

16th Annual Meeting

Hosted by the University of Nevada

at the Monte Carlo Resort, Hotel and Casino, Las Vegas

June 5–7, 1997

Meeting Program (Abstracts - See Below)

Anomalies in Biology

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A New Biophysical Model for the Multi-level Nature of Consciousness — Gordana Vitaliano, Mindwaves Institute, Boston, MA

Parapsychological Topics

Challenging an Unknown Information System — Yoichiro Sako, Director, ESPER Laboratory, SONY Corporation

Do Psychic Phenomenon Exist? A Cross-Experimental Meta-Analysis of a Century of Empirical Evidence — Dean Radin, Consciousness Research Division, University of Nevada, Las Vegas

Operator Influence on a Mobile Random Robot — Brenda Dunne, Princeton Engineering Anomalies Research, Princeton University

Can Animals in Their Natural Habitat Influence a Random Event Generator? Preliminary Results — Marsha Adams, Time Research

Anomalous Cognition in the Brain: The Search Continues — Edwin C. May, Cognitive Sciences Laboratory

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Laboratory Analysis of Objects Appearing During Sessions with A Brazilian "Sensitive"
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Controversies in Anthropology

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FieldREG Measurements in Egypt: Resonant Consciousness in Sacred Sites — Roger
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Topics Associated with Anomalous Aerial Phenomena

Unidentified Flying Objects: A Genuine New Phenomenon — Jacques Vallee

UFOs and human physiological effects — John Schuessler, Center for UFO Studies

National Institute for Discovery Science — John Alexander, Director, National Institute
for Discovery Science

An Astronomical Analysis of a Catalog of UFO Reports — Peter A. Sturrock, Center for
Space Science and Astrophysics, Stanford University

UFOs: Debate on Proof — Jean-Jacques Velasco

Sociology of Studying Anomalous Phenomena

Paranormal Professionals — Barry Markovsky, Professor of Sociology, University of
Iowa

Paradigmatics and Anomalistics: The Role of Scientific Anomalies in Precipitating Paradigm-Shifts — Roger Wescott, Past President, Linguistic Association of Canada and the United States

Changes in Students' Beliefs About Consciousness and Reality — Imants Baruss, University of Western Ontario

Society for Scientific Exploration 16th Annual Meeting Abstracts

Do Psychic Phenomena Exist? A Cross-Experimental Meta-Analysis of a Century of Empirical Evidence

Dean I. Radin

Consciousness Research Division, Harry Reid Center, UNLV

Starting around 1880, scientists began to use controlled laboratory methods to investigate two classes of anomalies associated with human consciousness: anomalous perceptual experiences and anomalous energetic effects. These phenomena were labeled telepathy, clairvoyance, precognition, and psychokinesis, and over the last century hundreds of scientists have reported thousands of experiments, involving tens of thousands of participants and millions of repeated trials.

From the beginning, researchers were frustrated at the difficulty of easily replicating the reported phenomena in the lab. This led many orthodox scientists to question the existence of the phenomena and even the legitimacy of parapsychology as a proper scientific discipline. Today, through the development of meta-analytic concepts and techniques, we can look back at the database of parapsychological experiments and form a quantitative assessment of the cumulative evidence.

The results show that by the same standards used in many scientific disciplines to establish empirical proof, the results are unequivocal: psychic phenomena exist. Even life-long, informed skeptics now admit that the evidence is worthy of serious scientific attention, and they concede that no plausible normal alternatives can be suggested to explain away the empirical results. The evidence leading to this conclusion and the dramatic shift in the skeptical position will be discussed.

Cell Biology Meets Qi Gong

Garret L. Yount

**Geraldine Brush Cancer Research Institute California Pacific Medical Center
Research Institute**

Yifang Qian

and

Helene S. Smith

Adjunct Professor of Medicine, University of California, San Francisco

Practitioners of Qi Gong maintain that the intentional mind can influence Qi, an energy distinct from the four recognized forces of physics, which in turn can influence the physical body and promote healing. Such claims of psychokinesis are met with skepticism by most Western scientists. Considering the advances in psychoneuroimmunology, even clinical studies demonstrating that Qi Gong can beneficially affect many functions of the body do not require an explanation outside the current scientific paradigm. We endeavored to design an in vitro protocol to eliminate the element of psychological cueing and test a healer's ability to influence biological parameters of human cells from a distance. The most difficult experimental design question was to determine the type of intentionality most appropriate for a healer to maintain toward cultured cancer cells isolated from a now deceased patient, a concept that held little meaning in the world view of the practitioners.

The Eastern Harbor of Alexandria, Egypt: A 16 Year Case Study in Science, the Media, and the Anomalous

Stephan Schwartz

Sixteen years ago, at the Conference on Underwater Archaeology, 11 January 1980, in Santa Fe, New Mexico, the author presented a paper, "A Preliminary Survey of the Eastern Harbor, Alexandria, Egypt." It described the use of a consensual anomalous perception technology designed for the practical use of remote viewing in archeology; the results of fieldwork based on the hypotheses developed from this intuitive data; and

comparisons between anomalous remote perception and electronic remote sensing, specifically side scan sonar.

This paper was the first of a series of papers over the next year at meetings held by the American Research Center in Egypt, in San Francisco, the Southwestern Anthropology and Transpersonal Anthropology Associations in Santa Barbara, and the Parapsychological Association at Syracuse University.

Beginning in 1996, and continuing to the present, a French-Egyptian team, including some of the same Egyptian researchers involved with the earlier fieldwork, has been announcing the discovery of these same sites, and many of the same artifacts, without any apparent reference to the earlier work. This paper presents a case study of how both the scientific establishment and the media react and interact with one another in the face of successful but anomalously derived results in science.

Challenging an Unknown Information System

Yoichiro Sako
ESPER Laboratory, Sony Corporation

As the 21st century draws nearer, we can see that society's materialistic values, fostered in many respects by modern science and technology, have become outdated and unworthy. It is clear that we have come to another turning point in history and science. What we require to meet the challenges of these unpredictable and confusing times is a new paradigm to guide a new age. I believe that the key to this new paradigm lies in the research of biological, mental, and spiritual phenomena such as "Qi" and other psychic powers that have been overlooked by modern scientists. I am going to reexamine the fundamentals of the present science-technology system, and at the same time pursue in earnest these phenomena to verify their existence.

Today, I report the outline of my research and actual experiments into such areas as clairvoyance beyond five senses, where subjects can perceive letters or drawings written on a sheet of paper which was rolled up or folded and placed in their hand or ear. Through the results of these experiments, I prove that this type of clairvoyance does indeed exist, and point out the existence of an unknown information system. I think that the results of my research could help bring about a significant revolution that might force our materialistic society to turn around, and concurrently reform the ways of modern science and technology.

Unidentified Flying Objects: A Genuine New Phenomenon

Jacques Vallee

In this lecture, which will be illustrated with slides, Dr. Jacques Vallee will review both the historical evidence and the current cases that have led him to state that unidentified flying objects represent a genuine new phenomenon. He speculates that it centers on a technology that is able to manipulate both the physical environment and the psychic reality of the witnessess. He argues that this technology is not necessarily extraterrestrial in nature and that the serious analysis of such reports could give science important new insights.

The National Institute for Discovery Science

John B. Alexander

In 1995, the National Institute for Discovery Science (NIDS) was founded by Robett Bigelow in Las Vegas, Nevada. NIDS represents a continuation of Mr. Bigelow's long standing interest and support of research into selected phenomena. Through a series of meetings held in Santa Fe, New Mexico, Mr. Bigelow and I surveyed a number of leading scientists who were open to the study of phenomenology. A subset of attendees were selected to become inaugural members of a world-class Science Advisory Board (SAB). Subsequently, a few other members joined the SAB which provides the backbone of technical review of NIDS research projects.

A mission statement was carved out. It states that NIDS is interested in the study of whether or not there is any scientific evidence for the survival of consciousness beyond bodily death. The second topic is broadly defined as research into aerial phenomena and related topics. The goal is to provide the public with high-quality information based on rigorous scientific research. The publication qualifications are that material must meet peer-review journal standards.

NIDS is a privately funded, not-for-profit organization. The resources are sufficient to facilitate high-quality research projects. NIDS generally generates programs internally and does not invite unsolicited external proposals.

UFOs and Human Physiological Effects

John F. Schuessler, Center for UFO Studies

A significant number of UFO reports contain information suggesting that human physiological effects are caused by the UFO encounter. If this assertion is true, then we have an opportunity to provide the "proof" of UFO reality sought by most researchers if we can properly amass and utilize the results of the investigations. Historically, the collection of information related to human physiological effects in UFO cases was of secondary interest to the investigator. The primary focus of investigations was on information about when and where the event occurred and a description of the UFO itself. This is generally true except in cases where extreme medical effects were evident. The challenge now is to improve the quality of the medical evidence collected by UFO investigators. This paper will discuss some of the problems associated with the collection of the data and what might be done to improve the data base of the future.

Paranormal Professionals

Barry Markovsky
University of Iowa

I will discuss the initial findings from a unique new study. Based on ratings by members of their own professions, we compiled exhaustive lists of the leading parapsychologists in the U.S., Great Britain and Europe. We then arranged and conducted in-depth one-on-one interviews with the great majority of these experts, and administered a "professional network" questionnaire. Interviews provide comparative data on respondents' personal and professional backgrounds, experiences and beliefs pertaining to a variety of paranormal topics, sources of early influence, and views on current issues and problems in the field of parapsychology. The professional network questionnaire provides information on the structure of relationships among and between parapsychologists and skeptics along five different dimensions. When combined with our current research employing a sample of psychologists, we plan to test hypotheses regarding differences in the network structures of "mainstream" versus "peripheralized" scientific disciplines.

The Biological Century

Gregory Benford, Professor of Physics
University of California, Irvine

As the millennium approaches like an overloaded freight train, fat with metaphor, we shall see many attempts to peer beyond the veil of that magical number, 2000. (For purists, 2001.) Many try to do linear extrapolations from current trends. Others assume, like southern Californian weather forecasters, that tomorrow will be pretty much like today, only more crowded. Perhaps the best approach uses analogy. Could our century have been foretold in the 1890s?

First, recall that the nineteenth century was dominated by the metaphors and technological implication of two sciences: chemistry and mechanics. Clearly, physics has dominated our century. Even now, as the century wanes, physicists remain our scientific Brahmins. Yet in our growing environmental problems and the rapid advances in their laboratories, far from the physics departments of the great campuses, biology has turned aggressively useful.

By analogy, we may stand on the threshold of the Biological Century. Like the 1890s, our decade bristles with striking biological inventions. Conceptual shifts will surely follow. Beyond 2000, the principal social, moral, and economic issues will probably spring from biology's metaphors and approach, and from its cornucopia of technology. Bio-thinking will inform our world and shape our vision of ourselves. I shall treat a few out standing problems and try to see how they will produce major social dislocation

A New Biophysical Model For The Multi-Level Nature Of Consciousness

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The central task of our new integrative model of consciousness is understanding the biophysical structure of the multileveled nature of consciousness, which was empirically recognized and described by many ancient civilizations. Our model proposes that various levels of consciousness are products of evolutionary development. The psychological development and functional specialization of the neural structures are associated with the biological development and myelination of brain structures. Thus, the occurrence of different levels of consciousness is accompanied by development of specific structures in the central nervous system. Our comparative analysis of phylogenetic and ontogenetic development of the brain and its structures uncovers the multileveled manifestation of human consciousness.

Consciousness manifests dualistic properties that are paraconceptual by ordinary concepts

of space and time. Thus, a traditional dichotomy exists between biological and psychological models of consciousness. Neuroscientists often describe the fast parallel mode of neural information processing; while psychologists mostly deal with a slow serial model of consciousness. Our relativistic biophysical model appears to bridge the gap between different properties of human consciousness. The model shows that a conscious neural network is able to process information 'dualistically' — biochemically in the brain, and biophysically via brainwaves — inside the ionic "optical" neural network of the ionic system with an electromagnetic field of extremely low frequency brainwaves.

The result is Mixed Modal processing in altered states of consciousness, when a part of the ionic system is displaced from the body. This processing exhibits speeds that greatly exceed the brain's biochemical rate of execution. This is the basis of time distortion phenomena that we tested in hypnotic versus normal states of consciousness. Also, a conscious brain's neural network is able to impart its knowledge to another near by brain's neural network via ELF electromagnetic induction, which is also the basis of some healing phenomena that we tested experimentally.

Can Animals In Their Natural Habitat Influence A Random Event Generator? Preliminary Results

Marsha H. Adams
Time Research

Instinct plays an important role in the behavior of animals in their natural habitat (wild). The character and source of instinctual information has not been well understood. It is commonly thought that instinct may be genetically encoded. Another hypothesis is there may be a shared consciousness among animals of a species. Instinct has been generally thought of as passive, that is, the animal is aware of and uses information. Recent studies by Peoch have shown there may be active component to shared consciousness in animals as well. Peoch demonstrated that groups of animals whose instincts were challenged in a mildly fearful situation, were able to influence random number generators.

The authors hypothesize that if such abilities exist, they may manifest more strongly in animals in their natural state than in domesticated counterparts. A stronger manifestation is expected due to continued exercise of instinct in order to survive in the wild. This hypotheses is tested using positive hunting/feeding instincts of wild raccoons, to influence a random event generator (REG) developed at PEAR Labs. The REG is attached to a computer which controls a feeding device. Food is dispensed when pre-set REG thresholds are exceeded. The computer monitors feeding frequency in real-time.

The raccoons live completely free in their natural state in a California forest. They have become comfortable with the presence of certain humans accepting them and their experimental apparatus as part of the natural environment, indeed showing curiosity rather than fear of new situations. Because this unique environment is free of perceived territorial intrusion these animals are able to exercise their keenly developed instincts in a positive, non-threatening environment. This paper describes the apparatus in detail and the encouraging results of preliminary trials.

Contributed Talk

FieldREG Measurements in Egypt: Resonant Consciousness in Sacred Sites

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Over a two week period, various "sacred sites" in Egypt were visited by a group with interests in the spiritual qualities of the ancient temples, pyramids, and tombs . The group expected to engage in informal ceremonies including chanting and meditation, to pay respect to the sacred sites of the ancient Egyptians. A portable random event generator and palmtop computer were used to generate and record ongoing random sequences accompanied by time-stamped indexing and onsite notes. Preplanned hypotheses predicted anomalous deviations of the sequence during visits to the special places forming the core of the sacred sites, including the inner sanctum or Holy of Holies in the temples, and the interior chambers of the pyramids. A further prediction was made that coherence or resonance building activities of the group, including chanting and meditation in these special locations, would correlate with anomalous deviations. Both formal hypotheses were confirmed, with a combined associated probability of 2.7×10^{-6} . Other categories of data were identified to provide context and to help distinguish the sources of the anomalous effects.

Enformy and Enformed Gestalts: A Radical Theory of Consciousness

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The prevailing paradigms of science inhere two conserved principles: mass and energy. These paradigms correspond to a subset of the organized universe, but they do not describe organization itself. This void is filled by positing a conserved principle that is fundamental to all systems: enformy, the capacity to organize. As energy sustains work through force fields, enformy sustains organization through enformation fields, where enformation is nonrandomness. Enformation fields are continuous in spacetime, but discontinuous in space or time. Hence, enformy-dependent phenomena and noumena are nonlocal, superposed, and atemporal in three-space.

The enformy posit is foundational to the theory of enformed gestalts. A gestalt is any system--material, nonmaterial, or abstract. Gestalts are characterized by conformability, the capacity to conform to enformation. Enformy coheres gestalts by conforming their elements to enformation to realize their potential complexity, where complexity is commensurate with the number of possible configurations of their elements. Gestalts thereby conformed are denoted "enformed gestalts." Thus an enformed gestalt is the sum of its parts plus a map in spacetime that defines the relationships among those parts. Enformy provides this map through enformation fields.

Self-conformance is a property of enformed gestalts that conforms them to enformation inhered in their own subsystems, implicitly identifying these subsystems as "their own." Self-conformance is rudimentary to anthropomorphic "conscious" knowledge, self-awareness, and state-awareness, but it does not necessitate these high-order abstractions. For example, saying that a photon "knows" its own state of polarization means only that the photon self-conforms to its own state. Self-aware gestalts, denoted "ipseons," are enformy-sustained enformation fields that exist independently of any material gestalt conformed to them. The subset of ipseons that can communicate their self-awareness and state-awareness to human observers is denoted "egons."

The theory of enformed gestalts is the most parsimonious paradigm available for describing a broad range of radically related phenomena currently characterized as paranormal under prevailing scientific paradigms. These phenomena include life, "water memory," psychic healing, psychokinesis, apparitions, reincarnation, quantum entanglement, wavefunction reduction, multiple personality disorder, and the homing behavior of animals. Moreover, the theory defines the self-aware entity and describes the noumenal elements subsumed under the term "consciousness" — self-awareness, memory, emotion, cognition, extrasensory perception, and near-death and out-of-body experiences. In sum, the enformy posit and the theory of enformed gestalts comprise, not only a profound theory of organization, but a radical theory of consciousness.

Changes in Students' Beliefs About Consciousness and Reality

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It has sometimes been remarked that there is a material-transcendental dimension underlying the Western intellectual tradition. Data gathered in 1986 from 334 academics and professionals who could potentially write about consciousness in the academic literature was used to substantiate that claim and to demonstrate the correspondence of beliefs about reality with conceptualizations of the nature of consciousness and the means by which it is to be studied. Scores in the transcendent direction were correlated with claimed occurrences of anomalous experiences such as mystical experiences and acceptance of anomalous phenomena such as extrasensory perception and reincarnation.

These data were used to create the Beliefs About Consciousness and Reality Questionnaire consisting of 38 Likert-type items. Responses by 212 participants at the conference Toward a Science of Consciousness 1996 "Tucson II" were used to confirm the reliability of the instrument.

A shift towards transcendentalism by undergraduate students in humanistic psychology and consciousness courses taught by the first author was found for the 1995-96 academic year. In both courses students were expected to examine assumptions inherent in the scientific world view and required to learn information about anomalous phenomena concerning consciousness. Students were asked to complete the Beliefs About Consciousness and Reality Questionnaire in September 1995 and April 1996. The Wilcoxon Paired Difference Signed Rank Test for $n=19$ gave a value of $T_{-}=20$ ($p<.05$).

There were no significant differences on initial scores between students who remained in the course and those who dropped out. And there were no differences in scores for two other classes taught by two other instructors. These results suggest that education can play a role in creating a shift towards transcendentalism with a corresponding increased openness to anomalous phenomena.

Anomalous Phenomena, Physics, and Computer Science

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This talk discusses the deep connections between Physics (loosely, the science of understanding the universe) and Computer Science (the science of building new universes), and implications of this relationship for the study of the so-called anomalous phenomena found in parapsychology and elsewhere. Computing pioneer Alan Turing in 1960 gave a list of nine arguments against artificial intelligence, and then proceeded to demolish all of these save one — the argument from extra-sensory perception. New connections between quantum theory and computing can suggest ways in which psychic phenomena might occur, without breaking or even bending the existing laws of physics.

Ancients symbols for radiation

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Petroglyphs are found all over the world. Some of the symbols in these rock carvings are similar world-wide but their meaning remains elusive. The author hypothesized that one of the very common figures might be associated with radioactivity in the vicinity of the symbol. Two petroglyph sites in Arizona have been measured. Moderate amounts of radiation were found at one site and exceedingly strong radiation levels at another site. Maximum radiation readings were found close to the symbol of interest.

This paper discusses the basis for the hypothesis about the petroglyph symbol. It shows pictures of the Petroglyph sites along with graphs of the variations in the radiation readings at different locations within the two sites. It describes the nature of the radioactivity found there. A discussion follows about the known physiological effects of radioactive substances on humans and the effects radioactivity may have had on early Native Americans. The possibility is explored that these effects may have played a role in health and religion. Examples are given of inferences to radiation contained in some Native American ceremonial rituals and legends. Finally, the possibility is explored that the mysterious disappearance of certain peoples, particularly the Anasazi, may have been related to chronic radiation exposure.

Thermokaarst Craters on the Moon, Evidence of Permanent

Water?

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Thermokaarst Craters near the poles of the Moon suggest that permafrost underlies the surface regolith. The standard model of Lunar regolith evolution, tilling of solid volcanic crust by meteor impacts, does not permit the presence of permafrost. Evidence from seismic studies, penetrating radar, acoustical propagation, regolith cores, and canyon mapping indicate that the Lunar regolith is at least three kilometers thick. Bed rock was not sampled during the Apollo missions. The best explanation of the lunar regolith is that it originated in the solar nebula during late stage cold accretion (Gold 1971).

Models of heat production and transport indicate that small moons and protoplanets erupt volatiles along shrinkage cracks during late stage accretion. The volatiles fractionally distill, move outward, ventilate heat, and erupt in pulses producing thermokaarst craters. It is predicted that many of these craters are still preserved on unmelted and undifferentiated surfaces throughout the solar system. Examples include: the jet ejection craters on Halley's comet, regionally patterned craters on Triton, parallel lineated craters on Phobos, and excavated canyons and chaotic terrain on Mars. A critical radius of melting, R_c , is defined as a function of concentration of radioactive elements, density of large energetic impacts, adiabatic heating, and distance from the sun during accretion.

The models suggest that molten material from a partially melted mantle erupted and formed lava flows and volcanoes on top of primordial permafrost on Mars. Episodic volatilization of Martian permafrost several kilometers thick has periodically generated atmosphere, oceans, rivers, and lakes.

UFOs: Debate On Proof

Jean-Jacques Velasco

1947: The first modern observations of UFOs by a civilian pilot, Kenneth Arnold, who described the strange maneuvers of objects flying in information over NorthWest America.

1997: Fifty years have gone by and stories of visions and sightings each stranger than the other have been reported; can we get away from the simple observations and common

beliefs which stir up worldwide public opinion when the question of UFOs is raised? Are they the fruit of our imagination conditioned by science fiction or a real phenomenon which still totally escapes our understanding?

To reply to the second question, scientists consider that to be studied all phenomena must be measurable and reproducible over time. Do the UFO phenomena meet these methodological principles?

As the debate now stands, we must admit that it is totally outside the criteria enabling a scientific study if only by the excesses concerning "abducted" persons, the controversy surrounding the Roswell case, the passing of the Hale-Bopp comet and the dramatic collective suicides in sects, inspired by extraterrestrial truths!

Can we inspect this dilemma and serenely look at the element demonstrating the physical evidence of UFO appearances? This debate will attempt to establish that together with cases of physical traces on the ground, already described and presented to the SSE, and the TRANS EN PROVENCE cases, only aeronautical cases with visual and radar observations can attest the truth of this physical evidence which troubles and disconcerts the mind of our contemporaries.

Anomalous Cognition in the Brain: The Search Continues

Edwin C. May
Cognitive Sciences Laboratory

As part of our on-going search for neurons in the central nervous system that are specialized for sensing anomalous cognition (AC), we conducted an experiment to detect event-related desynchronizations (ERD) resulting from an AC stimulus. Three receivers contributed a total of 70 trials during which both AC and EEG data were collected.

During the first five minutes of a trial, a receiver was asked to use AC silently to acquire information about a remote target while being monitored with EEG (O1, O2, P3, P4 and CZ). During the second 5-minutes, the EEG was ignored and the receiver debriefed her/his experience from the first 5-minutes. While being monitored with EEG, the receiver was directly shown the target sequence as feedback during the last 5-minutes of the trial. The target stimuli were randomly selected from our standard pool of National Geographic magazine photographs. The stimulus sequence consisted of 1-second on followed by 2-second off periods. The on-periods were counter balanced between a photograph and a control "photograph" that was indistinguishable from the blank computer display monitor.

The AC data, which have been blind judged by the usual rank-order method, yielded independently significant results for two of the three receivers, and the overall AC result was significant at $p=0.006$ (ES = 0.303). We describe, in detail, the protocol of the experiment, the standard analysis to observe ERD's, and an innovative application of radar technology to the analysis of EEG data. We show an example of an ERD from the feedback portion of the trial. Finally we demonstrate that a few percent change from prestimulus alpha power is a conservative estimate of the sensitivity of the matched filter technique.

An Astronomical Analysis of A Catalog of UFO Reports

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and

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One of us (LH) has compiled a catalog of over 15,000 UFO reports. It is interesting to examine this catalog to see if the reports are in any way related to astronomical objects or events. We have examined part of this catalog to look for evidence of association with nearby planets, primarily Venus, Mars and Jupiter, and find weak but suggestive evidence for such associations.

We have also searched for any possible relationship between UFO reports with stars or other astronomical objects outside the solar system by examining the distribution of events in local sidereal time. This distribution shows a clear and statistically highly significant peak at 20h +/- 4 h LST. However, the big question is whether this peak is due to something outside the solar system or whether it is due to the combined effect of the known strong variation in report rate with local time together with a variation (for whatever cause) of the report rate with time of year. We present tests that we have carried out to try to resolve this ambiguity. At the time of preparing this abstract, the evidence seems to point towards a real sidereal effect.

A Double-Blind Investigation of Anomalous Perturbation of a Random Event Generator Run At Two Different Sample Rates

Michael Ibison

Princeton Engineering Anomalies Research Laboratory Princeton University

Three models of human-machine anomalies give conflicting predictions for the anomalous statistical yield. The 'bit-wise', 'time-normalized', and DAT models predict that an anomalous Z-score scales as the square-root of, respectively: the number of random bits subjected to human intention, the time invested by the human operator, and the number of operator initiations of the random process (button pushes). As a comparative test of these models we designed an experiment in which human operators were invited to affect the accumulated output of a binary random event generator wherein the method of accumulation was randomly switched between two different modes. In one mode, a "trial" equal to the sum of 200 bits was presented to the operator as the target of intention. In the other mode, the target of intention was a number distilled from the sum of 2,000,000 bits having the same chance statistics as the 200 bit trial. By this means, and by keeping the display and time between trials identical for both modes, we were able to blind both operator and experimenter to the randomly alternating method of computing the trial value. Results from more than 200,000 such trials provide significant evidence of the failure of the time-normalized and DAT models, but fail to refute the bit-wise model conclusively.

Use of a Double-Slit Apparatus in Experiments to Investigate Claims of Consciousness Related Anomalies

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Stanley Jeffers

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A double slit experiment in which participants were asked to reduce the fringe contrast in a Young's double-slit interference pattern has been conducted independently at two laboratories using the same apparatus. Participants at York University were explicitly invited to exert their intentionality either to direct the photon flux preferentially through one path or the other, or to obtain spatial information about the flow. Participants at Princeton University were invited simply to reduce the fringe contrast by any strategy they wished. Results from both laboratories are reported along with a description of earlier efforts to frame this experiment as a test of an extra-sensory channel for the acquisition of information.

Empirical Evidence Against Decision Augmentation Theory

York. H. Dobyns

Princeton Engineering Anomalies Research Laboratory Princeton University

A reference on the Decision Augmentation Theory (May et al, 1995) includes a claim that certain data from the Princeton Engineering Anomalies Research program support the DAT model while refuting bitwise influence models at the 8.6 sigma level. We present here a detailed analysis of that dataset, followed by an analysis of all PEAR data reviewed in Jahn et al (1996), from the perspective both of DAT predictions and of an "influence" model. The 8.6 sigma claim is shown to be incorrect and probably the result of flawed data categorization by the analysts. Both the dataset available to May, and the overall database, are strongly inconsistent with DAT predictions while remaining consistent with a bitwise influence model.

Operator Influence on a Mobile Random Robot

Brenda J. Dunne

Princeton Engineering Anomalies Research Laboratory Princeton University

An autonomous robot, driven by an on-board random event generator, executes a repertoire of random translations and rotations that compound to a stochastic two-dimensional trajectory. In the experiments reported here, the robot is allowed to progress from the center to the circumference of a 48" diameter table, while its trajectory is tracked by an overhead digital camera.

Human operators, seated at the edge of the table, attempt to attract the robot to their particular azimuthal position at the table, or to repel it toward the opposite direction. Camera data are processed to provide the azimuth at which the robot actually reaches the table edge, and the length of time required to reach it. Performance Z-scores are recomputed with respect to the theoretical/calibration expectations for these variables. Initial results show a marginally significant departure of the exit angle distributions from chance expectation for the entire operator pool, overlaid with a striking male/female disparity in performance.

Laboratory Analysis of Objects Appearing During Sessions with a Brazilian "Sensitive"

Stanley Krippner, Pierre Weil, Harbans Lal Arora, Roberto Crema, Ruth Kelson, and Michael Winkler

Apparently anomalous events observed in the presence of the Brazilian "sensitive" Amyr Amiden have been investigated in a collaborative research design that included Amiden himself as both the research participant and a co-investigator. A previous report, published in the *Journal of Scientific Investigation*, described the efforts of an interdisciplinary team to obtain physiological and geomagnetic correlates of the phenomena (some of them producing statistically significant results) and Amiden's own phenomenological descriptions of the phenomena. This report presents followup laboratory analysis of some of the objects that appeared under apparently anomalous conditions during sessions with Amiden.

Knowledge Beyond Reason and Emotion: The Third Source

Frederick M. Brown, PhD.

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Conventional sources of personal information have been dichotomized into either cognitive or emotional, the first being considered as rational and the latter as irrational. Experiencing of either is separated from the other in an apparent sequential time-sharing relationship rather than a simultaneity, although both then color each other. Both are assumed to arise from different parts of the brain and nervous system. Yet, a third information source is available under special circumstances (apparently devoid of the characteristics of the other two) that can be either salient and intrusive, or present and routinely ignored. It is known by different, cultural, and contextual terms: Scientifically, as a part of deliberate problem-solving, it is called "insight" or "sudden illumination."

When this information is routinely accepted and used by women in predicting events or outcomes, it is often pejoratively called "woman's intuition." When relied upon by theists, it is labeled as "the voice of God," "whisperings of the Holy Spirit," "the buddhistic," etc. When used by mystics, it is variously referred to as the "inner voice," "still small voice," "inner self," or "inner directedness." This end-product mentation often appears nearly complete, is reacted to with positive or negative emotional expression relative to its personal valence, and is verbally structured for rational verification. Its characteristics include intrusiveness, saliency, meaningfulness, possibility, and relevancy. Subject to

learning processes of attention, orientation, recognition, and acceptance, its " signal-to-noise" ratio can be increased by deliberately decreasing rational and emotional mentations through processes called variously "mind control," "meditation," "prayer," or "listening to the stillness."

Source of this information is hypothesized as arising from the non-dominant brain hemisphere as demonstrated in "split-brain" studies. It is this source which needs investigation by current brain-scan technology. Recognizing it as a third source of personal information may also clarify the search for enhancing personal wisdom.

Paradigmatics and Anomalistics: The Role of Scientific Anomalies in Precipitating Paradigm-Shifts

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In *The Structure of Scientific Revolutions*, Thomas Kuhn described paradigm-shifts as the result of the accumulation, in an established paradigm, of anomalies and contradictions too numerous for that paradigm to sustain. While most paradigm-shifts apparently conform to this pattern, some do not. In linguistics, for example, the displacement of Structuralism by Transformationalism seems to have resulted primarily from a shift of scholarly interest from phonology and morphology to syntax and semantics.

In paleontology, on the other hand, anomalies virtually inexplicable in uniformitarian terms began appearing in the 1820's — decades before the uniformitarian paradigm became the new geological and biological orthodoxy! Of these anomalies, the most egregious were probably "polystrate" fossils, that is, remains of organisms (chiefly trees) which passed vertically through several distinct earth strata. In uniformitarian terms, their upper extremities should have been dated as tens of thousands of years younger than their lower extremities. Needless to say, these structures were no so dated. Instead, being relatively rare, they were ignored - as they still are by most students of earth history. It remains a question whether polystrate fossils constitute a permanent, or merely a temporary, exception to Kuhn's generalization.