to more detailed examination:

1. Psi phenomena may be most fruitfully approached at this point on a statistical basis rather than directly causal. They may represent marginal changes from normal behavior on a large scale and with fluctuation times that tax human observational capability. It may be necessary to consider more complex statistical mechanics to represent the most drastic effects;
2. Just as human consciousness is able to extract information from an external system by observing it, that consciousness may also have the ability to project information into an external system by ordering random processes;
3. Quantum mechanics may be more than a system of physical mechanics. It may be a more fundamental representation of human consciousness and perception processes. The empirical bases of this formalism may be as much laws of consciousness as laws of physics;
4. Psi understanding may be inherently holistic. Therefore, the ultimate model may need to read both scientific and aesthetic concepts in order to identify the sources of psi phenomena. The psi condition may be a manifestation of the intersection of the analytical, scientific world with the creative, aesthetic world, so that it may be necessary to integrate both perspectives without sacrificing the integrity of either. 18/

16/ Jahn, Robert, op. cit.

17/ Princeton University, op. cit.

18/ Jahn, Robert, op. cit.

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PUBLIC AND SCIENTIFIC PERCEPTIONS OF PSI RESEARCH

CRITICISM OF PSI RESEARCH

Criticism of psi research is widespread and often unjustified because of the traditionally anecdotal and phenomenological nature of the field and because it is difficult to obtain statistically reliable, replicable results under many conditions, including the most rigidly-designed and controlled settings. Commonly cited criticisms that are applicable to all of the sciences include the following: 19/

1. Demonstrable fraud, which has occurred in several cases recently.
2. Poorly conceived methods, including inadequate controls, faulty equipment, sensory cueing of participants, experimental bias, selective treatment of data, improper statistical processing, and general experimental and theoretical incompetence.
3. Suppression of negative results.

The remaining criticisms apply to psi research specifically:

1. Absence of adequate theoretical models and little improvement in the comprehension of psi phenomena over many years of study.
2. Poor experimental replicability and elusiveness of effects under close scrutiny.
3. Sensitivity of results to participants, attitudes and laboratory setting.
4. Tendency for results to be only marginally significant compared to chance expectation.
5. Contradictory nature of much psi phenomena with personal psychology, philosophy, theology, or "common sense."

19/ Jann, Robert. op. cit.

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It should also be noted that the quality of criticism of psi is often poor. The evasiveness of psi phenomena under carefully controlled and observed conditions seems presently to be the most compelling criticism of the field in general. At the same time, this observation may also lend urgency to further investigation into psi phenomena. Many other scientific endeavors in early stages of investigation have proven to be frustrating to the investigator because of a lack of understanding of the phenomenon under scrutiny. Radiation biology is an example of such a dilemma. In the very early stages of research into the interactions of ionizing radiations with biological systems, there was an almost total lack of appreciation for the health effects of acute doses of radiation, particularly x-rays, despite the fact that the physics of producing the radiation was well understood. This lack of understanding led to severe radiation injury of many prominent, early researchers in the field such as Mme. Joliot Curie. Although the acute effects of ionizing radiations are well-understood today, their subacute or low-level effects remain the subject of considerable controversy.

By definition, contemporary science does not permit a definitive explanation of the nature and mechanisms of psi phenomena. That these factors remain unexplained does not necessarily mean that they are unexplainable. The understanding of psi phenomena may be hampered by the present level of development of the sciences. Traditional scientific methodologies may need to be broadened.

To the credit of the psi research community, it has encouraged thorough and objective scrutiny of negative data in journals regularly publishing on

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the subjects. A number of benefits accrue from such a policy. First, negative data are crucially important to any scientific exploration. Second, a quantitative index is provided of the ratio of positive to negative outcomes in a given class of psi experiment, thereby providing a broader view of the overall statistical nature of the phenomenon. Third, documentation of specific conditions prevailing in unsuccessful experiments may contribute toward excluding irrelevant factors from further consideration and identifying and reducing counterproductive influences. Finally, negative data serve to demonstrate that psi phenomena, if real, are highly irregular and sensitive to intangible influences beyond the control of science at its present level of development. 20

THE POSITIVE SIDE

It would be misleading to leave the reader with the impression that psi phenomena, as they are presently understood, are generally rejected by the public and by sciences. Indeed, quite the opposite would seem to be true. All polls of both the public and the scientific community in recent years have yielded evidence of a generally positive attitude toward the existence and relevance of psi phenomena as a class and research into them. The general public accepts the concept of psi, often based on personal experience. In addition, a number of recent experiments have yielded more or less consistent positive results under rigorous conditions of investigation, even though the mechanisms of these functions remain unexplained. It is also worthy to note that historically, psi phenomena have been reported with

20/ Jahn, Robert, op. cit.

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striking consistency across a whole spectrum of human conditions, both natural and experimental.

It is accepted by the scientific psi research community that the role of the critic, particularly in this controversial field, is quite essential. When the criticism is objective and fair, it can promote discipline in research and ensure that the fundamentals of sound scientific methodology prevail. Here, as elsewhere, if criticism violates these same rules and if it lapses into categorical rejection, sloppy logic, or emotional and negative prejudice, then it assumes as suspicious a character as the objective of its criticism.

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POSSIBLE IMPLICATIONS FOR GOVERNMENT AND SOCIETY

Given the present, uncertain status of psi research, it is premature to attempt any kind of definitive evaluation of its potential impact on government or society. If replicable psi phenomena prove in the future to be elusive, then it is reasonable to expect the field to slowly die out as a scientific discipline.

If, on the other hand, certain psi phenomena and functions prove to be amenable to scientific replication, prediction and control, then quite another prospect comes into play. Results of recent psi research suggest that some psi phenomena can be acquired and repeated fairly reliably, if less than ideally, under well designed and controlled conditions. This suggests to some critical observers that there may be an interconnectiveness of mind with mind and mind with matter. It is also inferred from some preliminary positive results that information might be accessed over time and space. If these suspicions are subsequently confirmed, then the ability of humankind to control these phenomena functionally and repeatably becomes a realistic goal of psi research. 21/ The implications of such a development for society and government are, simply stated, vast in three fundamental categories:

1. acquisition of knowledge;
2. practical application of psi functions; and
3. depending upon such applications, the possibility of general enhancement of the human condition.

21/ Gough, W. C., E. Rauscher, J. Houck, and V. Gruye. The Status of Research on the Physics of Consciousness: Working Models and Experiments. Los Altos, California, Foundation for Mind-Being Research. Sept. 15, 1980. 44 p.

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With regard to the first category, basic knowledge might be gained in two ways: the acquisition of new scientific information and the improved application of scientific methodology to deal more effectively with irregular phenomena such as ESP, PK, and other psi phenomena. For example, in the area of education, the ability of the human mind to obtain information purposefully in a heretofore "intuitive" (i.e. "gut-feeling") manner could have a significant impact on decisionmaking theory and practice and on traditional approaches to training the human mind in educational and vocational settings.

With regard to the second category, potential applications of psi can only be speculated on conservatively, given the uncertain and relatively irreplicable status of psi functions thus far subjected to systematic scrutiny. It seems likely to expect that such functions as remote perception, precognition, and retrocognition are of potential interest to intelligence agencies, law enforcement units, and activities involving surveillance. For example, "emotional imprints" have already been used to trace past events in archeological and police investigations. 22/

Dowsing or divining for water, oil, and other minerals is an established practice in this country and abroad, particularly in the Soviet Union. Accordingly, further investigation into the nature and possible mechanisms of this phenomenon, which appears to incorporate both natural and paranormal aspects, would seem to be warranted.

In the area of health, the coupling of traditional medicine with mind-initiated healing is being investigated and could be advanced. Recent work

22/ Jahn, Robert, op. cit.

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in this area with cancer patients using mental images and other facets of holistic medicine seem to indicate a potential for more widespread application.

It is possible to imagine a wide variety of applications of psi in such areas as: animal training and interspecies communication; creativity, education, and training; entertainment; decisionmaking; locating lost objects and persons; futures forecasting; geological and archeological exploration; historical investigations; medicine and dentistry; military intelligence and police work; personnel management; psychotherapy and counseling; scientific discovery, and numerous others, including crime, persuasion, mischief, and disinformation.

In the area of high technology, low-level or micro-PK effects have been observed in experiments with random-event-generators (REG) in which it is speculated that certain malfunctions may have been induced by human subjects. These findings, if valid, may have implications in the developing technologies involving microelectronics: If basic functions of microelectronic elements could be even slightly disturbed by intentional or unintentional human intervention, it would be important to obtain some assessment of the potential magnitude of such effects and factors favoring or inhibiting such effects. Understanding this phenomenon would be important before more elaborate integrated circuit arrays, graphic display systems, and other sensitive, man/machine interfaces are committed to even more complicated and critical operations. For example, PK experiments are underway to examine the possible disturbance of the memory functions of single microelectronic chips.

The third and final category of the implications of psi, the general enhancement of the human condition, is the most important and far-reaching

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one, and yet the most difficult one to speculate on at this time. There has been much discussion about this implication that usually arrives at the same general question: Would convincing demonstration of the ability of human consciousness to influence its real world to a significant degree result in altering individual and collective perceptions of the human condition, its value systems, and ultimately, its social and behavior patterns, thereby facilitating evolution to a "higher form" of human existence than prevails today? From the foregoing discussion, it is obviously premature to attempt an answer to this lofty question. Perhaps it is sufficient to speculate at this time that a general recognition of the degree of interconnectiveness of minds, or of minds with matter, could have far-reaching social and political implications for this nation and the world.

In order to better understand psi phenomena and possible functions, and ultimately, to gain a better understanding of their place in tomorrow's society, it is generally thought that it will be necessary to accept the trans-disciplinary nature of psi. It is widely considered in the psi community and society at large that research into psi phenomena in any categorical sector should become more communicative and interactive across traditional scholarly boundaries. Thus, cross-fertilization of ideas and knowledge cannot be limited to fields traditionally related closely to one another, such as physics and engineering, biology, physiology and medicine, and psychology and sociology. This line of thought contends that the insights of the theologian, philosopher, statistician, technologist, scientist, and holistic thinker may all be necessary if psi phenomena are to be rendered into comprehensible and applicable entities.

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Conversely, it is suspected that insular approaches to psi research will not likely yield results. Proponents argue that to exploit the potential benefits of psi, it will be necessary to fund research at a much higher level than at present. Whether or not psi is a real or usable phenomenon, the recognition that psi may be able to enhance the human condition could have far-reaching implications for science and the society it serves.

The present state of psi research is diffuse, largely unstructured, and hesitant, with many internal cross-currents and divergencies of emphasis and method. Along with the promise of significant new possibilities, research into psi phenomena harbors many dangerous pitfalls for the unwary investigator. Effective realization of the considerable potentials of psi, or its debunking, will require the breadth of vision provided by an open, humanistic perspective as well as the rigor and scientific discipline provided by conventional research tradition. 23/

23/ Jahn, Robert, op. cit.

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CLOSING REMARKS

This summary report is largely based on the recent review article prepared by Dr. Robert Jahn, Dean of the School of Engineering/ Applied Science, Princeton University that appeared in the February issue of the IEEE Proceedings. Additional references in that article and from the Gardner Murphy Research Institute provided further background and are listed below (appendix A and B). The Congressional Research Service possesses a large collection of additional bibliographic, journal, and monographic material on various aspects of psi research which can be made available upon request.

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Appendix A.

GARDNER MURPHY RESEARCH INSTITUTE

POST OFFICE BOX 9313 • DUKE STATION

DURHAM, NORTH CAROLINA 27706

A Brief List of Recommended Readings in Parapsychology

A. Technical Books

1. Beloff, J. (Ed.) New Directions in Parapsychology. Metuchen, N.J.: Scarecrow Press, 1975.
2. Broad, C.D. Lectures in Psychical Research. New York: Humanities Press, 1962.
3. Krippner, S. (Ed.) Advances in Parapsychological Research: A Biennial Review. New York: Plenum, Volume 1, 1977.
4. Murphy, G., and Dale, L.A. Challenge of Psychical Research: A Primer of Parapsychology. New York: Harper & Row, 1961.
5. Rhine, J.B. and others. Extra-Sensory Perception After Sixty Years. Boston, Branden Press, 1965 (First published in 1940).
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8. Thouless, R.H. From Anecdote to Experiment in Psychical Research. London and Boston: Routledge & Kegan Paul, 1972.
9. Tyrrell, G.H.M. Science and Psychical Phenomena. New York: Arno Press, 1975 (First published in 1933).
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11. White, R.A. Surveys in Parapsychology: Reviews of the Literature, with Updated Bibliographies. Metuchen, N.J.: Scarecrow Press, 1976.

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12. White, B.A., and Dale, L.A. Parapsychology: Sources of Information. Metuchen, N.J.: Scarecrow Press, 1973.
13. Wolman, B.J. (Ed.) Handbook of Parapsychology. New York: Van Nostrand, 1977.

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- [41] List available upon request.
- [42] Research Institutions: Amer. Soc. for Psychical Research, New York; Ballistic Research Labs., Aberdeen, MD; Foundation for Research on the Nature of Man, Durham, NC; Inst. for Nonion Science, San Francisco, CA; Menninger Foundation, Topeka, KS; Midwest Psi Research Inst., Chicago, IL; Mind Science Foundation, San Antonio, TX; Parapsychology Foundation, NY; Psychical Research Foundation, Durham, NC; Psychophysical Research Labs., Princeton, NJ; Science Unlimited Research Foundation, San Antonio, TX; SR; International, Manila Port.

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- CA: Society for Psychical Research, London; Forschungsrat für Psychotronik, West Berlin; Matsui Hospital, Kashihara, Japan; Inst. of Pharmacology, Polish Academy of Sciences, Krakow; Shanghai Municipal Human Exception Functions Research Society; Corporation; Aerospace Company of California; Boeing Scientific Research Laboratories.
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