THE SPINDRIFT PAPERS

exploring prayer and healing through
the experimental test
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Nowhere in the world today is there any coherent body of substantial, good quality, scientific research on prayer, or on the relationship between prayer and healing. As universal as prayer is, as much as it is a part of our lives, such research has never been done. Neither the religious, the medical, nor the scientific communities have made such studies, no funding sources devoted to such exploration exist, and no journals devoted to such findings are extant.

In times as devoted to scientific exploration as our own, in a period when health care is so thoroughly researched from a material basis, the most that can be said for the study of prayer and healing is that a very modest and a very promising beginning has been made by Spindrift. Our tests have been simple, repeatable, and extremely fruitful. They have produced remarkable insights into prayer and its healing power.

Our Research World

The number of articles in the medical journals referring to studies of the relationship between prayer and healing over the past century can be, so far as we know, counted on the fingers of one hand. Within the mainline scientific journals we know of none. There are in the parapsychological journals a very modest number of studies, all of them one-shot, very-low-budget investigations, a circumstance which reflects the funding pattern in the field.

The study of the relationship between prayer and healing draws virtually no sustained scientific or medical interest and virtually no financial support. Our own research has continued since 1975. Spindrift was incorporated in 1981. We have survived by devoting ourselves to very simple and very low budget tests and by operating as a small number of committed individuals working out of our homes.

A Pioneering Work

Because our researchers have religious backgrounds (Christian Science practitioners) rather than scientific (no formal training in the sciences), because no scientific journals exist in our area of research (the relationship between prayer and healing), and because of the nature of our findings (unexplainable in terms of the paradigm of modern science), no refereed medical or mainline scientific journals are open to our papers. And, other than our own, no continuing research efforts are going on in our field. Thus, peer review of our work is largely unobtainable. The Spindrift Papers are a pioneering work.

Like all pioneering efforts our work, however undeveloped, is all that is currently available in our research area. The originality of the ideas, the meagerness of the research tools which were available, the lack of methodological and mathematical skills on which our researchers could call, and the absence of prior research on which one could build all combined to produce papers which provide only a crude path into an entirely new world of scientific exploration. Errors and omissions will necessarily occur, but the landmarks revealed by the new and unexpected directions of experimental inquiry which have come to light stand out clearly.

Once an experiment has been done the data and the methodology are in place. The clarity with which the experiment is written up, the range and accuracy of the mathematical analysis, the relationship of the experiment to other experiments that have been done -- these are open to change.

Because we are not able to hire methodological or mathematical expertise we especially
welcome knowledgeable comments on our papers. We update and revise to the full extent we can validly improve our presentations. The page numbering of The Spindrift Papers enables us to replace almost any paper without disturbing the others and we can do this whenever a new batch of these reports is bound.

The Spindrift Papers is composed of three sections and the order of these sections gives some continuity to the overall report. However, the papers were written at different times, for different reasons, and by different people. Thus, this report is essentially a compilation of writing done by our researchers and a few others over the period of experimental inquiry, 1975 to the present date.

Spindrift, Inc.
Spring, 1993
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FOREWORD

Out of the sordid political infighting of a slowly dying church have come what may be experimental links between the probabilistic nature of quantum mechanics and the prayer-healing practices of many devout Christians, both Catholic and Protestant. The background and development of this hitherto unsuspected avenue of experimental inquiry is as unusual as the discoveries which have been made. But many of the findings are so simple to check on that we invite all who are interested to read, to ponder, and to investigate for themselves.

Our account begins in 1910 with the death of Mary Baker Eddy, the controversial founder of the Christian Science church. When, after her death, the officials of her church opened the brown paper package tied up with string, the package she had prepared and which contained her final writings, they found, among letters to local congregations and other miscellany, her last article on Christian Science. Only a few paragraphs long, it contained an unusual warning, a warning which fell uncomfortably on their ears. The disturbing statement read as follows: "Christian Science is not a faith-cure, and unless human faith be distinguished from scientific healing, Christian Science will again be lost from the practice of religion as it was soon after the period of our great Master’s scientific teaching and practice."

The idea of the possible demise of what was at that time the fastest growing religion in America, a new religion that seemed destined for prosperity, was incredible to the then church leaders. They published their Founder’s final writings, but deleted the article with the warning.

In the intervening years parapsychologists have wrestled mightily with what they have called "experimenter effect", an effect akin to the placebo effect in medicine. The double blind test has done much to separate the effect of human faith from the power of the pill. But, no such similar test exists in parapsychology to separate the effect of deliberate mental input to a test from the thoughts and feelings of the researchers, the observers, the psychic trying to make the test work, and, perhaps, everyone else in the world.

Not quite two decades ago (1975) a small group of Christian Science practitioners began to investigate the problem. They performed simple desk top experiments and pondered the results. The principle they worked from was simple: consciousness has an effect on the material world and that effect is to move organic and inorganic systems in the direction of greater order, more perfect pattern.

In 1981 an organization, Spindrift, Inc., was formed to help support the new research, but funding never came. By late 1987 it was clear that the research done with simple organic systems, with germinating seeds and the carbon dioxide production of yeast cells, was never going to attract attention. Many years of deep thought, more than a decade of experimental work, and many remarkable discoveries seemed about to slip into oblivion. A make-or-break strategy was devised and for the next five years all efforts were devoted to devising a simple, powerful, repeatable, anyone-can-do it test, a test which clearly demonstrated the power of thought apart from the mediation of the human nervous system.

Several things were clear. An anyone-can-do-it kind of test had to work off the power of unconscious thought. A simple test had to be a test that used no laboratory equipment. A repeatable test meant a test that worked every time it was tried. And, it had to be powerful. This, by definition for the researchers, meant a test which in statistical terms produced results which were off the tables, way off the tables.

In quantum mechanics the presence of an observing thought "collapses the wave function." In
other words, an observing consciousness physically affects a physical particle or system. Perhaps more importantly, all physical laws (according to quantum mechanics) rest on probabilistic action, on the collective adherence of elementary particles to "norms" or "most probable" characteristics of state and function. Spindrift's researchers reasoned that this collective adherence had a vector quality, that it was mentally directed, and that this direction was to move the system, the state and functions involved, toward pattern, toward order.

This, for us at Spindrift, narrowed the search for a repeatable powerful test of mental action. What our researchers wanted to do was find the simplest pattern they could think of. The pattern they settled on was that of alternating order, a repeating binary sequence. In terms of 1's and 0's this meant a 10101010 kind of order. Then they turned to random binary sequences and now another curious twist entered into the story of these unusual experiments.

Back in the 1930's the Rhines introduced into the study of psychical phenomenon the experimental test. Chief among these tests was the now-familiar card-calling test. In this test an individual goes through a deck of card, cards with simple images on them. Such an individual tries to guess the identities of the cards. This was one of the methodologies the Spindrift people seized upon. They reasoned that the random binary sequence generated by both shuffling the cards and by calling the cards would be affected by the unconscious mind of the individual taking the test. They further reasoned that the effect would be in the direction of greater order. And, order for binary sequences is alternating order. This is a matter of the mathematics of binary sequences.

The outcome of this insight was the uniting of some very simple and traditional parapsychological methodologies to a new conceptual direction. Divergence from a mean was no longer the focus of experimental attention. The focus shifted to the internal order of the sequences generated by the process involved.

Spindrift's tests, prior to 1987, had been tests of the relationship between prayer and healing, tests which showed that certain modes of consciousness moved organic and inorganic systems toward greater order. The new tests, tests called VIUR (Visual Image, Unconscious Response) tests, were a theoretical extension of the earlier research. Very importantly, the new tests were tests which anyone could do and this fact of repeatability by anyone greatly increased the credibility of Spindrift's research directions.

As all this was going on, dark clouds formed on the horizon. Opposition was building up. The Christian Science church had believed for some decades that belief in the experimental test was a heresy, insofar as it applied to consciousness in general and to prayer in particular. In 1983 a Christian Science practitioner was expelled from his healing ministry for refusing to accept the church doctrine that prayer was inherently unprovable in rigorous scientific terms. Differences in opinion developed among Christian Scientists. A very few believed that scientific provability was an essential element in terms of establishing the validity of Christianity. An increasingly self-assertive leadership believed that media outreach was the way to establish Christianity (and their own particular version of it). For most of the rank and file, there was neither knowing nor caring. The leadership sought, and failed, to develop a media empire, bringing the Christian Science church to the brink of bankruptcy by early 1992.

Within the Catholic and Protestant communities there was also outrage. Catholic and Protestant supporters of Spindrift, religious, lay ministry, and lay, all took penalties from their respective church organizations for belief in the Spindrift ideas. And, within parapsychology, there was also incredulity. The idea that data which had been combed over for decades by parapsychologists was now found to contain powerful evidence of psi was simply unacceptable. Even more unacceptable was the idea that these discoveries had been made by religious people -- people "who admit they are not scientists."
In our generation of sequences we, at Spindrift, have thrown dice and recorded doubles, typed numbers into computers and matched them against pseudorandom arrays in the computers. We have shuffled cards by suits and we have shuffled them by colors. We have called (guessed) the identities of various images and evaluated the order of these guesses. We have used special electronic circuitry to automatically generate random binary sequences. And, evidence of the ordering effect has accumulated. The researchers believe that the ordering effect on random binary sequences, however generated, appears whenever human consciousness is aware of the process which generates the sequences. They also believe that the consciously directed power of thought to restore a system to a more perfect pattern underlies the power of spiritual healing. In addition, "defense mechanisms" act to conceal these powers of the mind.

Whether or not all of these things are true we do not know. We do know that the "VIUR effect", the ordering effect (and its opposing defense mechanism), is something which can be easily checked on by almost anyone. Hopefully, now that the power of thought to affect the physical world is so easily demonstrable, the churches, the medical systems, and the scientific systems of today will open their doors to the power of thought and of prayer, to consciousness oriented research and to spiritual healing.
SPINDRIFT'S RESEARCHERS

A father and son team did the experiments and wrote the papers ascribed to Spindrift, Inc. in this report. Both men are Christian Science practitioners.

The father, Bruce Klingbeil, was forbidden by the Christian Science church to engage in experimental work from 1977 to 1983. This proscription began in 1977 when Mr. Klingbeil informed the governing body of his church, the Christian Science Board of Directors, of his research and its good results. The ban ended by default when, in 1983, he was expelled from the healing ministry of the church for refusal to recant his belief in the provability of the healing power of prayer, his willingness to evaluate this power in terms of the "broadest practical tests", and his willingness to consider the possibility that the power of the scientific method could, perhaps, have a practical usefulness in evaluating the power of spiritual healing.

Over the years a number of Spindrift's supporters, Catholic, Protestant, and Christian Science alike, have suffered penalties from their respective churches for their support of Spindrift's research.

It was the son, John Klingbeil, who carried on the research alone from 1977 to 1983. Not yet recognized by the church as a Christian Science practitioner before the research began, he surrendered his goal of a life of service within the church in order to continue the research which, from the beginning, had been so successful in experimental terms.

John Klingbeil has also written about the research under the name Robert Owen.
SPINDRIFT'S PAPERS AND JOURNAL PUBLICATION

Spindrift, Inc.

Scientific research is not considered to exist in the scientific world of today unless it is published in peer-reviewed (refereed) scientific journals. Yet, no such journals exist for areas of scientific inquiry which have never been studied before. This includes Spindrift's area of research, the relationship between prayer and healing. However, let us consider, as a possible door of entry into the world of publication of scientific papers, the parapsychological community with its journals.

It is clear that Spindrift's research, in terms of the structure of the scientific establishment today, falls organizationally in the domain of parapsychology. This is the closest science can come to accommodating research of the kind we do. Thus, a question arises: Does Spindrift's research surface in the world through parapsychological channels, or does it carve its own channels? As of the moment, the signals are mixed.

Parapsychology, as a discipline, is a young branch of science. It was only in the 1930's, as psychology and statistics were developing as separate disciplines within their larger areas of biology and mathematics, that J.B. and Louisa Rhine were staking out an area they called "parapsychology", an area conceived as a sub-division of psychology.

The American Society for Psychical Research (ASPR) was founded in 1885, not long after the first such society, the Society for Psychical Research (SPR) in England. Efforts to study psychical phenomena are by nature consciousness oriented and early research in this direction was soon given pariah status by the powerfully developing and materialistic mindset of the mainline scientific community.

The Rhines were largely successful in their efforts to turn psychical inquiry from the seance room to the science room, from haunted houses to modern laboratories, from the occult, mystical, religious, and folkway sub-cultures examined by psychical observers to the controlled tests of the modern scientist.

The theoretical approach for the Rhine's work was conceived in the psychodynamic terms of psychology (a volitional/intentional model) and the evaluative modes employed were statistical. Statistical tests enabled measurements of very small effects to be assigned levels of probability for occurrence. Thus, it seemed that the door had opened for a less-than-wholly-material scientific outlook to dawn in the world.

Only gradually did it come to be understood that the ridicule and opposition the mainline scientific community heaped on the new approaches was due to materialistic mindset rather than to the measurement of small effects with no known causes, causes explainable in no wholly materialistic terms. It was in 1969, more than a quarter-century after the Rhines began their work, that the Parapsychological Association was admitted to the American Association for the Advancement of Science (AAAS), an admission which is still controversial today.

The Rhines and their colleagues defined psi (the term they introduced) as falling into two categories: extra-sensory perception (ESP) and psychokinesis (PK). ESP was considered to be awareness of information without the energy transfer required for sensory input (telepathy, clairvoyance, and precognition). PK was considered to be the power behind observed physical effects of thought, objective effect rather than subjective experience.
From late nineteenth century beginnings to the adoption of experimental methodology in the 1930's was a substantial conceptual journey. From the establishment of a scientific discipline in the 1930's to recognition by an accepted and established scientific body was a substantial organizational journey. However, both journeys were, and are today, on shaky ground.

Of the relationship between parapsychology and religion Rhine and Pratt wrote:¹

The doctrines of religion are based upon what are called spiritual realities as distinguished from physical laws and operations. In terms of methods...the foundations of religion rest upon personal experience or spontaneous case material. Even on the most fundamental question in all religions, that of whether there is a valid basis of spiritual reality, the case from the viewpoint of evidence rests upon individual testimony unconfirmed by experimental study.

The relation of parapsychology to religion, then, is obviously a very close one. The establishment of psi as an extraphysical capacity provided at least a limited experimental confirmation for this elemental claim of all the religions. (The relation is not altered by the fact that the need for this experimental confirmation has not been widely recognized by religious leadership; but we may recall that the introduction of experimental methods in other great practices and disciplines was similarly unsolicited.) If it is correct to define parapsychology as the science dealing with non-physical personal agency, it is hard to see what legitimate problem or claim of religion would not, if it were brought to the point of careful investigation, belong to the domain of that science. This would make the relation of parapsychology to religion something like that of physics to engineering or biology to medicine.

This open and charitable view has not carried over into the subsequent course of parapsychological investigations. Under the pressure of mainline scientific accusations that parapsychologists are engaged in "a secular search for the soul" parapsychologists have avoided the religious world as a useful area of psychical exploration. They have also tended to view those who, like Spindrift, wish to investigate their own belief systems as people who "admit they are not scientists" and as individuals and institutions with an ax to grind. Let us, therefore, very briefly examine some of the values and assumptions which lie behind our experimental work.

Our research has shown that there is a patterning or ordering power in consciousness. Our VIUR (Visual Image, Unconscious Response) tests, for example, (our work with cards and pictures) rely on the power of this ordering force in unconscious thought to produce results. The work we have done with seeds, as another example, introduces some additional ideas into the mix. In the seed research we test the power of an individual to consciously direct the ordering force to one group of seeds and not to another (prayer for one group and not for another group). In doing so we introduce the concept of prayer as an ordering or healing power which can be consciously invoked and directed.

As Christian Scientists, our researchers were aware of the fact that Mary Baker Eddy, their religion's founder, had used the word "proportion" (or some alternative form of the word) 80 times in her published writings. In addition, there were a number of verbal constructions used which were the equivalent to the term "proportion". Phrases such as "in proportion to" or "in proportion as" were most frequent. The idea she brought out in these references was an idea going back to the origins of Christianity and beyond, an idea subscribed to in some form by almost all Christians.

The underlying concept was that the health and harmony of one's existence was "in proportion to" one's holiness, "in proportion to" one's embodiment of the attributes or qualities of God, one's living and loving of the Ten Commandments and the Sermon on the Mount. The power of prayer was seen to be in proportion to the extent to which one scaled these spiritual heights and embodied these qualities in one's prayers for one's self or another.

It was further realized that such proportionality of effect, if it existed, would require that some other proportions hold. In other words, not only quality of thought was involved, but quantity of thought, the strength of one's awareness of what was prayed for (the strength of the associational link), and the nature of the reference grid used for measurement. Accordingly, a simple mathematical formalism was set up, a formalism which could, at least to some extent, be experimentally tested.

The spiritual power which resulted in health and healing would, we reasoned, be manifested in greater adherence to pattern since pattern is the measurable dimension of identity. The closer a system was to its "best" or "most normal" state of form and function, the healthier and more harmonious a system was. Thus it came about that we began to measure in reference to pattern. And, since the answering of prayer was not considered to be related to creeds and dogmas but to the sincerity and holiness of the individual, the effect of prayer was seen as natural and repeatable rather than as capricious and miraculous. From these ideas a basis emerged for the scientific testing of prayer.

In early February of 1990 Spindrift submitted several papers to The Journal of the American Society for Psychical Research (JASPR). These submissions were at the suggestion of the editor and had been preceded by more than a decade of effort by Spindrift to interest individuals and organizations within the parapsychological community in the work we were doing.

The paper sent out to the referees dealt with our work with germinating seeds. In response, one referee felt that, with results too strong to be explained by simple handling biases and given the fact that we had worked with seeds, the paper should be vetted by someone with plant physiology and experimental design expertise, not by someone with parapsychological expertise. The underlying concern was that a detailed search for potential artifacts should be launched before the paper was considered for publication.

Another referee was powerfully opposed to publication in any form. When pushed, he rested his case on the idea that block randomization was improper in work with seeds but refused to tell us why, saying only that we should find out for ourselves. Accordingly, we discussed the problem with three parapsychologists, all individuals with Ph.D's, all individuals who had read the paper and commented on it, and all individuals conversant with experimental work. None of them agreed with the referee.

For our part we felt that we had, perhaps, tried to condense our work with seeds into too small a paper. Accordingly, we revised and expanded the paper and, in February of 1992, two additional referees were called in for additional evaluation of the material. At this writing, spring of 1993, both of the referees have yet to comment. What may or may not come of their efforts is as yet unknown.

As it so happens, our VIUR tests utilize traditional parapsychological methodology. The Rhines and their colleagues sought to explore ESP by asking individuals to "call" or "guess" the identities of symbols on cards. They sought to explore PK by observing the possible effect of volition on the fall of dice. They were unaware that the random sequences formed by throwing dice, shuffling cards, or calling cards, were among the simplest of patterns and that these patterns were much more powerfully affected by a patterning element of consciousness than they were by volitional elements of consciousness. Had they known this, some of Spindrift’s discoveries would have surfaced in the world more than a half-century ago. It required a Christian outlook, an outlook seeking to explore scientifically
the patterning or healing power of thought to develop the concept and make the discoveries.

Spindrift's utilization of parapsychological methodology and development of theories of psi which are linked to Christian theology have, of course, brushed against the emotional certitudes of many in the parapsychological world. In explicit terms, the quality of content of a single paper is a testing ground of the relationship between Spindrift and the parapsychological community. In implicit terms, the larger issue of suitability of such a relationship is also involved, the question of whether or not new wine should be allowed in old wine bottles.

Actually, Spindrift's ideas have already surfaced in the world to some extent. A body of work which throws a great new light on mental action and on the mind/body relationship has been developing outside the ambit of mainline scientific interest, parapsychological interest, and institutionalized theological interest. It is not the introduction of such ideas which is the issue now, it is the form in which they continue to develop.
REVOLT OF THE MEDICINE MEN

Spindrift, Inc.

ABSTRACT: Psi-conducive communities traditionally do not develop their conceptual structures into paradigms in any scientific sense nor do they subject their operational techniques to experimental testing. In this paper, however, such an effort is described. For the past 17 years a modest program of experimental research has been carried on within the Christian community, a theory-driven experimentally-linked exploration of the phenomenon of spiritual healing. This exploration has also led into areas more traditionally linked with parapsychological inquiry while retaining its own unique concepts and goals. Out of this research has come a body of work whose strengths and weaknesses, promises and failings, are largely untested. A preliminary effort to evaluate this body of work has begun within the parapsychological community. This paper does not address the merits of the experimental work, its successes or shortcomings. It does explore the conceptual positions taken and their linkage to the experimental work, thus giving an overview of the range of experimental activity, the thrust of ideas behind the research, and the nature of the new directions explored in this pioneering effort.

Saints, shamans, and medicine men have tended to flourish in pre-scientific cultures, cultures unable to synthesize their knowledge into coherent logic systems and then subject those systems to equally rigorous systems of proof. Indeed, medicine men and their cultures have seen no reason to blend their knowledge with the proof systems of traditions not their own.

In modern times the Christian church has been the only major institution to run afoul of its culture in the vicinity of those dangerous waters where currents of religious belief and modern science meet. Christianity has a pre-scientific past and, to the extent that elements of that past -- including the power of prayer -- are retained in Christianity, to that extent Christianity is at odds with science. This is especially awkward since science and Christianity are both powerfully represented in Western civilization. Yet, wherever a believer bows his head in prayer for the sick, there, in the sick room, with or without the presence of materia medica, the tradition of healing ways operating outside known laws survives.

The more rigorous the belief systems of non-psi-conducive cultures become, the more the survival of psi-conducive elements within those cultures is threatened. The cultural power of the larger community, operating through educational systems, peer relationships, and systems of reward, work to water down and destroy the roots of psi knowledge and psi power, whether Christian or pagan, within that community.

Since the paradigm in power dictates the rules of the game, the only recourse for the medicine men -- of whatever stripe, Christian or pagan -- is to slip away into alternate cultures, to abandon adherence to Western norms, to attempt to survive in little-noticed backwaters, or, alternatively, to revolt.

Seventeen years ago the possibility of revolt began to be explored avocationally by individuals who, vocationally, were professional spiritual healers, products both of Western culture and Christian tradition (Christian Science practitioners). These people decided to test their spiritual practices under the rules of science. Early experimental work was highly successful and a small network of committed
people was formed, a network which operated out of members’ homes and which, in 1981, became incorporated as Spindrift, Inc.

The experimental method is not paradigm but process, a process which can be used to develop and defend any paradigm which is logically consistent with experimental findings. The primary conceptual question was: Is the mental universe possessed of regularities as the world of matter and material energy is? The primary experimental question was: Is there a mode of consciousness which is capable of producing measurable effects on a repeatable basis under laboratory conditions?

Within the Christian tradition, healing power is equated with holiness; holiness is defined theologically in terms of the attributes of God, in terms of the qualities expressed in such standard reference points as the Ten Commandments and the Sermon on the Mount. Thus it was that the mode of consciousness employed in Spindrift’s research became qualitatively identified with the attributes of God. Such a mental modality (the power which produces spiritual healing) is different in kind from the volitional/intentional mode of consciousness studied in psychology and parapsychology. It should not be surprising, then, that the testimonial literature of spiritual healing differs in marked ways from the literature of the parapsychological journals.

A Bi-dimensional View of Consciousness

A central finding of parapsychology has been the existence of experimenter effect, the ability of those associated with tests of psi to influence those tests, often in unpredictable ways. A central concept of spiritual healing is the ability of thought to move a system toward its norms, toward those points of state and function which represent the "best" or "most perfect" condition of the system. Experimenter effect, like the placebo effect, or like strong emotion or faith, moves a system in the direction of belief. Measurements of volitional/intentional thought are made in relationship to one another (or to controls). Frequently, measurements compare the condition of the system under investigation at time A (before mental action) to the condition of the system at time B (after mental action).

Measurements of the effect of spiritual healing are made in reference to pattern. Measurement A is assessed in terms of its deviation from pattern, measurement B is likewise so assessed. Success of the test is gauged in terms of the amount of movement toward pattern by measurement B as compared to measurement A. Since spiritual healing moves a system toward its norms or points of greatest good "goodness" so defined acquires a quantitative as well as a holy dimension. Goodness becomes the moral equivalent of order and evil becomes the moral equivalent of disorder. Thus a goodness/order and evil/disorder correspondence is established, a correspondence which ceases to be tautological to the extent it lends itself to experimental evaluation.

Such modest theoretical beginnings already indicate a significant departure from previous parapsychological approaches to experimental work. The postulation of two different modes of consciousness (identity or pattern-related modes of consciousness and volitional/intentional modes of consciousness) sets up a framework wherein modes of spiritual healing can be distinguished from modes of mental healing such as faith healing. A pattern-related mode of consciousness is distinguished from the mode of consciousness which produces experimenter effect just as the intrinsic action of a drug is distinguished (by the double blind test) from the power of thought which produces the placebo effect.

Variables Associated With Psi

Before testing these conceptions in the laboratory it was necessary to apply stricter conditions to mental input than are common in conventional parapsychological testing. Three functions (presently
assumed, with some experimental verification, to be simple ratios) were postulated to exist. Measurable effect (E) of holy thought (the identity-referenced or pattern-related mode of consciousness) was assumed to be proportional to quality of thought (Q) (the ability of the healer or practitioner to produce an effect), quantity of thought (q) (the length of time of the treatment), and strength of associational linkage (a) (the clarity with which the practitioner can relate to the target system).

With "k" as the appropriate constant the three ratios may be expressed as $E = kQ$, $E = kq$, and $E = ka$. Measurement of the strength of either Q, q, or a requires that values of the other variables be held steady.

Germinating seeds proved to be an ideal vehicle for early tests of the three ratios and for exploration of the viability of holy thought as a dependable laboratory tool. It was found that the easiest seeds to work with were large seeds, seeds in which degree of germination could be assessed by visual examination of each seed. Small seeds (such as rye grass) were less usable since germination stages could not be easily assessed. Soy beans quickly became a favored vehicle.

Since simple tests with seeds rely on increase in weight or increase in germination rate of the seeds as a substitute for the more difficult evaluation of either a single norm or a composite of norms, working with seeds as a measurement vehicle is a time-consuming and patience-requiring process. Thus the demonstration of the basic validity of the approach required a period of a decade or so to establish. Some additional years were spent developing tests using the carbon dioxide production of yeast cells as a measurement vehicle and some time was spent developing tests based on electronic random event generation. Through these tests the basic approaches were refined and extended.

At the heart of our conceptual approach lay the experimentally testable proposition that if goodness and order were related (and, conversely, evil and disorder) a mechanism for spiritual healing had been identified. This meant that the operative feature of Christianity, its interface with human experience and the world, was amenable to the methods of scientific inquiry.

The Measurement Grid

An essential feature of the approach we used was the concept that holy thought is essentially measured by the extent to which it draws a system toward the elements of pattern inherent in the system. The farther a system is deviated from its essential pattern the more powerfully it responds to holy thought (that is, the larger the observable measurements are). This difference in measurable effect is not due to variability of input but is an inherent characteristic of the measurement grid. In the case of holy thought it is true that the larger the deviation from normal, the larger the measurements appear.

We have, as with the three variables of mental input, expressed this characteristic as an equation. In the expression $E = kr$, "E" represents measurable effect, "r" represents the distance from "norm" of an element of pattern (with "norm" representing the point of "best" or "most perfect" state of form or function) and "k" represents the appropriate constant.

Some equations speak powerfully to us of essential characteristics of our world. $E = mc^2$ pounds home the fact that apparently solid matter is actually energy, energy possessing characteristics which appear to our senses as shape, mass, and so on. $E = kr$ pounds home the fact that it is thought which develops and sustains identity and identity's measurable dimension, pattern. Robert Owen has conceptualized the related "norms" or elements of pattern as a "field" and has written of the equation $E = kr$ as follows:

"Tests of spiritual healing show the only way one can measure is when there is a deviation from norm or a resistance (r) to return to norm. In the physical sciences the
strength of an electromagnetic field is measured by introducing a unit charge into the field and then measuring the characteristics of the field in response to that charge.

"Without that charge there is no way to measure the field and the equations which describe the field show no field without the charge. In the case of identity-referenced testing there is no way to measure the field without introducing holy thought into the field, and there is no field without resistance."

If the power which produces pattern is conceptualized as a unit force (with holiness of thought, quantity of thought, and strength of associational linkage held steady), then an increase in the strength of resistance (r), the power of the disordering force, should produce a change in measurements of movement toward pattern. We found this to be true in terms of increasingly severe environmental or induced stress on germinating seeds. We also found it to be true of electrical oscillators. In the case of germinating seeds the pattern of response to holy thought was apparently proportional to the need, that is, the greater the stress (and thus the greater the deviation from normal pattern) the more effective the holy thought appeared to be.

"Norms" or elements of pattern have exact definitions in measurement terms in the sense that they can, in theory, be experimentally determined. If, for example, seeds are under growth-retarding conditions, holy thought increases germination rate. If seeds are under growth-forcing (hothouse) conditions, holy thought decreases germination rate. If seeds under each set of conditions are prayed for together each batch of treated seeds will, in relation to control, respond differently to the holy thought linked to them. At the norm of optimal environmental conditions there will be no measurable response to holy thought. Thus the norm can be exactly defined in measurement terms either as the point where the germination rate (in relation to control) changes sign or as a point of zero response. Of course, in a test so structured we are using germination rate (measured either as weight increase or as number of germinating seeds) as a "stand in" for a considerable number of related norms.

What all of this tells us is that: (1) the effect of an observing human consciousness of some level of goodness or holiness is to lessen the disorder (increase the order) of a system, and (2) that holy thought affects all categories of disorder equally, with the measurable effect being seen as proportional to the distance of the system from its optimal state of form and function.

An Emerging Picture

What is perhaps beginning to emerge is an explanation of some of the characteristics of the quantum mechanical world as well as of the macro world observable by the senses. This explanation involves both ordering and disordering forces. Since causal sequences cannot, by definition, exist in pure disorder, the causal elements lie in the ordering power, a power which is empirically linked by Spindrift's research with goodness, with those qualities which have traditionally been recognized as holy. Thus, from the point of view of Spindrift's research, cause and effect sequences remain as foundational in the explanatory system of science while the probabilistic-but-patterned nature of the universe is recognized to be a result of the interaction of good and evil, of order and disorder.
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In essence we:

- postulated a pattern-developing, pattern-mending mode of consciousness.
- postulated that pattern is the measurable dimension of identity and that the "norms" or basic elements of pattern can be used as a measurement criteria for determining the measurable effect of holy thought.
- postulated that measurements of the effect of holy thought must be evaluated with reference to their distance from "norm" (E = kr), and
- postulated that measurements of holy thought must take into account the variables of holiness (the spiritual quality) of thought (E = kQ), quantity of thought (E = kq), and the extent to which thought is associationally linked to its object (E = ka).

The Most Slippery Mental Variable

Associational links were the most difficult of the variables for us to deal with since associational links vary from healer to healer and because they: (1) reside primarily in unconscious thought, (2) can vary over time in the mind of an individual, (3) can ebb and flow with emotion and other forms of will, and (4) can be strengthened through visualization (conscious effort at any given time). For these reasons and because successful tests of the power of thought rely so heavily on associational links, some simple tests of associational links were included in our earliest experimental work.

Because of the "slipperiness" of associational links, associational tests were the most difficult of all tests for us as spiritual healers. It is in this area that experimental work differs most markedly from the daily public practice of spiritual healing. Prayer for one's self or for others involves thinking of specific and easily identifiable individuals whereas in most experimental work it is desirable to have both control and treated groups, with the two groups as similar as possible in every way. As a practical matter we have, in experimental contexts, considered an associational link maximized when a reference system (target for the mental input) was within the sight of the practitioner (and thus easily identified) when treated.

As associational links are weakened the practitioner's work becomes increasingly difficult and, for those of us not used to following unfamiliar mental pathways, the task is, at best, challenging, at worst, exceedingly frustrating. Tests involving weak associational links (unlike our other tests) are not always easily reproducible on demand. On the other hand, the build-up of unconscious associational linkage with a target system is something which occurs in all experimental testing of thought and which is easily measurable.

Of Fields and Highways

From our tests, one thing is certain. There exists an information base with relational characteristics for every pattern. And, when a certain mode of thought (which we call holy) rests on (is associationally linked with) a person, a system, or any pattern, that pattern is moved toward definable states of form and function. Our characterization of this mechanism of consciousness as a guiding mechanism (cyberfield) or relational information database (identity field) is a preliminary effort at conceptualization.

Using the field metaphor we can think of associations most parsimoniously as alterations in the field. We prefer to think of them as the footpaths and highways of the mind. However we conceptualize them, again one thing is certain. In practice, the healers have some conscious control of what their
thoughts rests on. Thus, they can determine where the effect of their holy thought will be, even though they cannot determine what the effect will be.

For volitional/intentional thought, effect is governed by the belief system of the individual (helped along sometimes with visualizations). For holy thought the effect is governed by the "ideal" pattern of the patient (or target system) as determined by an information base existing somewhere in consciousness.

From our tests we conclude that the volitional/intentional power of the mind, the holy power of the mind, and the perceptive power of the mind all use the same associational linkages in relating to the world outside the individual mind. As associational strength increases or diminishes, so does the clarity of the perceptive power and so do the measurable effects of holy and volitional thought.

The Law of the Conceptual Whole

In our experiments with seeds and beans we noticed that the measurable effect of treatment (holy thought) did not change with the number of soybeans (or other seeds) being treated. Whether 500 or 5,000 beans were treated by a given individual, the effect was the same. If the practitioner could conceive of the pattern or system being treated as a conceptual whole, the effect was uniform over the field, fields, or portions of a field being treated.

Selective Linkage of Thought

When we realized that thought could be linked to selected parts of a system (half of a mold colony for example) we asked ourselves: Why not a computer program? Thus it was that we followed our work with organic systems with a year or so of work with computers. We developed the ability to link thought more powerfully with one part of a program than with another.

This area of our research proved to be vastly different than anything we had expected. We felt that we had tumbled into a playground of the mind. We were as bemused as early twentieth century physicists were when they found the micro world of elementary particles behaving so differently from the macro world of everyday experience. We, in a similar way, found the micro world of random action to be far different in its nature from the macro world, the everyday world, of random action.

Testing Healing Ability

Measurements of holy thought, consciously directed, imply that the individual providing the conscious mental input to the test configuration is capable of rising above the balance of holy consciousness (Q) and volitional resistance (r) which constitutes the status quo or ground level of the measuring system. Various tests can be used to assess this ability. Our most extensive effort to develop a prototype sensitive test involved work which used the carbon dioxide producing ability of yeast cells as a measurement vehicle.

We turned to yeast to develop tests of healing ability because runs could be more quickly completed and the testing process was more amenable to automation than with seeds (and thus more tamper free). We found that the activation and feeding of yeast produced stress on the yeast and thus early in the run (when the yeast was activated and fed) measurements of holy thought were large. Later in the runs (when the stress had passed) the gas production was not deviated from norm and so holy thought was not measurably in evidence. Thus, the effects of the goal directed (volitional) thought of the practitioner could be seen in the later measurements. (So the theory goes!)
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When we ran these tests strong patterns did appear, patterns which we thought matched the capabilities and mental profiles of the individuals we tested. However, for lack of money to carry the testing further we could not put our early assessments of results under the microscope of an extensive testing program.

A Change of Direction

For all of our experimental successes the revolt of the medicine men was an apparent failure. However hard-gained, necessary mathematical and methodological knowledge had been acquired and applied and it was not on experimental grounds that the revolt was, in late 1987, apparently doomed to obscurity. However, a few more shakes of the medicine rattles, a little more intensity in the ritual dance, and a new experimental direction tailored to the need was envisioned, a new direction tailored not to the requirements of experimental proof alone but to the sociology of our times as well.

We had expected in our naiveté that -- since the experimental test is the sacramental center of the belief system of modern science -- that good experimental work alone would buy entry to the playing field where theories contend. Not so. Theories are not considered unless they rest on work reported in scientific journals, and the more important the journals the better. Entry into such journals is guarded by those whose reputations, whose funding, and whose professional status rests on the maintenance of the status quo. It is the expectation of the scientific community that anomalies in the application of the current scientific paradigm to experimental data will disappear with refinements of that paradigm, not with radically different ideas proposed by members of an aberrant sub-culture within the larger cultural community.

We had expected in our naiveté that -- since the new tests proved the power of prayer, or at least the existence of a mental power which supports and sustains identity -- that the churches would welcome the new experimental directions. Not so. For the most part, church leadership recognized that if the validity of the scientific approach in this area were ratified by conventional theology then theology would be somewhat at the mercy of science. This was unacceptable.

We had expected in our naiveté that since the organized skeptical community -- those shrill self-proclaimed defenders of the scientific outlook -- offered opportunities (and even money!) for clear-cut demonstrations of psi power, that it would be an easy matter to "sweep the board" in this particular area. Not so. We found that such offers were merely political statements and no money was ever risked where there was the slightest chance of losing it. After years of trying to get through the duck-and-dodge tactics of James Randi, CSICOP, and the Bay Area Skeptics we gave up in weary frustration.

We had expected in our naiveté that -- since the parapsychological community was desperately in need of repeatable tests of psi -- that this psi-studying community would welcome such tests. We had envisioned the cooperation of a psi-conducive community with a psi-studying community in interdisciplinary research efforts. Not so. The mainline parapsychological community was fighting a long-continuing battle for scientific respectability, a battle made difficult by the things they studied and also by the fringe elements among themselves. The conservative center had no taste for alliance with unorthodox groups making unorthodox claims. It was keenly felt by some that a century of research had established the fact that "there are no large psi effects." The proclaimed existence of large psi effects simply meant "dirty test tubes," the existence of artifacts, the expected results so often obtained by the sincere and uninitiated. And, perhaps most importantly of all, few were willing to give time and attention to work other than their own, and especially to give time and attention to large claims by religious newcomers to experimental work.

Our investigations told us there was a way out of the politics of prayer, the sociology of science, and the monopoly of material medicine. A place for the mind in the world of Western culture could yet
be established. Achieving this meant developing a different thrust of the experimental work, a task which took about five years and which has reached its early fruition today in what have become known as VIUR (Visual Image, Unconscious Response) tests and in "Spindrift's Automatic Psi Test."

Seeking the Ultimate Test of Psi

Basically we realized that before we could get our work seriously evaluated we had to move from the position of individuals claiming we could "do things" to a more universal position. After all, there were a large number of people in the world claiming everything from having been abducted by UFO's to having been healed by stroking lop-sided mushrooms at midnight. A test had to be developed that anyone could do, that would work for everyone, and that yielded unmistakable results. In other words, we had to develop the ultimate foolproof test of psi.

Our work with electronic random event generation had shown us the amazing power of the unconscious mind to affect random action. Our years of research had also shown us that holy thought, the patternng power of the mind, was the only really dependable mode of mental input to a test. The volitional/intentional mode was not always available on demand and its effect varied with the belief system of the individual. Thus, the ultimate test had to rest primarily on the ordering force resident in consciousness and it had to rest on an unconscious expression of this force. In addition, the test employed had to be sensitive enough to respond to a level of this ordering force in virtually anyone.

It is a basic tenet of parapsychological research that there is a perceptive power of the mind. The attempt to quantify this perceptive power using a special deck of cards was a major thrust of early parapsychological research. Such testing has, over the years, yielded meager fruit. This was something which seemed suspicious to us since individuals obviously varied greatly in their perceptive powers and yet the results always came out about the same. Our own research showed that we were aware of the cards in a bridge deck to different degrees -- the unconscious mind seemed to have its favorites. Yet, if special decks were made up of strong favorites and non-favorites the results came out about the same as if no such changes had been made!

Psi Defense Mechanisms

Based on this observation and on theoretical considerations we postulated the existence of defense mechanisms operating to conceal the power of our minds from us. This is a classical psychological approach. Initially we worked with dice, then with decks of cards, and finally with pictures chosen by the individuals taking the tests.

We considered the holy power of the mind to be supportive of identity and, since pattern is the measurable dimension of identity, to be pattern-referenced. We had noted that patterns in the process of development (germinating seeds, for example) were very "thought sensitive," that is, they were, because of their susceptibility to influence in the formative state, more responsive than stable systems to modest influences for change. We felt, too, that patterns were continually appearing in falls of dice and calls and falls of cards. We felt that if these patterns could be understood, the test we sought would come falling out of the bag of defense mechanism obscurity.

Conventional mathematical analysis of card-calling tests rests largely on means and standard deviations in large blocks of data. We conceived of data as a stream of more-or-less orderly calls and falls of the cards and were concerned with the internal order of these calls and falls. At this point in our research we took it for granted that unconscious thought was moving the calls and the falls of the cards toward a more orderly pattern. The central question was: What kind of pattern? We also took it for granted that the perceptive power of the mind was at work and we knew that we had to disentangle the effects of these two mental influences on the calls and falls of the cards.
Initially we had worked with dice. Our intent was to deal with the ordering force alone and then move on to card-calling (which introduced the perceptive power of the mind). If a pair of dice are thrown, the possibility that a double will arise (regardless of any imperfections in the dice) is one time in six. Thus, a double appearing every six throws of the dice is the "most natural" and therefore the "most orderly" sequence which could appear. Six doubles is the most unnatural sequence which could appear. All possibilities can be ranked in this way in terms of "orderliness." Tests of this conceptual approach to order showed that it was indeed the pattern toward which unconscious thought moved the fall of dice. As compared to expected values (EV's), pairs of dice thrown by human beings from a cylindrical container onto a table top produced one double in six throws more often than expected while all other possibilities were reduced. The more disorderly the category of falls, the more the reduction from EV's was in evidence.

VIUR (Visual Image, Unconscious Response) Tests

In its final form the basic VIUR test we developed utilized two pictures chosen by the participant (the individual taking the test). Black and white photocopies of the pictures (12 of each) were placed in opaque envelopes, the envelopes were thoroughly shuffled and the contents of each envelope (that is, picture #1 or picture #2) was called by the participant. A minimum commitment of 300 such runs of 24 calls was required from each participant (about 15 to 20 hours of time).

Although the test itself is simple to do (some people can watch television and do the test at the same time) the analysis is more sophisticated and is best done by computer.

Before discussing the mechanisms of the basic VIUR test further let us review the conceptual steps which led to the methodology and setup of the test. We had hypothesized:

- that a holy state of consciousness, an awareness of meaning in its deepest sense, was the driving force of Christian healing, or other spiritual healing;

- that this holy consciousness (acting through, guided by, or manifest in an information base existing in consciousness as the inherent template for, or essence of, pattern) provided a dependable mode of thought for use in experimental research;

- that a sufficient level of holy consciousness existed in virtually everyone to exert an influence on pattern formation in sensitive tests. An alternative explanation, perhaps, is that the individual is providing a focusing action rather than being the source of the holiness;

- that random binary sequences (the simplest pattern we could think of) provided a measurement vehicle adequate for the purpose.

Using variations on our basic VIUR test we explored the nature of the defense mechanisms which guard the human mind against knowledge of or use of psi.

There are two defining characteristics of a binary sequence: (1) the number of occurrences of each binary element in the sequence and (2) the order in which the elements occur.

In order to have a "definition base" for a random binary sequence we developed an "equation of sequential order." We also developed a "closed deck equation" which made the necessary adjustment for determining the extent by which the amount of alternating order in a short binary sequence would be modified by the limited number of trials made.
The closed deck equation enabled us to concatenate short runs (in our case runs 24 trials long) and use the concatenated sequences as a viable data base.

We found that alternating order was the pattern of preference of (the pattern supported by) the ordering force.

The primary purpose of the defense mechanisms is to make sure that the probability of a correct call (P = .5 in our case) is closely adhered to (we explored the mechanism by which this is done) and that alternating order is closely adhered to on the most basic level. This means that when we examined our data to see how many pairs of different kinds showed up in the data, the mix adhered to expected values.

For example, if we call one element of a random binary sequence "0" and the other element "1" the possible pair combinations are: 0/1, 1/0, 0/0, and 1/1. These pairs will each, in lengthy runs, approximate 25% of the total number of pairs.

However, there is more to the story. We found, in our exploration of defense mechanism activity, that the defense mechanism would, in areas where no one was likely to look or in situations where, if one did observe, the observation would be dismissed, a "low energy" concealment strategy was used. (We called this the "patsy principle.")

In the case of the basic VIUR test an almost undetectable effort was made by the defense mechanism to keep an appearance of alternating order adhering to EV's at the pairs level. However, the same ordering force that would have increased the alternating order of the pairs without defense mechanism opposition (so the theory goes!) was working to increase the order of the pairs (and larger groups) as well as the order of the individual elements of the sequence.

The defense mechanism (as it has done in other situations we have observed) countered this secondary and less obvious trend toward greater alternating order by "offsetting" increased group order by creating an increased number of disordered groups.

Using an appropriate mathematical analysis we could determine which image was most related to by the mind of the individual taking the test. We could also tell (if we knew from prior testing which was the primary image for an individual) whether or not an individual intended to "call the images" (look for existence of psi) when he or she shuffled the images in the envelopes or whether he or she simply intended to shuffle the images and not call (attempt to guess the contents of each envelope) the images.

The VIUR test does not "grade people" for the extent of holy or perceptive powers. The evidence of such powers depends entirely on the strength of associational linkages with the pictures chosen and this associational linkage varies from picture to picture and from person to person. Given the undefinable strength of this variable in each case, comparisons cannot be made.

Quite a variety of opportunities exist for statistical tests of the data and the more runs are available the higher the statistical evaluations (Z-scores) become. Nearly all of our statistical tests thus far have produced results which are so large as to be well off the tables, some of them very far off the tables, and these scores can apparently be run up as high as anyone wants to take them.

A good deal of our evaluative effort was devoted to tracking the give-and-take of the patterning power and the perceptive power with their respective defense mechanisms. In these evaluations a number of interesting things came to light. For example, for most people the mind, like the eye, notices movement, or change. If the data are analyzed so as to evaluate the number of hits with respect to
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whether or not the picture before each hit was the same or different from the picture correctly identified there is strong skewing. skewing showing that the mind identifies the picture most readily if there has been a change in the identity of the picture appearing in the data stream. A number of characteristics of the mind have emerged from the new evaluative approaches.

At this point we felt we had:

- accumulated strong evidence that the knowledge of or use of psi is defended against by the unconscious mind of each of us,

- determined that the defense mechanisms involved act in programmed rather than conceptual ways,

- found that the defense mechanisms employed different strategies under different circumstances, and we concluded that

- the long history of peek-a-boo powers, evanescent results, and conflicting data which have plagued parapsychological research from the beginning can now be explained -- in experimentally demonstrable as well as theoretical terms -- by defense mechanism activity.

Gathering data can be laborious and this fact seemed to us to be hindering evaluation of our conclusions by others (replication takes time, thought, and work). Thus we used our VIUR approaches to go one step further and develop a test in which both data gathering and data evaluation were automatic (a matter of running a computer program).

In this test, (Spindrift's Automatic Psi Test) a specially built circuit capable of serving as a REG is plugged into a desk top computer and a program is run. Data generation and data evaluation are automatic. A few hundred hours of running time are needed but this can be done over night and on weekends or whenever the computer is not in use.

Results of Spindrift's Automatic Psi Test fit the theory, match the standard patterns we found in producing random binary sequences by various other means, and have no apparent physical explanation.

Has Spindrift achieved its goal in developing tests which work for everyone, which are indisputable in their results, and which will finally enable non-paradigmatic consciousness-oriented work to be taken seriously? Early results are hopeful, news of our tests is beginning to get around and the noise from the medicine rattles may have been worth listening to. A great deal depends on whether or not psi-studying communities will join with psi-conducive communities in interdisciplinary research, whether or not scientific journals will open their doors to "non-traditional" research (all research was at one time non-traditional), and whether or not people can be moved on individual levels. If research in any area is to endure it must attract capable people (good measurers and theoreticians) and, if psi research is to have any chance, psi-conducive communities and the medicine men they produce (psi users) must have a chance to endure within the larger culture of which they are a part.
THE VIUR TESTS: AN OVERVIEW

_Spindrift, Inc._

ABSTRACT: The metaphysical worldview which underlies Christian and Christian Science healing includes a healing power accessible to the praying mind. Based on this worldview, we postulated three psi functions of the mind: an ordering power, a perceptive power, and defense mechanisms acting to conceal the psi powers of the mind from conscious thought. Since the defense mechanisms work to hide the ordering and perceptive powers, experiments which look for psi effects among huge blocks of data are seeing only the small and shifting differences between two much larger effects. We therefore undertook to analyze the stream of data from ESP card calls sequentially, and to look for ways in which the defense mechanisms might work to nullify the overall psi effect, but reveal themselves by the different ways they chose to apply their corrections. Such differences were discovered. It became possible to predict large effects for each of the three mental powers, and to demonstrate these experimentally. After tests on primitive life forms such as seeds, yeasts, and the like, we worked out a simple series of tests we called VIUR (Visual Image, Unconscious Response). These tests involved guessing which of two pictures was in each of a series of envelopes. This produced two strings of data, one for each picture, each guess being a "hit" or a "miss". Analyzing these binomial sequences of data revealed the predicted effects of perceiving, influencing, and attempting to cover up, the order of the pictures. This work is described in a series of formal reports describing the experimental protocols, the data, the analyses, and the conclusions. These reports are currently being evaluated by the parapsychological community. The present paper outlines the conceptual framework for the work, and summarizes the findings in qualitative terms.

The authors are professional spiritual healers, Christian Science practitioners who earn their living by healing people through prayer. They have a worldview in which this sort of powerful psi is real, necessary and explainable. Eighteen years ago it occurred to them that such a strong effect should be physically measurable, and they developed experiments to do so. The experiments did indeed show the large psi effects expected, but these findings were not accepted elsewhere. In mainstream science the same factors were operative that have inhibited acceptance of other psi research. In the parapsychological community acceptance was impeded by the fact that the experimental protocols and the analytical techniques were basically different, and we had not communicated sufficiently the worldview which dictated the characteristics of psi and why this type of experiment was required to reveal it.

The purpose of this paper is to outline the relevant aspects of our worldview and the kind of psi effects such a worldview exhibits, and to review the repeatable characteristics of psi our theory predicts. From this worldview, we developed a series of experiments to demonstrate these effects, and we did indeed find them as predicted. The effects are many times greater than those shown in conventional parapsychological experiments, and we show why we would expect this to be so, and why we believe that the experimental approaches now being used in the parapsychological community will continue to be limited to small, unreliable effects.

Our research avoids the criticism sometimes leveled at psi research, namely, that the whole field is a negative construct, with psi defined as the anomalistic difference between what is found and what was expected, with psi having no characteristics inherently its own. In our case, we predicted, and then..
demonstrated, various characteristics of psi in each of a number of experiments. These are characteristics not expected from other psi research and are large, robust, and easily replicated. We consider that this work presents such a direct challenge to the parapsychological community that it calls for confirmation or repudiation, particularly since this can be done with only modest effort. We are eager to assist others in such an effort.

Rather than presuming to speak for other religious metaphysical viewpoints we describe our work in terms of our own Christian worldview, since that is what we know best. We do not mean to imply by this that Christianity is the only framework consistent with this worldview or these research findings.

The ardent Christian lives in a world whose central features are moral and spiritual truths, a world wherein prayer, holy states of mind, bend and shape experience. This is a world of massive psi, a world which is also massively defended against the knowledge of or use of psi, whether psi is considered as the holy power of patterning consciousness or the secular psi of human will or volition.

One of the strongest defenses against the knowledge of psi or the use of psi is the pervasive power of the scientific paradigm of today, a paradigm which flows directly from the “seeing is believing” outlook common to us all.

Many scientists feel that the concept of psi flatly contradicts the "laws of nature", and these scientists therefore resist psi as an enemy to everything they believe about the world. In particular, the idea that a physical process, such as illness or the fall of cards, could be changed in response to prayer or other mental action, strikes them as capricious and incompatible with an orderly world. But other respectable scientists have suggested concepts of a worldview which permit psi effects of the type we are discussing, while still maintaining most of the scientific "laws" we currently consider inviolable. Settling that metaphysical challenge is beyond the scope of this paper. We will proceed with the conceptual framework which supports our findings and let others worry about what changes in the scientific paradigm may be required.

We start by postulating a pattern-forming or pattern-mending force that operates from beyond or above the classical forces that control physical processes. (This is analogous to the recently discovered chaotic force that perturbs the orbits of the planets.) But to observe this mental force, we must find a way to catch the defense mechanisms at work, so that we can see what they are hiding.

In scientific approaches to scientific tests it must be recognized that from the standpoint of science -- and rightly so -- no explanation is ever final, no explanation is ever proved, no theoretical construct is anything more than a provisional interpretation of the results of measurements. Thus, in scientific terms, the insights which led us to develop the tests described in this paper are nothing more than pioneering footsteps toward theory of any kind, provisional landmarks on a road we have walked.

Nevertheless, our explanations of our tests must include some elucidation of the conceptual structure which guided both data gathering and data evaluation. Without some theoretical construct the data patterns revealed by the tests would be of the same order as the perturbation of Mercury's orbit before the time of relativity theory, namely, events considered either anomalous or artifactual. Therefore, this overview of our VIUR tests consists of general non-technical descriptions of our procedures and our mathematical evaluations, all coupled with descriptions of the footsteps of thought which suggested such procedures and evaluations.

Let us begin our discussion of test specifics by noting again that to the deeply devout Christian, thought is all, meaning is all. Meaning -- moral and spiritual in nature -- shapes the physical world and not vice versa. To test such an outlook science must find a way to measure values and their effects
on the material world and Christianity must come to value measurements (respect the power of the scientific outlook to interpret physical reality).

Spindrift’s research is an effort to achieve this goal. The VIUR (Visual Image, Unconscious Response) tests constitute a portion of our total research effort. The VIUR tests are, for the most part, studies of the effects of thought on the sequential order of randomly produced binary sequences. These studies may be interpreted as revealing evidence of both patterning and perceptive powers of the mind as well as evidence of opposing defense mechanisms acting to conceal these powers.

Why We Set Up The Tests The Way We Did

Tests cannot be set up in ways the experimenter cannot conceive. Thus every test reflects conscious and unconscious conceptual structure, the mindset of the experimenter. Mainline scientists do not test for psi because they cannot logically and/or emotionally accept the validity of psi. In like manner, parapsychologists generally do not test for an ordering force and corresponding defense mechanisms because their mindset embodies the traditional psychological view that thought is solely volitional/intentional in nature.

Our tests reflect the Christian viewpoint that there is in consciousness a pattern-developing, pattern-mending (identity-developing and identity-mending) power. Such a power is reflected in prayer and is, by definition, a healing power.

Our tests also reflect the Christian viewpoint that there is a power which resists goodness, healing, and the power of prayer. How this power is conceptualized is a more contentious matter among Christians than the nature of God; theological constructs range from the physical devil of an anthropomorphic outlook to the carnal mind conceptualized by Saint Paul and the mortal mind conceptualized by Mary Baker Eddy.

In like manner, the scope of deception and power attributed to an entity opposed to God ranges from the traditional temptations encountered by the Christian to the world-scale manipulation of perception mandated by Christian Science theology.

Thus, our conceptual background led us to set up tests which: (1) evaluated data for an ordering force of the mind, a perceptive power of the mind, and for “defense mechanisms” that seek through unconscious mental action, to hide from conscious thought the knowledge and use of the healing and perceptive abilities of the mind.

We believed that in the thought-sensitivity of random action and the mathematical simplicity of binary sequences the materials existed to construct tests which -- relying on unconscious mental action -- would reveal the ordering and perceptive powers of the mind as well as the powers of the opposing defense mechanisms. Thus we generated binary sequences in various ways and evaluated our data to see how it conformed -- and how it did not conform -- to the known mathematical characteristics of random binary sequences.

Defense Mechanism Tactics

Our conceptual structure was fairly rigid, that is, it could not be easily stretched to accommodate a wide range of data patterns. We found that the data patterns our tests revealed could, in fact, be interpreted in terms of the conceptual structure we brought to the tests and could not be easily interpreted in other ways. We found strong evidence for ordering and perceptive powers of the mind, and for opposing defense mechanisms.
As in classical psychological inquiry, defense mechanism activity is not easily explored. The good success of our efforts rested in large part on a characteristic of the defense mechanisms which came to light in the course of our investigations. The defense mechanism seemed to operate so as to conserve mental energy. This characteristic resulted in "programmed responses" for various levels of danger of psi discovery and various avenues of psi discovery. From the nature of these programmed responses a wide-ranging tactical approach was in evidence.

In essence, the defense mechanism uses two approaches (direct and indirect) to maintain the illusion of mathematical normalcy (adherence to "expected values") in a sequence. These two approaches reflect the fact that the mind relates to persons, places, and things -- and symbols of persons, places, and things -- with differing degrees of intensity. Some associational links are stronger than others.

The stronger one's association is with an object, or the symbol of an object, the more clearly the mind is aware of the object or its symbol. This means that the perceptive power and the ordering force are measurably more in evidence when an associational link is strong than when it is weak.

For its part, the defense mechanism can more easily suppress evidence of psi when the associational link is weak than when it is strong. When there is strong risk of psi exposure the defense mechanism acts to counter evidence of psi with "opposite and equal" psi. This opposite and equal action (a direct counterattack) applies equally to both strongly and weakly unconsciously perceived images. This is the defense mechanism's direct approach to its task of concealment.

When there is only a small risk of psi exposure (as evaluated by the defense mechanism which has a programmed response for each contingency) the defense mechanism offsets psi evidence with an indirect counterattack. This indirect approach we refer to as the "patsy principle". Instead of countering strong and weak images so that the evidence for psi for each image averages to approximately zero, the defense mechanism depresses the occurrences of the weakest image (the patsy) to an abnormally low level, a level which approximately offsets the abnormally high occurrences of the strong image.

The Patsy Principle in Action

The direct action of the defense mechanism will, for example, offset a string of "hits" (correct calls of a group of pictures) with a string of misses. The patsy principle (indirect action) uses other strategies.

The patsy principle comes in two energy levels: low energy and mid energy (as contrasted with the high energy level of direct action).

The low energy approach will, for example, offset a high number of primary image hits (the picture most strongly related to) with a low number of secondary image hits (the picture most weakly related to) if this can be done in areas where observation of the strategy is unlikely.

The mid energy approach supplements the low energy approach. It will "cut in" as needed if the low energy approach produces results so large as to lead to observation. This often occurs as data levels increase. The mid energy approach will, for example, offset a low energy pattern with an "equal and opposite" mid energy pattern. Thus, the defense mechanism will shift back and forth between the two patterns to maintain the illusion of "nothing much going on".
The VIUR Tests: An Overview

What The VIUR Tests Study

The VIUR tests study the action and counteraction of the ordering force and the defense mechanism and the action and counteraction of the perceptive power and the defense mechanism.

Uncovering The Defense Mechanisms

A defense mechanism is unconscious structured will; it does not have the conceptual freedom of conscious thought. Hence, its responses appear "programmed" in nature. This means that these responses can be observed without changing them (although the intent to observe is noted and responded to by the defense mechanism). Thus:

(1) it is possible to detect the defense mechanism by observing the patsy principle in action.

The defense mechanism has a limited number of programmed responses available. Thus:

(2) it is possible to detect the defense mechanism by constructing test situations to which it cannot adequately respond.

The power of prayer, of holy thought and spiritual healing, so often manifest as an ordering force, acts to diminish (to "heal") non-patterning (volitional/intentional) elements of consciousness. Thus:

(3) it is possible to detect the defense mechanism by modifying its action (weakening its strength) and observing, under test conditions, the effects of such modification.

The defense mechanism and the ordering force are constrained by the nature of the world in which they operate (although the ordering force acts to modify and develop this world). The ordering force produces and enhances pattern (measurable in terms of mathematical regularity) and the defense mechanism, in order to conceal telltale enhancements to pattern, must respond by manipulating pattern. Thus:

(4) it is possible to detect the defense mechanism by examining mathematical characteristics of variations in pattern resulting from defense mechanism activity (the counteraction of ordering force action).

Examples of approach 1 are relatively easy to come by. Our "triple try VIUR test", our "double calls VIUR test", and our "automatic psi test" are examples of approaches 2, 3, and 4.

The Standard VIUR Test: VIUR Decks and ESP Decks

If you shuffle a deck of cards, the red and black cards form a binary sequence. If you call (guess) the colors of the cards, one by one, the hits and misses (correct and incorrect calls) form two more binary sequences, one for the red cards and one for the black.

For many years parapsychologists have used a special deck of cards (an ESP deck) to determine if an individual can call the cards above chance, that is, to determine if extrasensory perception really exists. In our standard VIUR test (and some other VIUR tests) we also call images as a way of generating sequences, sequences which we then analyze both for the number of hits and for the order of the hits and misses. Our VIUR decks, however, differ from standard ESP decks.
We believe that the unconscious mind relates more powerfully to pictures which are meaningful to the individual than to the symbols used in the standard ESP (Zenner) deck. It is not simplicity which makes associations strong, but strength of meaning. It is not graphic starkness nor ease of recognition which arouses the perceptive ability of the mind but the power of the symbol to stir the individual. Therefore, the deck we use consists of envelopes with pictures in them, one picture per envelope. The pictures are chosen by the data providers who are to work with the deck. Often they choose a picture they like and a picture they don’t like.

A standard VIUR deck contains 24 images rather than the 25 cards of the standard ESP deck. This is because our mathematical analysis works more smoothly with even numbers in a run than with odd numbers in a run.

We use only two images in a standard VIUR test rather than the 5 images found in an ESP deck. We do this for two reasons: (1) the sequence is easier to analyze than a sequence with 5 images, and (2) (the most important reason) the defense mechanism has far fewer deceptive options open to it when it works with two images than when it works with 5 images.

We require the individual calling the images to also shuffle the images or, rather, the envelopes containing the images (a departure from the procedures used in evaluating ESP with an ESP deck). This is because we evaluate the order of the shuffled images as well as the order of the hits and misses of the called images.

We allow data providers to pick up the envelopes when they make their calls. We allow them to self-record their guesses and then, at the end of a run, to self-record the order of the falls (the actual sequence of the images they called). Thus they have feedback on their correct and incorrect calls at the end of every run.

Although this procedure enabled us to gather a large amount of data it was open to the possibility of tampering. Other than the two researchers who developed and supervised the project, no data gatherer had any idea what kind of analysis we were using. In addition, our final data base contained only data from individuals known personally to the researchers.

It might also be noted that cheating on the calls of the images is a process which would skew the elaborate internal patterns of order found in honest data. Cheating is detectable by knowledgeable researchers who have in hand sufficient data from an individual.

In our standard VIUR tests we photocopied pictures chosen by the data providers and we copied them in black and white. Colors have associations of their own with the mind and we were proceeding carefully in our experimental investigations.

**Primary and Secondary Images**

We felt that in almost every case one image would be more strongly related to by the data provider than the other. We also supposed that this difference in strength of associations would affect equally both the ordering force and the perceptive power. We also realized that if these suppositions were true and if the patsy principle was defending the area in which we wanted to look, then an interesting test was possible.

If you flipped a coin 100 times and the first 50 flips were heads and the last 50 flips were tails this could be considered an extremely disordered situation. On the other hand, if heads and tails alternated for the entire sequence of 100 flips, maximum alternating order, maximum homogeneity, would characterize the sequence.
The VIUR Tests: An Overview

What we did was: (1) set up categories of order and (2) develop ways to distinguish the sequences of correct and incorrect calls of each image from each other on the basis of the internal order of each sequence of calls. This enabled us to distinguish a primary image (most related to) and a secondary image (least related to). And, although the details are beyond the scope of this paper, it might be noted that the basis of order that we used (alternating order or homogeneity) was a basis of order that seems to be built into the world, the natural order of things, in a mathematical way as far as random sequences are concerned.

We had been speculating that the unconscious mind might be responsive to change, or “motion”, just as the eye is. We wondered if a correct call of a picture might occur more frequently if the picture being called differed from the one preceding it, rather than being another of the same. If this was happening, and the patsy principle was being used to hide the fact, we should see a positive effect on the primary image calls (i.e. more correct calls than expected by chance) and a negative psi effect on the secondary image calls (i.e. fewer correct calls than expected by chance). That is because calls on the primary image are more vulnerable to the ordering force and less vulnerable to the defense mechanisms, or so we hypothesized.

When we evaluated our data, we found (to our delight!) that precisely this situation was occurring for all our data providers.

Hiding The Perceptive Power Through Displacement

We were interested in how the unconscious mind could cause the secondary image to be incorrectly called and decided to have one of our researchers make an attempt to find out. Both of the two researchers supervising (and contributing a small amount of data to) our standard VIUR test data base had hits (correct calls) above expected values and above any of the hit rates achieved by the other data providers.

What puzzled us was that the hit rate of the more developed spiritual healer (as measured by a number of other tests) was not as high as the hit rate of the other researcher. Upon further investigation it was found that our highest scoring researcher (on earlier tests of healing ability) was experiencing displacement of his correct calls. He was strongly correctly calling the image which appeared just before the image he was supposed to call.

We considered this displacement to be due to the tactics of the defense mechanism and to be “curable” by the researcher. The researcher accepted the challenge and successive tests showed a gradual decline in displacement followed by the complete disappearance of the displacement.

How the Defense Mechanism Does It

We had avoided colored pictures because of the complexity that introduced, but we did try some colored borders. Some exploratory testing showed us that for this researcher the association of the color blue (a wide blue border around the black and white picture) with a drawing of a mother-and-baby intensified the associational strength of the picture. In like manner, a wide black border around the picture of a sculptured skeleton also produced a strongly-related-to image.

This researcher now used these selected color/image combinations in what we called a “double calls” VIUR test. In this test two envelopes, one containing one image and the other the other image, are randomized. The researcher goes through a pile (24 or 48) of these randomized pairs endeavoring to determine which of the two images is in each envelope.
The advantage here is that the researcher can compare his perceptions of the two images. Because only 2 images are involved the defense mechanism has only limited options. It can:

- do nothing,
- make image A look like image B
- make image B look like image A
- make each image look like the other.

Note that we have structured this test so that, in addition to his efforts to diminish the power of the defense mechanism through spiritual healing (holy thought), the researcher has the advantage of strongly-related-to images to work with and minimal opportunity for deception by the defense mechanism.

When the defense mechanism responded in an easily identifiable way to the effort to call an image the researcher was aware of this to a considerable extent. Prior to making the call he would classify such a call as "easy". His easy calls were considerably more accurate than his "hard" calls (the non-easy calls).

Very seldom did the defense mechanism try to make each image look like the other. (This would require much more power than making only one image look like the other.)

The most common ploy was to make the secondary image look like the primary image.

Within the parameters of the test situation the researcher, through a combination of prayer and practice, was able to "beat" the defense mechanism to a considerable extent. That is, he was able to keep improving his scores and to make correct calls well above expected values.

Order and Associational Strength

The orderliness of a sequence may be judged by the numbers of the variously sized clusters, or groups, of the elements of the sequences within the overall sequence. The orderliness of a sequence may also be judged by the extent to which orderly groupings of elements within a sequence are linked together. The more strongly human consciousness is linked with the formation of a sequence, the more orderly a sequence is. By the same token, the more the ordering force and perceptive power are in evidence, the more the defense mechanism resists these psi activities.

Physical Laws and Psi

The findings of quantum mechanics reduced the clockwork paradigm of classical physics to a subset of a probabilistic world. Spindrift's findings reduce the probabilistic paradigm of modern science to a subset of a consciousness-defined world. Such a statement embodies no more hubris than the outlooks of those who developed quantum mechanics. Fortunately, the validity of the statement is equally (and much more easily) open to experimental verification.

Massive Psi, Massive Defenses

Research in parapsychology today is geared to sensitive measurements of small effects. One of the greatest psi-producing culture of history -- Christianity -- is largely content today with the warm feeling which hopefully follows after prayer.
The VIUR Tests: An Overview

Our tests show that the universe is a place of massive psi, massively defended against. Observations of the world around us show us that the psi defenses in our own minds have grown more -- not less -- effective as mankind has progressed from a pre-scientific to a scientific culture. This is due to the maturation of the present scientific paradigm, a paradigm which works within the intellectual world of today to suffocate and eliminate psi-producing cultures and psi-producing elements within cultures -- including Christianity itself.

Nevertheless, the scientific method is process, not paradigm. Like all mathematical logic, the scientific method is at the service of various sets of internally consistent postulates. Our own research has used the scientific method to evaluate outlooks rooted in Christianity, outlooks amenable to the experimental test.

Our VIUR tests, tests which rely primarily on unconscious thought rather than on conscious thought, are so easy to replicate that verification of our findings -- we think -- will be quick and easy. One of our tests -- Spindrift's Automatic Psi Test -- even generates its own data and evaluates this data completely automatically with powerful results.

Evaluation of the mathematical approaches used in data evaluation are quite straightforward but will require thorough examination. The final research step -- exploring the meaning of the data -- will, like all evaluations of paradigm-shifting research, take time and be fraught with emotion.
PRAYER AND HEALING: TESTS WITH GERMINATING SEEDS

Spindrift, Inc.

ABSTRACT: This paper presents tests of the proposition that there exists an ordering and pattern-mending mode of consciousness, a mode of consciousness amenable to the conditions of the experimental test. Characteristics of this mode of consciousness were also explored. Germinating seeds were used as the experimental vehicle because of their sensitivity to this mode of consciousness, particularly in the early germination stage. In terms of methodology and equipment the tests were extremely simple, almost naively so. In terms of conceptual structure underlying the methodology, the tests were unique, reflecting, as they did, the outlooks of practicing spiritual healers (Christian Science practitioners). Within the limits of the investigation, the claim of the existence of a mode of consciousness capable of providing repeatable and powerful results under experimental conditions was affirmed. The tests conducted and the results obtained have been presented in the approximate order in which the tests were done. Thus, a narrative of discovery is provided together with initial evidence supporting a hitherto experimentally untested conceptual approach to exploring psi.

INTRODUCTION

In the presumably modern times in which we live, the scientific enterprise has been pre-empted by a non-psi-using culture. Use of the scientific method by such a culture has produced, as a logical end product, a paradigm as materialistic as the culture producing it. However, the scientific method is process, not paradigm. A psi-using culture could, conceivably, by use of the scientific method produce an entirely different and equally "scientific" paradigm.

The worldview propounded by Mary Baker Eddy in the late nineteenth century produced a sub-culture (Christian Scientists) which, because of its internal coherence and demonstrability, she termed "scientific", an appellation much disputed by her critics. Of her worldview she wrote: "In Christian Science mere opinion is valueless. Proof is essential to a due estimate of this subject."!

In sociological terms the Christian Science community is a psi-using sub-culture in various ways, most notably in their reliance on "spiritual healing", physical healing produced through a mode of consciousness popularly known as "prayer", but defined less generally within their own conceptual system.

In 1975 a few Christian Scientists became uncomfortable enough living between two paradigms to feel the time had come to link their healing system to the experimental method. However, over the years their church had come to feel, in common with traditional Catholic and Protestant viewpoints, that the linking of the things of the spirit, including spiritual healing, to material measurement, the objective scrutiny of the things of the flesh, was a dangerous proposition.

Condemned as heretics, the group organized itself as Spindrift, Inc.2 in 1981 and moved to define its experimental work in value free conceptual terms. Without funding or scientific credentials the tests undertaken by the group were extremely simple. For all of that, they had the powerful advantage of being conducted by individuals whose backgrounds and vocations had been developed within the conceptual system and working environment of a psi-using community.

A bi-dimensional model

We, in Spindrift, realized that prayer, in religious terms, was supportive of identity, of the integrity of the individual. We reasoned that pattern was the measurable dimension of identity, a purely quantitative expression of a qualitative and quantitative reality. Therefore, we supposed, prayer could be expected to develop and sustain pattern. Prayer could then, in measurement terms, be expected to be measurable as a patterning power. Replacing the volitional/intentional model of the mind with a bi-dimensional model was thus our first conceptual step.

In the case of the volitional/intentional mode of consciousness, the state of a system is measured before and after mental input, comparing the after-measurement to the before-measurement. In the case of the "normalcy-referenced model", or "identity-referenced model", as we termed it, measurement comparisons are between the closeness of the after-measurement to a norm or norms as related to the closeness of the before-measurement to a norm or norms. "Norm" is defined as a measurable element of pattern, a "best" or "most perfect" condition of state or function of an element of pattern. Thus the patterning mode of consciousness -- which we termed "holy thought" -- could be expected to increase the germination rate of seeds in growth-retarding (below norm) environmental conditions and decrease the growth of seeds in growth-forcing or hothouse (above norm) conditions.

The four ratios

A second conceptual step was to postulate, provisionally, functional relationships characterizing the world of thought. These functional relationships, we reasoned, would appear as statistical relationships in experimental terms. This seemed inescapable since measurements of the effects of thought must always be made in terms of discrete measurements of the effect of mental inputs to a system, inputs varying with quality of thought, quantity of thought, and degree of associational linkage of thought resting on the reference system used as a measurement vehicle. In addition, the degree of deviation of the reference system from its norms must be considered.

At present (and with some experimental backing) we consider the functions involved to be simple ratios. With "E" representing measurable effect, with "Q" representing quality of thought, "q" representing quantity of thought, "a" representing degree of associational linkage, "r" representing degree of deviation from norm, and with "k" representing the appropriate constant we can express these ratios as $E = kQ$, $E = kq$, $E = ka$, and $E = kr$.

It should be noted that the constant "k" is "the appropriate constant." This constant will be constant for each individual norm under a given set of environmental conditions and for each relationship (each equation). The constants are appropriate to the conditions and are not interchangeable.

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2Spindrift is a not-for-profit group devoted to experimental research in the area of spiritual healing. Spindrift takes no positions on denominationally defined theological or religious outlooks and encourages the interpretation of its experimental findings in terms of any belief system, denominational or otherwise, the individual sees fit.
Prayer and Healing: Tests With Germinating Seeds

With these simple postulations in place we felt we had sufficient conceptual structure to begin our tests.

METHODS AND MATERIALS

Materials: Seeds, balances, and assorted containers were our basics. In one test electronic balances were computer monitored.

Methods: We sprouted seeds, using control and treated groups. We applied holy thought to the treated groups and used weight change or number of germinating seeds as our basis of measurement.

RESULTS

We have arranged our chronicle of tests and test results in approximately the order in which the tests were done. For reasons of brevity, a few tests not germane to the development of the ideas in this paper have been omitted. The omitted tests are described in our paper VIUR Tests: Conceptual Probes, Programmed Defenses.

The initial test of \( E = kr \)

Our \( E = kr \) postulation represented observations drawn from our work as spiritual healers and implies an increase in measurable effect with increase in a system's degree of deviation from its norms, or pattern. This circumstance can be conceptualized as representing differences in scale of the measurement grid. Our initial test evaluated for the predicted rapid rise in measurable response to holy thought with increase of stress on germinating seeds. In this test we used rye grass seeds sown on vermiculite. Small plastic cups (Solo P100, about an inch tall) with a hole in the bottom were placed throughout the tray so that a water table could be continually maintained and its height observed. The depth of the vermiculite was sufficient (about one inch, the height of the cups) to permit a water table of about one-half inch to be continuously maintained. In each of the cups placed in the tray the level of the water table could be observed. The tray was kept out of drafts and out of direct sunlight. Different batches of seeds were watered with saline solutions of different strengths.

For each group of seeds a string was placed down the middle of the tray. The seeds on one side of the tray were treated with holy thought (prayer). This process (which was carried on with small groups of seeds, a few hundred at a time so that counting and checking initial and final counts was made easy) was repeated until a total treated group and a total untreated group of several thousand seeds representing each degree of salinity in the water used to water the seeds was reached. For each stress level the number of control and treated seeds that germinated (possessing a root and a shoot) were compared. Table 1 (next page) presents the data.

With "Control Grown" values representing expected occurrences and "Treated Grown" values represented observed values the weighted composite Z-score was 3.64\(^3\).

After this initial test we were greatly encouraged and proceeded with other seed tests. These tests, the tests described in this paper, continued from 1976 to 1988. We found that the rise in measurable effect with increasing stress, the pattern seen in Test 1, was a characteristic response to

\(^3\)Z-scores in this paper have been calculated using the following method (\(N\) and \(M\) represent number of trials, control and treated for example, and \(nn\) and \(mm\) represent results of trials):

\[
z = \frac{nn(N-mm)}{\sqrt{nn(N-nn)/N^3 + mm(M-mm)/M^3}}
\]
holy thought. We assumed, perhaps correctly, that the pattern of apparent increase as r increases was the result of the proportional effect of holy thought across all stress ranges on the non-proportional decline in germination rate as stress on the seeds increased.

**TABLE 1**

**Rye Grass Seeds**

<table>
<thead>
<tr>
<th>Salt</th>
<th>Control Sown</th>
<th>Control Grown</th>
<th>Treated Sown</th>
<th>Treated Grown</th>
<th>%Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>2,000</td>
<td>778</td>
<td>2,000</td>
<td>800</td>
<td>2.3</td>
</tr>
<tr>
<td>1.5</td>
<td>3,000</td>
<td>302</td>
<td>3,000</td>
<td>312</td>
<td>3.3</td>
</tr>
<tr>
<td>2.0</td>
<td>3,000</td>
<td>217</td>
<td>3,000</td>
<td>247</td>
<td>13.8</td>
</tr>
<tr>
<td>2.5</td>
<td>3,000</td>
<td>454</td>
<td>3,000</td>
<td>528</td>
<td>16.3</td>
</tr>
<tr>
<td>3.0</td>
<td>3,000</td>
<td>52</td>
<td>3,000</td>
<td>68</td>
<td>30.8</td>
</tr>
<tr>
<td>3.5</td>
<td>2,000</td>
<td>2</td>
<td>2,000</td>
<td>10</td>
<td>400.0</td>
</tr>
<tr>
<td>4.0</td>
<td>3,000</td>
<td>0</td>
<td>3,000</td>
<td>0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

* teaspoon's salt for eight cups water

**A second test of E = kr**

A similar check was made using mung beans. In this test the saline solution was used in the initial soaking period (in this case, 24 hours). Rinsing (twice daily until germination) was done with fresh water. Data are given in Table 2.

**TABLE 2**

<table>
<thead>
<tr>
<th>Salt *</th>
<th>Control Beans</th>
<th>Control Sprouts</th>
<th>Treated Beans</th>
<th>Treated Sprouts</th>
<th>%Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.5</td>
<td>1,000</td>
<td>902</td>
<td>1,000</td>
<td>932</td>
<td>3.3</td>
</tr>
<tr>
<td>30.0</td>
<td>14,000</td>
<td>251</td>
<td>14,000</td>
<td>387</td>
<td>54.2</td>
</tr>
</tbody>
</table>

* teaspoon's salt for eight cups water

With mung beans the criterion for germination was some definite separation of the sprout from the seed. If an obvious sprout or a definite separation was not visible then the seed had to be skinned and looked at more closely. This was necessary for good results since holy thought has its greatest measurable effect early in germination. As time goes by, the control seeds tend to catch up and -- presumably -- the edge the treated seeds have is manifest in some other way than rapidity of germination as defined by the separation of the sprout from the seed.

Z-scores for the two rows of Table 2 return values of 2.44 for the first row and 5.45 for the second row. The two mung bean sets have a weighted composite z of 5.89.

Tables 1 and 2 show how easy it turned out to be, with very simple and repeatable tests, to illustrate one of the most fundamental characteristics of measurements of holy thought: increase in measurable effect with amount of deviation of a system from its norms. In these tests we are, of course, replacing a sophisticated range of measurements of the internal characteristics of the seeds (the norms)
with a simple measurement of rudimental response (germinate or not germinate) of rudimental organisms (seeds) under "live or die" conditions.

Measurement of any one of the four variables involved in measurements of holy thought (Q,a,r) requires that the other three variables be held steady. The tests represented in Tables 1 and 2 are tests in which the same practitioner (spiritual healer) treated each group of seeds for approximately the same amount of time for the same number of days. Thus quality of thought, quantity of thought, and degree of associational linkage were approximately the same for each group of seeds. The major variable was r or amount of distance from norm (the more salt, the more stress on the seeds, the more deviation from conditions of "best" or "most perfect" state or function).

Varying conditions of temperature and humidity in the room for the various groups of seeds which made up the totals for the tests also contributed to varying values for r. Thus the final results reflect some skewing in that salinity levels imperfectly reflect stress levels.

The mental input

In terms of the denominational movement launched by Mary Baker Eddy the kind of mental input used in these tests has been "field tested" for somewhat longer than the psychical societies have existed. In terms of the history of Christianity and the antecedent Judaic tradition, the chronicle of what can be termed psi activity is considerably more powerful and more extensive than that gathered in more recent times in the parapsychological journals. Thus these simple tests mine a fertile vein of ore. The circumstances also present a problem.

Prayer is an emotionally loaded term. The parapsychological journals usually prefer "meditation", "mentation strategies", or other verbal constructions. We, at Spindrift, did not consider that value-free testing, presumably objective tests, could be equated with pre-existing conceptual systems without abandoning the inductive system on which the presumed objectivity of science rests. We also assumed the possibility that if both were correct, inductive and deductive logic might coincide in an ordered universe.

It was in consideration of this line of thought, and other good reasons, that Spindrift, in somewhat circular terms, equated "holy thought" with the mode of consciousness producing a patterned response. This produced an empirical rather than a conceptual definition. It also cleared the ground for objective testing and did this without passing judgment on the various conceptual systems which may or may not produce in an individual the ability to produce the patterned response. It remains for the protagonists of the various religious and non-religious outlooks to carry on the work of reconciling inductive and deductive logic, to interpret test data, and, perhaps, begin to judge the value of belief systems in terms of the good they do.

In short, the mode of consciousness used as mental input in our tests is today, for us and by definition, a mode of consciousness found in some individuals. This approach does not denigrate the vein of ore we mine; it does give us a platform from which to do it.

Weakening the associational link

The next test described was a more difficult test for our researchers and opened a new line of inquiry. We had arbitrarily defined maximum "a" (associational linkage) as existing when the seeds were within sight of the practitioner during treatment (holy prayer). In this next test the practitioner had to identify the patient (the seeds) in terms of markings on the cups, a mental rather than a visual link. This meant that treatment was not given in the immediate presence of the seeds.
In the test which produced Table 3 two hundred mung beans were placed in each of 72 plastic cups. The cups were separated into two groups of 36 cups each. Half of the cups in one group were marked with a red pen and one-third of the cups in the other group were marked with a blue pen. One-fourth cup of saline solution (one tablespoon salt for each cup of water) was poured in each cup. After 24 hours the beans were drained and rinsed with fresh water. They were rinsed twice a day thereafter with fresh water and the number of sprouts counted after nine days. Treatment was given to the beans in the red-marked cups and the blue-marked cups during this time.

In Group One the numbers of sprouts in the unmarked cups, cup-by-cup, were: 38, 36, 36, 28, 30, 24, 37, 29, 29, 34, 29, 31, 27, 20, 24, 29, 30, 29. Range was 20 to 38.

In Group One the numbers of sprouts in the red-marked cups, cup-by-cup, were: 52, 53, 59, 51, 52, 50, 49, 51, 48, 61, 55, 48, 59, 47, 45, 46, 53, 58. Range was 45 to 61.

In Group Two the numbers of sprouts in the unmarked cups, cup-by-cup, were: 32, 24, 23, 34, 24, 22, 25, 21, 27, 30, 34, 29, 23, 28, 31, 25, 38, 24, 26, 22, 31, 32, 23, 25. Range was 21 to 38.

In Group Two the numbers of sprouts in the blue-marked cups, cup-by-cup, were: 54, 51, 57, 46, 54, 71, 50, 46, 48, 54, 46, 64. Range was 46 to 71.

Combining the 18 unmarked cups from Group One with the 24 unmarked cups from Group Two and combining the 18 red-marked cups from Group One with the 12 blue-marked cups from Group Two and evaluating the data produced Table 3.

**TABLE 3**

<table>
<thead>
<tr>
<th>Mung Beans</th>
<th>Range</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Number of Cups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>20-38</td>
<td>28.4</td>
<td>4.78</td>
<td>42</td>
</tr>
<tr>
<td>Treated</td>
<td>45-71</td>
<td>52.6</td>
<td>5.90</td>
<td>30</td>
</tr>
</tbody>
</table>

Since the seeds were in growth retarding conditions it could be predicted that the effect of holy thought would be to increase the germination rates of the seeds. Thus, a one-tailed test could be applied to determine the probability of the treated seeds germination rate deviating from the control seeds germination rate in the direction indicated by the data.

Computation of the Z-score, actually a Student's t-score with 71 degrees of freedom, \([(28.4-52.6)/\sqrt{(4.78^2/42 + 5.90^2/30)}]\) produced a result of 18.5.

The glory and the misery

Without the ability to control temperature and humidity the good results evidenced in Table 3 reflect the art as well as the science of experimentation. Growth retarding conditions are easy to come by. The average temperature of the average room provides this. For hothouse conditions a hothouse or some equivalent is needed.

In practice, getting good test results rests partly on picking good days for doing the tests and then hoping the weather holds. In winter, in climates where furnaces are running and the inside air is dry, one can count on fairly predictable results.
Prayer and Healing: Tests With Germinating Seeds

Less predictable, in a test such as the last one, is the ability of the practitioner to follow the associational linkage. The reason we used blue and red markings and the reason we chose differing proportions of the total seeds that we marked with the red and blue markings, was to see if there were any strong differences, any difficulties that might surface with small changes in the method of identifying the seeds to be mentally treated. This test was a transitional step toward the next tests we were planning, tests which involved various degrees of associational linkage, various levels of identification of the target system, for the practitioner to work with.

The identity field

The enormous number of measurable characteristics of form and function, state and activity, being and doing, which define the pattern of any identity, we conceptualize as norms. These norms are considered to be associationally linked and constitute a definition of pattern, a definition we conceptualize as an "identity field." This term is not meant to be descriptive of identity; it is a conceptualization used to facilitate the building of conceptual systems capable of guiding experimental design and mathematical evaluation of data.

The law of the conceptual whole

As can be seen from the various tests with seeds, holy thought acts with equal power on the seeds regardless of the number of seeds being treated and the effect of this power is guided, not by a target or focus, but by field characteristics. It is of interest to note that, although the nature of the effect of holy thought is determined by the characteristics of the field, the field, fields, or portions of a field affected by holy thought are determined by the extent of the associational links in the mind of the practitioner. We characterize these circumstances as the law of the conceptual whole, a law which states that effect is constant over the field, fields, or portions of a field conceived of as a conceptual whole in the mind of the practitioner.

Following associational links

Associational links are the most difficult of the variables to deal with since associational links vary from practitioner (spiritual healer) to practitioner and because they: (1) reside primarily in unconscious thought, (2) can vary over time in the mind of an individual, (3) can ebb and flow with emotion and other forms of will, and (4) can be strengthened through visualization (conscious effort at any given time). For these reasons and because successful tests of the power of thought rely so heavily on associational links some simple tests of associational links were included in our earliest experimental work.

Because disproportional response to equal amounts of holy thought occurs as distance from norms increases (with the amount of response varying with the system's degree of response to distance from norms) measurements made when r is maximized produce the largest values. (When r = 0 only zero value measurements will occur, a healthy system cannot provide a healing response.) Measurable effect can also be increased by frequent treatment of the seeds (E = kq) and by the strongest possible associational linkage (E = ka). In our tests of ability to follow associational links we kept the tests sensitive by keeping "q" and "r" values high.

It should be noted that associational tests are the most difficult of all tests for us as spiritual healers for it is in this area that experimental work differs most markedly from the daily public practice of spiritual healing. Prayer for one's self or for others involves thinking of specific and easily identifiable individuals whereas in most experimental work it is desirable to have both control and treated groups, with the two groups as similar as possible in every way. Thus it was that as a practical matter we considered "a" maximized when a reference system was within the sight of the practitioner (and thus
easily identified) when treated.

As associational links are weakened the practitioner's work becomes increasingly difficult and, for those of us not used to following unfamiliar mental pathways, the task is, at best, challenging, at worst, exceedingly frustrating. Tests involving weak associational links (unlike our other tests) are not always easily reproducible on demand.

**Hidden target tests**

Tables 4 through 11, like Table 3, represent tests in which equal numbers of mung beans were placed in paper or plastic cups. The beans were pre-soaked in a saline solution (8 tablespoons salt to 8 cups water) and rinsed with fresh water 2 or 3 times daily (depending on room temperature and humidity and always with equal amounts of water for each cup). Small holes in the bottoms of the cups provided drainage. The holes were large enough to permit virtually immediate drainage of water poured into the cups.

Each test ran about a week (give or take a day or two depending on room temperature and humidity). Before counting out the mung beans it was necessary to pre-select the beans to be used by sorting out all cracked and broken beans, all dried-up beans, and the tiny round (rather than oblong) beans (the tiny round beans will not germinate). The indeterminacy in the number of times a day rinsing was made (two or three) and in the length of time the seeds were permitted to sprout was a condition imposed by the fact that we were not conducting these tests under conditions of controlled temperature and humidity. In addition, rinsing was by hand. These circumstances were recognized in advance as was the corollary condition that appreciable differences could arise from unconscious minor variations in procedure. Given these circumstances, we made a number of tests of various kinds including the hidden target tests presented in this paper.

In the tests described in Tables 4-11 five hundred mung beans were placed in each of several glasses or cups. Paper cups worked very well. For the soaking period a mixture of eight tablespoons salt to eight cups water was used, except in the first of these eight experiments where we used ten. When counting the sprouted beans it was necessary to count not just the ones that had nice sprouts on them. Unless all those that had begun to sprout were also counted the experiment would not work. When there was any doubt we skinned the bean for a closer examination. The criterion was separation of the sprout from the seed.

In our first experiment of this kind we used three cups of mung beans. We placed a penny in a closed box, thoroughly shook the box, and placed it aside until the experiment was over. The cups were labeled C (for control), H (for heads), and T (for tails). Treatment was given to the beans in the cup designated by the penny in the closed box. From Table 4 it was concluded the penny was heads and when the box was opened this was the case.

<table>
<thead>
<tr>
<th>TABLE 4</th>
<th>Mung Beans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cup</td>
<td>Beans</td>
</tr>
<tr>
<td>Control</td>
<td>500</td>
</tr>
<tr>
<td>Heads</td>
<td>500</td>
</tr>
<tr>
<td>Tails</td>
<td>500</td>
</tr>
</tbody>
</table>
We did this again using a die, which was shaken in a closed box as before. The cups were labeled C, 1, 2, 3, 4, 5, 6 and treatment was given to the beans in the cup designated by the number uppermost on the die. From Table 5 we concluded that a five had been thrown in the closed box and when the box was opened that was the case.

<table>
<thead>
<tr>
<th>Cup</th>
<th>Beans</th>
<th>Sprouts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>500</td>
<td>19</td>
</tr>
<tr>
<td>One</td>
<td>500</td>
<td>19</td>
</tr>
<tr>
<td>Two</td>
<td>500</td>
<td>18</td>
</tr>
<tr>
<td>Three</td>
<td>500</td>
<td>18</td>
</tr>
<tr>
<td>Four</td>
<td>500</td>
<td>19</td>
</tr>
<tr>
<td>Five</td>
<td>500</td>
<td>30</td>
</tr>
<tr>
<td>Six</td>
<td>500</td>
<td>18</td>
</tr>
</tbody>
</table>

This was done a second time. From Table 6 we concluded that a six had been thrown and when the box was opened that was the case.

<table>
<thead>
<tr>
<th>Cup</th>
<th>Beans</th>
<th>Sprouts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>500</td>
<td>40</td>
</tr>
<tr>
<td>One</td>
<td>500</td>
<td>43</td>
</tr>
<tr>
<td>Two</td>
<td>500</td>
<td>45</td>
</tr>
<tr>
<td>Three</td>
<td>500</td>
<td>35</td>
</tr>
<tr>
<td>Four</td>
<td>500</td>
<td>45</td>
</tr>
<tr>
<td>Five</td>
<td>500</td>
<td>45</td>
</tr>
<tr>
<td>Six</td>
<td>500</td>
<td>57</td>
</tr>
</tbody>
</table>

The last three tests were useful

It is clear that Tables 4, 5, and 6 did not involve enough seeds to statistically establish the conclusions we drew from them. We included these tests, and others like them, in this paper because they were part of the pattern of discovery, more importantly, they are part of a large fabric of such tests all of which agree in their data configurations, and, finally, because their heuristic usefulness did much to determine the course of our experimentation. They are landmarks which guided us, in total they are statistically impressive, and, from time to time, we set up tests which made the statistical case impressively without having to rely on combining tests to do it.

More associational tests

In our next test (see Table 7) we took a deck of cards, shuffled them, and cut the deck, setting the deck aside until the experiment was over. We labeled our cups C (for control), R (for red) and B (for black). Treatment was given to those beans in the cup designated by the bottom (and unknown) card. When the card was examined it was found to be a two of diamonds (red).
TABLE 7
Mung Beans

<table>
<thead>
<tr>
<th>Cup</th>
<th>Beans</th>
<th>Sprouts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>500</td>
<td>30</td>
</tr>
<tr>
<td>Black</td>
<td>500</td>
<td>31</td>
</tr>
<tr>
<td>Red</td>
<td>500</td>
<td>72</td>
</tr>
</tbody>
</table>

It should be noted that the number of beans which sprout is dependent on conditions of temperature and humidity in the room during the week or so of germinating time and on the germination stage in which the sprouts are checked as well as on salt levels in the soaking water.

Another variation of this experiment was done (see Table 8) using a dollar bill, a two dollar bill, and a five dollar bill. The bills and two envelopes were taken into a dark room. The bills were mixed up, two put in one envelope and one in the other. Treatment was given to the mung beans in the cup corresponding to the bill in the envelope with only one bill in it. The cups were labeled C (for control), $1, $2, $5. After the experiment was concluded the envelope was opened and the bill alone in its envelope was the one dollar bill.

TABLE 8

<table>
<thead>
<tr>
<th>Cup</th>
<th>Beans</th>
<th>Sprouts</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>500</td>
<td>49</td>
</tr>
<tr>
<td>$1</td>
<td>500</td>
<td>72</td>
</tr>
<tr>
<td>$2</td>
<td>500</td>
<td>55</td>
</tr>
<tr>
<td>$5</td>
<td>500</td>
<td>49</td>
</tr>
</tbody>
</table>

When one individual prays for another and a healing result occurs the selectivity by which such a result is achieved is demonstrated. The tests described in Tables 4-8 illustrate experimentally the intentional-associational factors involved. The existence of such factors illustrates the fact that the inter-relationship of mental and physical laws is an orderly or lawful pattern.

It was found that when an experiment is going on in which the relationship can be held in the thought of the healer (the jar on the left or the blue glass) no other symbol system is needed. When a number of experiments are going on at once the relationships between all the glasses, bottles, and jars are lost to conscious thought. The relationships exist only as a symbol system (the markings on the jars and so forth) and in unconscious thought. The healer is then praying for a subject or situation identified to him in some particular way. The fact that these experiments go forward successfully under such circumstances indicates the intentional and associational structure on which the experiments themselves are built up.

In the previous five experiments (Tables 4-8) the associational connections contain a link completely removed from the minds of all concerned and unknown to anyone. But the associational-intentional laws are still followed.

Predicting the fall of a die or the toss of a penny in circumstances such as these is the by-product of the operation of certain laws, just as the alteration of physical symptoms in spiritual healing is a by-product of a redemptive effort. Such healing is not a direct goal of human effort but is
Prayer and Healing: Tests With Germinating Seeds

considered to be a by-product of inner yielding to the operation of spiritual law, the qualitative consciousness which produces the identity referenced or patterned effect. Thus the achievement of a usual or unusual effect depends more on the nature or structuring of the experimental situation than on the nature of what the healer himself or herself does. The inter-relationship of the elements involved determines the form of the result.

Tests of non-holy (volitional/intentional) thought illustrate the fact that the intentional-associational mental paths can be easily used and followed by mental energies other than prayer.

Factors affecting associational linkage

In the next test eight cards were chosen at random from a shuffled deck and placed in envelopes numbered one through eight. It was not known what the cards were and the envelopes were not opened until the experiment was over and the beans counted. As before, the beans in the cups corresponding to the red cards were treated.

To casual observation (Table 9) there seemed to be no pattern. From the figures the 3, the 7, and the 8 should have been red cards. Then, in looking at the red cards we noticed that one was a 7 (the seven of hearts), one was an 8 (the eight of diamonds), and one had no number on it (the ace of hearts) but it did have three red spots. The other red card was a picture card (the king of diamonds).

<table>
<thead>
<tr>
<th>TABLE 9</th>
<th>Mung Beans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cup</td>
<td>Beans</td>
</tr>
<tr>
<td>1</td>
<td>500</td>
</tr>
<tr>
<td>2</td>
<td>500</td>
</tr>
<tr>
<td>3</td>
<td>500</td>
</tr>
<tr>
<td>4</td>
<td>500</td>
</tr>
<tr>
<td>5</td>
<td>500</td>
</tr>
<tr>
<td>6</td>
<td>500</td>
</tr>
<tr>
<td>7</td>
<td>500</td>
</tr>
<tr>
<td>8</td>
<td>500</td>
</tr>
</tbody>
</table>

We concluded that the cup labeled number 3 had responded to the associational link of a red card with three red spots on it (the red ace) and that the cups numbered 7 and 8 had responded to a red seven and a red eight respectively. We also concluded that the non-numerical red picture card had not, of itself, been a complete associational link. The associational connection had been governed by the conscious mind's use of the color link and also by the unconscious mind's use of the numerical link.

At the same time we had set up the last experiment we had also set up another experiment to test more involved correlations. It also did not work out as expected. We had placed a dime in each of eight boxes, labeled one through eight, and had shaken the boxes. The boxes were not opened to see if the dimes were heads or tails until the experiment was complete.

Then we had taken eight cups of 500 mung beans each and labeled them as indicated in Table 10. Treatment was given to the cup selected by the fall of the coins. As can be seen from the correlating system the cup selected will identify the heads or tails position of three separate coins. When the beans were counted the heads or tails position of coins 1, 3, and 5 was indicated. However, when the boxes were opened coin one was tails (correct), coin three was heads (correct) but coin five
was not called correctly. It was tails, not heads, although heads was indicated.

TABLE 10
Mung Beans

<table>
<thead>
<tr>
<th>Cup</th>
<th>Beans</th>
<th>Sprouts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1H-2H-4H</td>
<td>500</td>
<td>42</td>
</tr>
<tr>
<td>1H-2T-4T</td>
<td>500</td>
<td>44</td>
</tr>
<tr>
<td>1H-2T-6H</td>
<td>500</td>
<td>47</td>
</tr>
<tr>
<td>1H-2T-6T</td>
<td>500</td>
<td>48</td>
</tr>
<tr>
<td>1T-3H-5H</td>
<td>500</td>
<td>95</td>
</tr>
<tr>
<td>1T-3H-5T</td>
<td>500</td>
<td>48</td>
</tr>
<tr>
<td>1T-3T-7H</td>
<td>500</td>
<td>41</td>
</tr>
<tr>
<td>1T-3T-7T</td>
<td>500</td>
<td>46</td>
</tr>
</tbody>
</table>

One of the concepts of the healing system being tested is that mental conditions, and this includes physical phenomena, arise from association. It may well be that the difficulties with the last three experiments arose from the attempt to substitute intellectual formulations for the actual associative patterns held in unconscious thought. Associations are acquired and developed, not arrived at intellectually, and workable experimental situations probably must reflect this condition.

The effects go somewhere

In the next multi-hidden-target experiment the associations were simpler. Four pieces of plain brown cardboard and four pieces of cardboard with a shiny red side were used. One piece was taped to the bottom of each of eight cups after being thoroughly wrapped in heavy paper. The pieces and the glasses were shuffled so that there was no way of knowing which cups were the target. Then the beans in the cups indicated by the red cardboard were treated.

The cup numbers shown in Table 11 were assigned when the test was over and as the sprouts were being counted. No identifying numbers entered into the experiment before that time. It was known, of course, that four cups were identified and four cups were apparently affected. However, the cups corresponded with the red cardboard in only three out of the four instances.

TABLE 11
Mung Beans

<table>
<thead>
<tr>
<th>Cups</th>
<th>Beans</th>
<th>Sprouts</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>500</td>
<td>42</td>
<td>Brown</td>
</tr>
<tr>
<td>2</td>
<td>500</td>
<td>67</td>
<td>Red</td>
</tr>
<tr>
<td>3</td>
<td>500</td>
<td>40</td>
<td>Red</td>
</tr>
<tr>
<td>4</td>
<td>500</td>
<td>64</td>
<td>Red</td>
</tr>
<tr>
<td>5</td>
<td>500</td>
<td>38</td>
<td>Brown</td>
</tr>
<tr>
<td>6</td>
<td>500</td>
<td>65</td>
<td>Red</td>
</tr>
<tr>
<td>7</td>
<td>500</td>
<td>64</td>
<td>Brown</td>
</tr>
<tr>
<td>8</td>
<td>500</td>
<td>39</td>
<td>Brown</td>
</tr>
</tbody>
</table>
Prayer and Healing: Tests With Germinating Seeds

It can be argued that in experimental conditions there is no "real" patient and no "real" relationship between healer and patient. Results so far may indicate though that the patient is "real" to the extent possible results can be meaningful in some context and that the relationship is "real" to the extent the associations can be, not on an intellectual, but on a "felt" or qualitative level. If these conclusions have substance to them, then the easiest experiments to do would be single subject experiments the healer feels he or she can relate to.

Since treatment (holy thought or holy prayer) is given to the seeds daily until the counting is done we have made it a practice not to have two experiments going which the researcher might confuse in his own mind, for example, two experiments involving a single die in a box. Intrinsic differences should theoretically be enough for identification, but these experiments are sufficiently different from conventional healing work to cause us to proceed carefully. The problems with some of these experiments (the hidden target tests) seem to confirm this caution. The following experiment also shows in another way the difficulty that can stem from the lack of a "real" healer-patient relationship.

**You must keep your mind on what you're doing**

Our next test (shown in Table 12) was a repeat of the die-in-a-box experiments done earlier (Tables 5 and 6). We reduced the number of beans in a cup by one-half (which lightened the work of counting sprouts). After the first few days we rinsed the beans not by pouring equal amounts of water in the cups but in running water. This made giving equal amount of rinse water to each cup impossible but each cup had plenty and odor was reduced -- heavy initial salt soaking puts the beans in rather bad shape which increases measurable results but is hard on the beans. We left the beans to sprout several days longer than usual (this makes them easier to count but reduces differences between the number of control and treated beans).

**TABLE 12**

<table>
<thead>
<tr>
<th>Cup</th>
<th>Beans</th>
<th>Sprouts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>250</td>
<td>28</td>
</tr>
<tr>
<td>2</td>
<td>250</td>
<td>24</td>
</tr>
<tr>
<td>3</td>
<td>250</td>
<td>32</td>
</tr>
<tr>
<td>4</td>
<td>250</td>
<td>55</td>
</tr>
<tr>
<td>5</td>
<td>250</td>
<td>27</td>
</tr>
<tr>
<td>6</td>
<td>250</td>
<td>31</td>
</tr>
</tbody>
</table>

When treating the beans the researcher got to thinking of the number four. This had not happened in the earlier experiments and we knew that this apparently trivial picturing of a four on the die might, when dealing in such weak associational patterns as we were, constitute a stronger associational link than the associational link we were counting on intellectually (the face of the die in the box). So, the researcher tried to over-ride it but was unsuccessful. When the experiment was over it was found that the beans in cup four were the ones that had been affected (Table 12). And the face of the die that was uppermost in the box was a five.

**Where and what**

From the associational tests it had become clear to us that, within limits, the practitioner could volitionally determine where the effect would be. From the nature of a pattern-supporting or pattern-
mending force it was also clear that the practitioner could not determine what the effect would be. Thus, predictions of where an effect would happen depended for their accuracy on the volitional control of the practitioner. Predictions of what the effect would be depended on how knowledgeably the test was structured. The associational tests seemed to us to be interesting enough and important enough to carry them a little further before we moved on to other areas. Thus, we set up a test involving even more difficult relationships.

More involved associational links

In our exploration of the E=ka relationship we turned from the relative simplicity of our earlier associational tests to a more complex associational relationship, one that was quite difficult for the researcher providing the mental input.

For our next test we took trays and put vermiculite in them, then divided the trays into four quarters with pieces of string. Soybeans were soaked in salt water (one tablespoon of salt for each cup of water). We put 90 beans in each quadrant of the tray and poured more vermiculite over the beans. We watered them by pouring clear (unsalted) water into a funnel which we would stick in the middle of the tray when needed. Keeping the vermiculite moist during the next ten days.

We took a deck of cards and divided it into thirteen groups of four cards each. Each quadrant of a tray was marked to correspond to a different card in a group of four. These four cards were then shuffled and one card drawn from the group. This card was placed aside, not to be looked at until the experiment was over. The same was done with the other three.

In due course we had a "rejected" deck of 39 cards (corresponding to control) and an "active" deck of 13 cards (corresponding to treated). After that we used 3x5 file cards with a word typed on one side, following the same procedure as with the playing cards. Typical groups of words were: cat, dog, mouse, hare or run, jump, climb, swim.

As trays were set up cards were added to the bottom of the active deck. After a tray was counted a card was removed from the top of the deck and looked at. Each day the soybeans in the tray quadrants corresponding to the cards in the active deck were treated.

Of course, since the trays for each card were separate from one another and we did not measure the vermiculite or water we gave each one, and since they were in different locations in various rooms, some warmer, some cooler, the experiment was such that only quadrants, not trays, could be compared. Also, only the first six trays were started at the same time, were kept to about the same degree of watering, and the sprouts counted at the same time. After that, some of the trays got somewhat dried out, the trays were counted when the researcher could get to them, sometimes as much as two days variation. But out of this we learned enough to set the experiment up again in a more workable way. And the experiment did work well enough to pick the right card 18 times out of 26. However, it was the sequence of correct calls that was most instructive.

Sprouts were counted by pouring the vermiculite and seeds into a plastic colander, the holes of which had been drilled out to enlarge then just enough to let the vermiculite run out under gently running water. Soybeans have tough skins; the skins gradually dissolve and come off before the visible sprouting begins. Therefore, if the skin was off one generally had a sprout to count, otherwise one usually didn't. If the seeds were rinsed under running water this was often enough to wash away some of the gelatinous skins and that was enough to change the count of a non-sprout into the count of a sprout. Our procedure was to gently rinse away the vermiculite and then rinse the seeds under gently running water, then count the sprouts.
As the previous tests with seeds have shown us, the measurable effect of holy thought increases with the degree of stress on the seeds. For the soybeans in the first six trays control germination rates gave us comparable stress indications and these could be compared to the percentages by which treated sprouts germinated over control sprouts. Comparisons could be made over the six trays and the comparison should indicate that the more stress the sprouts were under (as indicated by a lower germination rate) the larger the measurable effect of holy thought would be \((E = kr)\). Table 13 gives us the raw data and Table 14 shows us the comparisons.

### TABLE 13
**Soybeans**  
**First Six Trays**

<table>
<thead>
<tr>
<th>QD</th>
<th>Sprouts(12)</th>
<th>QD</th>
<th>Sprouts(12)</th>
<th>QD</th>
<th>Sprouts(15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3D</td>
<td>40</td>
<td>QC</td>
<td>41</td>
<td>2C</td>
<td>38</td>
</tr>
<tr>
<td>8H</td>
<td>40</td>
<td>9S</td>
<td>45</td>
<td>2H</td>
<td>41</td>
</tr>
<tr>
<td>JD*</td>
<td>54</td>
<td>8D*</td>
<td>75</td>
<td>KC</td>
<td>48</td>
</tr>
<tr>
<td>4H</td>
<td>36</td>
<td>6H</td>
<td>50</td>
<td>5D*</td>
<td>67</td>
</tr>
<tr>
<td>QD</td>
<td>Sprouts(15)</td>
<td>QD</td>
<td>Sprouts(18)</td>
<td>QD</td>
<td>Sprouts(18)</td>
</tr>
<tr>
<td>3H</td>
<td>50</td>
<td>5C</td>
<td>60</td>
<td>10S</td>
<td>72</td>
</tr>
<tr>
<td>10H*</td>
<td>64</td>
<td>JS</td>
<td>76</td>
<td>2D*</td>
<td>83</td>
</tr>
<tr>
<td>8S</td>
<td>49</td>
<td>7D*</td>
<td>86</td>
<td>7H</td>
<td>66</td>
</tr>
<tr>
<td>JH</td>
<td>37</td>
<td>3C</td>
<td>64</td>
<td>4D</td>
<td>67</td>
</tr>
</tbody>
</table>

### TABLE 14
**Soybeans**  
**First Six Trays -- The Norm-referenced Signature**

<table>
<thead>
<tr>
<th>Hours Soaking Time</th>
<th>Control Germination Percent</th>
<th>Treated Germination Percent</th>
<th>Percent Treated Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>75.00</td>
<td>93.89</td>
<td>25.19</td>
</tr>
<tr>
<td>15</td>
<td>48.70</td>
<td>72.78</td>
<td>49.45</td>
</tr>
<tr>
<td>12</td>
<td>46.67</td>
<td>71.67</td>
<td>53.57</td>
</tr>
</tbody>
</table>

The designation "QD" refers to "quadrant designation" and the numerals 12, 15, or 18 next to the term "sprouts" refers to the number of hours the beans were kept in the pre-soaking brine. Each quadrant contained 90 beans. An asterisk (*) after a quadrant designation (whether a playing card or the word on a file card) indicates the card was in the deck corresponding to the treated quadrants.

Soybeans, unlike other seeds we have worked with, present an unexpected circumstance. The longer soybeans are pre-soaked the more gelatinous the skins become and the easier it is for the seeds to germinate. Any detrimental effect of the salt in the water is more than offset by the positive effect of additional soaking.

The first 8 cards (representing the first 8 trays out of the 26 trays) were called correctly. If their three control quadrants were averaged and this average compared to the treated quadrant, and these
figures were averaged for the first 8 trays, the average increase in the treated quadrants was 38%. However, after that, measurable effect began to decline and, because additional trays were being added and mentally treated while earlier trays were still germinating, the decline was not known until all but the last five trays were started. In the last five trays (counted several days after the researcher had reviewed the earlier data and taken corrective action) the right card was called every time and the average increase in the treated quadrants was 44% (see Table 15).

<table>
<thead>
<tr>
<th>Trays</th>
<th>Number of Trays</th>
<th>Correct Calls</th>
<th>c/t Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-8</td>
<td>8</td>
<td>8</td>
<td>38</td>
</tr>
<tr>
<td>9-15</td>
<td>7</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>16-21</td>
<td>6</td>
<td>1</td>
<td>-5</td>
</tr>
<tr>
<td>22-26</td>
<td>5</td>
<td>5</td>
<td>44</td>
</tr>
</tbody>
</table>

After the good start of the first eight trays we were disappointed when the experiment began to go downhill. The researcher, accordingly, thought back to try and discover what the trouble was and correct it. Up to that point he felt the treatments given daily had been fairly consistent. Then he remembered the first eight trays had been started in two days (six the first day and two the second). In the first two days of treatment he had taken time to establish as well as he could in his thought the associational pattern he had to work with. After that he had more or less taken the associational links for granted and had considered them less and less, assuming they existed in his thought. After corrective action was taken the final figures were better than the first (44% to 38%).

We try again

In our next test we returned to 24-hour pre-soaking of the beans, again using soybeans as the measurement vehicle. We used clear plastic glasses and put four holes in the bottom of each of them. We fastened four glasses at the top using strapping tape, each glass hinged to the glass next to it until we had thirteen groups of four. 200 soybeans went into each glass.

These groups of glasses were set in trays of salt water (one tablespoon per cup for 24 hours) to soak with the soybeans well covered. After that the beans were rinsed and, after that, rinsed two or three times a day by pouring two cups of water into each glass of beans and letting the water run through. Using a bridge deck of 52 cards, glasses were marked in the same manner as the quadrants in the trays in the preceding test and the beans in the cups corresponding to the cards in the active deck of 13 cards were treated.

The first group of four glasses of sprouts was counted after a week; the others were counted after 10 days. It was noted that beans lower down in the glasses retained more moisture than those near the top. This was a circumstance which had not arisen in the earlier tests using mung beans in cups. Because of their smaller size the mung beans packed together better than the soybeans did and variation in moisture was not as pronounced. Figures were as follows with counts corresponding to cards in the active deck marked with an asterisk: 10,13,20*,13; 47,46,103,59*; 41,58*,40,36; 69*,42,48,41; 73,36,39,40; 45,83*,39,46; 87*,52,48,55; 89*,60,67,55; 57,53*,93,50; 49,42,61,89*; 52,49*,99,54; 136*,51,69,55; 50,66,121*,71
Effect goes nowhere

The right card was called ten out of thirteen times and it can be noted (as in Table 11 and some of the other tests) that when an associational link went wrong (as in the three groups that didn't work) the effect still went somewhere. In other words, in the three "unsuccessful" test groups of soybeans the four sets of sprouts (one from each glass out of the four) were still characterized by one high count just as the "successful" groups were. The extent of this skewing (considered entirely separately from the question of how often the associational target was hit) could easily be measured. Each group of four measurements were obtained under the same measurement conditions and, if averaged and the average equated to 100, each of the four measurements could be expressed in terms of the new measurement scale (datum/mean = x/100).

By expressing all 13 sets of measurements in common terms we could determine which hypothesis was most reasonable: the hypothesis that no mental force was at work, or the hypothesis that a mental force was, in every case of the 13 groups, increasing one measurement out of four.

If the first hypothesis were true it was expected that the 52 measurements would be approximately normally distributed. If the second hypothesis was true it could be expected that the distribution would be skewed in a mathematically predictable way. The second pattern did appear as is shown in Table 16. The chi-square evaluation was 39.05 which, at seven degrees of freedom, was well off the tables.

<table>
<thead>
<tr>
<th>Range</th>
<th>Occurrences</th>
<th>Expected Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;-3sd</td>
<td>0</td>
<td>0.07</td>
</tr>
<tr>
<td>-3sd to -2sd</td>
<td>0</td>
<td>1.12</td>
</tr>
<tr>
<td>-2sd to -1sd</td>
<td>3</td>
<td>7.07</td>
</tr>
<tr>
<td>-1sd to mean</td>
<td>35</td>
<td>17.75</td>
</tr>
<tr>
<td>mean to +1sd</td>
<td>1</td>
<td>17.75</td>
</tr>
<tr>
<td>+1sd to +2sd</td>
<td>11</td>
<td>7.07</td>
</tr>
<tr>
<td>+2sd to +3sd</td>
<td>2</td>
<td>1.12</td>
</tr>
<tr>
<td>&gt; +3sd</td>
<td>0</td>
<td>0.07</td>
</tr>
<tr>
<td>Totals</td>
<td>52</td>
<td>52.02</td>
</tr>
</tbody>
</table>

In Table 17 we apply the same kind of an evaluation we used in Table 16 (for the seeds in the glasses) to the data in Table 15 (the data from the seeds in the trays). Table 17 shows the pattern for the data represented in Table 15. The pattern in Table 17 (next page) is similar to the pattern in Table 16 although not as pronounced (chi-square equaled 12.90).
TABLE 17
Soybeans

<table>
<thead>
<tr>
<th>Range</th>
<th>Occurrences</th>
<th>Expected Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; -3sd</td>
<td>0</td>
<td>0.14</td>
</tr>
<tr>
<td>-3sd to -2sd</td>
<td>0</td>
<td>2.24</td>
</tr>
<tr>
<td>-2sd to -1sd</td>
<td>15</td>
<td>14.13</td>
</tr>
<tr>
<td>-1sd to mean</td>
<td>50.5</td>
<td>35.50</td>
</tr>
<tr>
<td>Mean to +1sd</td>
<td>16.5</td>
<td>35.50</td>
</tr>
<tr>
<td>+1sd to +2sd</td>
<td>17</td>
<td>14.13</td>
</tr>
<tr>
<td>+2sd to +3sd</td>
<td>5</td>
<td>2.24</td>
</tr>
<tr>
<td>&gt; +3sd</td>
<td>0</td>
<td>0.14</td>
</tr>
<tr>
<td>Totals</td>
<td>104</td>
<td>104.2</td>
</tr>
</tbody>
</table>

An unsuccessful test

Although we tried we could not duplicate our successful associational tests with mung beans and soy beans using rye grass seeds. The rye grass seeds were too small to examine in early stages of germination. After eight tries (6,000 control and 6,000 treated seeds in each attempt) there was less than 3/100% difference between the control and treated sprouts as is shown in Table 18.

TABLE 18
Rye Grass Seeds

<table>
<thead>
<tr>
<th>Control Sown</th>
<th>Control Grown</th>
<th>Treated Sown</th>
<th>Treated Grown</th>
</tr>
</thead>
<tbody>
<tr>
<td>48,000</td>
<td>26,345</td>
<td>48,000</td>
<td>26,352</td>
</tr>
</tbody>
</table>

The many tests which we have done with seeds show that holy thought increases the rapidity of germination of the seeds. As germination continues the control seeds tend to catch up with the treated seeds and, eventually, germination counts show that almost as many control seeds have sprouted as treated seeds. Of course, the "head start" of the treated seeds is probably manifested as healthier and stronger treated seeds than control seeds but we have no way to measure this. Given the simplicity of our approach we confined ourselves to measuring the differences between control and treated germinating seeds at an early point in the germination process.

Measurements of a rudimental belief system

Faith, or strong belief, comes in many forms: experimenter effect, faith healing, placebo effect and so on. It is present along with holy thought (either as belief in one's healing ability or as disbelief in one's healing ability) in every prayer. It can, therefore, under proper measurement conditions, be measured in conjunction with holy thought.

In the following group of tests a belief system was in place for a limited time which permitted such measurements. The circumstances arose as part of a theoretical exploration which seemed plausible at the time but which did not work out. Yet, at the time the theoretical possibility existed as an exciting possibility in thought for our researcher, the effects of goal directed thought were as easily
Prayer and Healing: Tests With Germinating Seeds

measurable as the effects of holy thought.

One of the theoretical conceptions of the healing method used in these experiments is that matter is a subjective and objective form of certain elements of consciousness, in other words a mode of consciousness or form of thought. It was reasoned that, as unconscious thought-forms, the physical mechanisms which trigger seed germination might respond to the thought force, structured will, or survival instincts of other living things.

To test this our researcher used two different forms of living things, plants and yogurt. Rye grass seeds were sown and germinated as before (in trays of vermiculite with a controlled water table) but a plant or a small jar with active yogurt in it was correlated with one-half of each tray of seeds. The correlation was mental, although the trays and jars and plants were marked accordingly.

Each jar or plant was promised (this was the mental link, and by promised we mean that the intention was formed in thought) a reward if seed germination was greater in the designated tray areas than in the control areas. The plants were promised more light and the yogurt was promised fractional teaspoons of milk for each percentage increase in germination of the experimental area over the control area of the tray.

These experiments were repeated with small groups of seeds until 15,000 or more seeds were available for a data base in each category (correlated and uncorrelated). Then the tests were repeated again with the plants and the yogurt (not the seeds) being treated. Table 19 shows the results, results which, in later analysis in conjunction with another test reveal a striking feature (Table 24). In Table 19 results from the yogurt and the plants are combined.

<table>
<thead>
<tr>
<th>TABLE 19</th>
<th>Rye Grass Seeds</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Agent</strong></td>
<td><strong>Control</strong> Sown</td>
</tr>
<tr>
<td>non-treated living things</td>
<td>31,500</td>
</tr>
<tr>
<td>treated living things</td>
<td>30,000</td>
</tr>
</tbody>
</table>

What did it?

From the data in Table 19 we had no way of knowing whether or not we were viewing some hitherto unsuspected ability in the plants and yogurt or whether we were seeing the effect of our own unconscious thought. This was even more strikingly true in the next tests we made. In carrying the line of reasoning which produced Table 19 a little further we wondered if, when natural materials were made into useful objects, it was possible that the purpose, the will or intention of the maker, might enter as an element into the unconscious thought-form that constituted the finished product. We tested this concept by selecting a dresser into the construction of which much hand work had gone. A drawer was removed (thus making the dresser imperfect or incomplete) and the intention was formed not to replace it unless a certain percentage of seed germination was achieved in the correlated areas of the seed
trays as compared to the uncorrelated (control) areas. Results are shown in Table 20.

<table>
<thead>
<tr>
<th>Control Sown</th>
<th>Control Grown</th>
<th>Correlated Sown</th>
<th>Correlated Grown</th>
<th>% Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>15,000</td>
<td>7,518</td>
<td>15,000</td>
<td>8,697</td>
<td>15.7</td>
</tr>
</tbody>
</table>

We repeated this approach using mung beans

Although we tried, we were not able (using mung beans instead of rye grass seeds), at the 500 mung bean level, to duplicate (with the correlation technique) the "hidden target" experiments which had been so successful when the beans were directly treated. We attempted this using yogurt, plants, the dresser drawer, and different levels of salinity. Our conclusion was that the mental energy was not strong enough, and that success depended on a larger data base. Using the dresser drawer we did two tests with a larger data base (our next two tests) and both were successful.

In our next test three containers of mung beans were used with 200 grams of mung beans placed in each container. The mung beans were used just as they came from the supplier. This means that the dried, broken, and tiny hard ones (which will not germinate) were not separated out (being measured by weight instead of being counted). The initial soaking used a solution of 10 teaspoons salt for each eight cups of water, a weak (for mung beans) solution used to give a little larger spread between normal germination rate and 100% (mung beans are powerful sprouters).

Three bills (a one dollar bill, a ten dollar bill, and a twenty dollar bill) and two envelopes were taken into a dark room, shuffled, and two bills placed in one envelope and one bill in the other envelope.

The dresser drawer was taken out with intent to replace if the mung beans in the container corresponding to the single bill in the envelope had a germination rate above the average of the other two. The envelopes were unopened until after the experiment was over.

We proposed to sort the non-sprouts from the sprouted beans and then, for time and convenience sake, count the non-sprouts. We also proposed to separate out the tiny hard beans after germination and before counting the non-sprouts. This was easy to do because they are tiny, they are round instead of oblong, and they neither swell nor soften in the soaking/rinsing process. We also proposed to take all the genuine apparently non-sprouting beans, skin them and examine them as closely as possible to be sure they were not sprouting, counting only the actual non-germinating beans. We felt that success probably depended on this level of size and carefulness.

The data from this test (Table 21) indicated that the envelope with the single bill contained the one dollar bill. When the envelopes were opened this was the case; the cup with the least non-sprouts was correlated to the one dollar bill. The data, however, were not impressive.
TABLE 21
Mung Beans

<table>
<thead>
<tr>
<th>Cup</th>
<th>Beans</th>
<th>Rejects</th>
<th>Non-sprouts</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1</td>
<td>200 gms</td>
<td>999</td>
<td>360</td>
</tr>
<tr>
<td>$10</td>
<td>200 gms</td>
<td>989</td>
<td>402</td>
</tr>
<tr>
<td>$20</td>
<td>200 gms</td>
<td>938</td>
<td>376</td>
</tr>
</tbody>
</table>

We thought that with more care better results could be achieved, so in the next experiment we went back to counting the mung beans initially. This was not only a matter of counting beans instead of averaging them but, as one counts, the broken and dried beans can be discarded as well as some of the tiny round ones (which will not germinate). We used three containers with 4,000 mung beans in each container. Three cards were taken from a deck: the ten of diamonds, the queen of hearts, and the seven of spades. Two were placed in one envelope, one in another. Which cards were in which envelopes was unknown.

The dresser drawer was taken out with intention of replacement if the mung beans in the container corresponding to the card in the envelope with only one card in it germinated better than the other two. As before, the apparently impotent little beans were removed and set aside and the "genuine" non-sprouts were skinned and examined as they were counted.

When the non-sprouts were counted the non-sprouts associated with the queen of hearts were well below the non-sprouts associated with the other cards (Table 22). When the envelopes were opened, the queen of hearts was the single card.

TABLE 22
Mung Beans

<table>
<thead>
<tr>
<th>Cup</th>
<th>Beans</th>
<th>Rejects</th>
<th>Non-sprouts</th>
</tr>
</thead>
<tbody>
<tr>
<td>ten of diamonds</td>
<td>4,000</td>
<td>338</td>
<td>194</td>
</tr>
<tr>
<td>queen of hearts</td>
<td>4,000</td>
<td>383</td>
<td>148</td>
</tr>
<tr>
<td>seven of spades</td>
<td>4,000</td>
<td>376</td>
<td>210</td>
</tr>
</tbody>
</table>

It can be noted that it is not necessary to assume that a dresser drawer is a form of thought in order to explain what is happening. It is necessary to assume the existence of thought in relationship to the dresser drawer and to assume what can perhaps be thought of as the teleological nature of this thought. The alternative explanation is the belief/faith of the researcher acting on the seeds.

Further exploration of the concept

Our next step was to extend the concept of the power of an influencing agent (such as the dresser drawer) to random action instead of to seed germination. In measuring the "correlation effect" on random flow we used dice as a random events generator, counting, for example, the odd numbers as "plusses" and even numbers as "minuses." We used the rewarding system, rewarding according to the amount of plusses or minuses achieved above average.

When throwing dice it was found there was a limit to the instructions the experimental material or correlated system (or, alternatively, the unconscious human mind) could follow. For example, if one
threw dice 10,000 times and rewarded according to odd numbers, the odd numbers would be affected. If another 10,000 throws were made and rewarding was according to even numbers, even numbers would be affected. Making "double runs" like this in the course of an experiment permitted automatic correction for imperfection in the dice. However, when rewarding was promised according to the influence on alternate throws of dice in a run, results appeared muddled, to the extent of our trials, and therefore (after noticing this) we took the precaution of working with double runs in blocks. Most runs were done without conscious knowledge on the part of the researcher as to which direction the dice were to be influenced.

We correlated throws of the dice with living things (yeast, yogurt, plants) and with non-living things (a dresser drawer, promising replacement, and electrical circuits with disconnected wires, promising replacement of the wires). The yeast, yogurt, and plants were rewarded with sugar water, milk, and light, respectively.

Some unexpected surprises

As with the seeds, the correlated throws of dice produced results which varied from expected values. Astonishingly, however, so did the throws of dice correlated to non-treated agents --- and more so than the throws correlated to treated agents. This was the reverse of the seed correlation pattern. In addition, throws of dice correlated with living things produced more "plusses" and "minuses" than expected values and throws of dice correlated with non-living things produced less plusses and minuses than expected values. To repeat: correlation with treated agents (in both cases, with living things and with non-living things) reduced the amount of deviation from expected values.

Biting the bullet

We felt we had four choices as to just what to believe: (1) In some way the thought of the maker of the object was somehow associated with it, (2) throwing more dice would remove the apparent variation, (3) we were seeing the effects of our own unconscious thought (and the shift from above-average expected values to below-average expected values, depending on the nature of the correlation, was a quirk of the unconscious mind), or (4) there was an explanation we were not considering.

Table 23 presents the data from this test with the throws of dice for all correlated living things and for all correlated non-living things as grouped categories. Expected values are, in each case, one-half the total number of throws of dice.

At this point we felt that the patterns we were seeing were either usual and expected random variability or the result of processes of our own unconscious thought. If the latter were true it appeared that seed germination was more thought-sensitive than random flow. And, if the patterns were the result of our own thought, certain correlations should exist in the data.

It usually took a week or so for the batches of seeds that went into the final totals to sprout and be counted. It frequently took about the same amount of time for the runs that went into the dice totals to be thrown, for the researcher usually worked on a run on a daily basis until it was complete and then its companion run in the double run to get the final total for rewarding the correlated agent. Treatment (prayer, holy thought) for the correlated agent was, in each case (in the correlations with dice and seeds) given daily during this time. (Treatment was never given to the dice or to the seeds, only to the correlated agent.)
TABLE 23
Throws of Dice

<table>
<thead>
<tr>
<th>Agent</th>
<th>EV's</th>
<th>Throws</th>
<th>Throws/EV's%</th>
</tr>
</thead>
<tbody>
<tr>
<td>non-treated living</td>
<td>331,640</td>
<td>335,423</td>
<td>1.14</td>
</tr>
<tr>
<td>living things</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>treated living</td>
<td>234,190</td>
<td>235,104</td>
<td>0.39</td>
</tr>
<tr>
<td>living things</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>non-treated non-living</td>
<td>320,220</td>
<td>318,492</td>
<td>-0.54</td>
</tr>
<tr>
<td>living things</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>treated non-living</td>
<td>204,932</td>
<td>204,624</td>
<td>-0.15</td>
</tr>
<tr>
<td>living things</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>1,090,982</td>
<td>1,093,643</td>
<td>0.24</td>
</tr>
</tbody>
</table>

A conceptual leap

It occurred to us that if it was our own unconscious thought that was being affected and the patterns were not the result of random variability or due to some influence connected with the correlated agents then, since the lengths of time involved were approximately the same in both the germination and the dice experiments, the effect of our researcher's faith in his treatment (either strengthening or detracting from his pre-existing unconscious faith) should be consistent for all three categories. This meant that the ratio of the power of the pre-existing goal directed thought affecting the dice and the seeds to goal directed thought as modified by the belief/faith accompanying the researcher's prayers should be the same in all three instances. This could easily be checked and Table 24 gives the figures (as taken from Tables 19 and 23). The final percentages are absolute values. The final percentages (which represent amounts of increase or decrease) show a remarkable correspondence. Table 24 gives powerful support to the assertion of strict proportionality represented by the equation $E = kq$ and extends the concept to volitional/intentional thought.

TABLE 24

<table>
<thead>
<tr>
<th>Agent Status</th>
<th>Uncorrelated</th>
<th>Correlated</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>living</td>
<td>8.13</td>
<td>13.41</td>
<td>65</td>
</tr>
<tr>
<td>living</td>
<td>1.14</td>
<td>0.39</td>
<td>66</td>
</tr>
<tr>
<td>non-living</td>
<td>-0.54</td>
<td>-0.15</td>
<td>72</td>
</tr>
</tbody>
</table>
Another way to make the point

In our exploration of the bi-dimensional model there is also another correlation which should appear in the data insofar as the germination rates of the seeds are concerned.

As the tests of correlations of seeds and falling dice with animate and inanimate objects were being conducted we also made tests of the effect of holy thought on seeds directly. In other words, trays of seeds were set up in which one area of a tray or one tray was a control and the other tray or area of a tray was treated. (In the correlated tests just discussed the seeds were never directly treated.) In our concurrent directly treated seed tests no saline solutions were used so we had to take the degree of stress on the seeds which nature provided day-by-day in terms of temperature and humidity.

We gauged stress levels by noting the number of control seeds which sprouted out of the number of seeds sown. We could compare these figures in terms of a percentage of increase to the number of treated seeds which sprouted. For the directly treated seeds the norm-referenced signature (the E=kr pattern) appeared (Table 25).

<table>
<thead>
<tr>
<th>Range</th>
<th>Control Sown</th>
<th>Control Grown</th>
<th>Treated Sown</th>
<th>Treated Grown</th>
<th>Control Percent</th>
<th>%Treated Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;= .40</td>
<td>1600</td>
<td>366</td>
<td>1600</td>
<td>454</td>
<td>22.88</td>
<td>24.04</td>
</tr>
<tr>
<td>&gt;.40 &amp; &lt;= .50</td>
<td>3300</td>
<td>1362</td>
<td>3300</td>
<td>1488</td>
<td>41.27</td>
<td>9.25</td>
</tr>
<tr>
<td>&gt;.50</td>
<td>5100</td>
<td>2931</td>
<td>5100</td>
<td>3064</td>
<td>57.47</td>
<td>4.54</td>
</tr>
<tr>
<td>Totals</td>
<td>10,000</td>
<td>4659</td>
<td>10,000</td>
<td>5006</td>
<td>46.59</td>
<td>7.45</td>
</tr>
</tbody>
</table>

In the correlation tests' measurements (Table 26) in which the correlated agents were treated (but not the seeds) the norm-referenced signature was also very pronounced. Table 26 is a breakdown of data which are summarized in Row 2 of Table 19.

<table>
<thead>
<tr>
<th>Range</th>
<th>Control Sown</th>
<th>Control Grown</th>
<th>Correlated Sown</th>
<th>Correlated Grown</th>
<th>Control Percent</th>
<th>%Correlated Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;= .40</td>
<td>9000</td>
<td>3330</td>
<td>9000</td>
<td>4413</td>
<td>37.00</td>
<td>32.52</td>
</tr>
<tr>
<td>&gt;.40 &amp; &lt;= .45</td>
<td>6900</td>
<td>2959</td>
<td>6900</td>
<td>3591</td>
<td>42.88</td>
<td>21.36</td>
</tr>
<tr>
<td>&gt;.45 &amp; &lt;= .50</td>
<td>6900</td>
<td>3240</td>
<td>6900</td>
<td>3331</td>
<td>46.96</td>
<td>2.81</td>
</tr>
<tr>
<td>&gt;.50</td>
<td>7200</td>
<td>4228</td>
<td>7200</td>
<td>4267</td>
<td>58.72</td>
<td>0.92</td>
</tr>
<tr>
<td>Totals</td>
<td>30,000</td>
<td>13,757</td>
<td>30,000</td>
<td>15,602</td>
<td>45.86</td>
<td>13.41</td>
</tr>
</tbody>
</table>

Tables 25 and 26 show clearly the norm-referenced signature [increase of measurable effect with increase of stress (degree of deviation from norm)]. In the case of Table 25 the seeds were treated directly. In the case of Table 26 only the correlated agents (not the seeds) were treated directly, yet the
TABLE 28

<table>
<thead>
<tr>
<th>Control Sown</th>
<th>Control Grown</th>
<th>Target Sown</th>
<th>Target Grown</th>
</tr>
</thead>
<tbody>
<tr>
<td>10,000</td>
<td>4,659</td>
<td>10,000</td>
<td>5,006</td>
</tr>
<tr>
<td>30,000</td>
<td>13,757</td>
<td>30,000</td>
<td>15,602</td>
</tr>
<tr>
<td>46,500</td>
<td>25,599</td>
<td>46,500</td>
<td>28,248</td>
</tr>
<tr>
<td>86,500</td>
<td>44,015</td>
<td>86,500</td>
<td>48,856</td>
</tr>
</tbody>
</table>

Experimenter Effect

Since, as researchers, we provide our own mental input for the tests we conduct, we eliminate the danger of being deceived by others. We do not eliminate the danger of deceiving ourselves. In the group of tests just concluded we found dramatic evidence that a belief system in the mind of the researcher was noticeably skewing the data. The correlation tests, even without holy thought, would have produced some results. This was something we pondered as we moved into the next phase of testing.

$E = kr$ (again)

When we decided to test our healing system on germinating seeds it was necessary (since we used a non-goal-directed form of thought) to devise some means by which the direction of effect could be predicted. Measuring in reference to pattern provided our answer.

Experience in the day-to-day practice of spiritual healing had not only taught us that a pattern-developing, pattern-sustaining, and pattern-mending power acted in response to pattern, experience had also taught us that the measurable effect of a patterning power was proportional to the extent of a system's deviation from pattern. A cold and a cancer, cured in the same individual at the same time by the same treatment, present different magnitudes of measurement in response to the same power. Thus, $E = kr$.

Dual data streams

In terms of the day-to-day practice of spiritual healing this $E = kr$ conceptualization is of little use for it envisions a mental landscape wherein no volitional/associational thought forces specifically obstruct the healing power. In experimental terms, as in the practice of spiritual healing in the laboratory of life, a bi-dimensional model of mental action requires that the effects of both modes of thought be taken into account in every situation.

A central issue

A central issue in parapsychology is the shadow of experimenter effect which hangs over every test of psi. Every test poses the question: Has the power of the psychic, the mystic, or the spiritual healer been measured or has the belief system of any and all who are aware of the experiment been measured?

The "correlation tests" whose data have been presented in Tables 23-28 moved toward the solution of this question by permitting the observation of dual data streams, one stream flowing from the conscious holy input of the researcher and the other stream flowing from a pattern of belief present
Prayer and Healing: Tests With Germinating Seeds

in his mind.

Different forces, different responses

Seeds in difficult environmental conditions (as measured by very low or very high control seed germination) are not as easily pushed by a volitional/intentional force resting on them as are seeds germinating under ideal conditions. Thus, for germination seeds, a volitional/intentional force is measurably most in evidence in the median control sprout germination range whereas the spiritual, or holy, force is most in evidence in the low control sprout germination range \((E = kr)\).

Thus it was that Table 26 showed us a pattern of rapidly diminishing measurable effect as stress on the seeds diminished while Table 27 showed us this same pattern modified by a strong upward thrust in the median control sprout germination range.

Given the fact that there are differing responses to differing forces, the conscious application of holy thought to a target system in an experimental setup will provide a predictable data pattern and if this pattern is modified by a belief system also resting on the target system the interaction patterns will be predictable in nature. The foregoing generalization rests on certain preconditions, namely: (1) a recognition on the part of the observer that volitional/intentional thought acts in the direction of belief (in the case of the seeds it could either enhance or diminish seed germination, most noticeably in the median control sprout range) and (2) the response of the target system to stress must be known since the \(E = kr\) pattern is dependent for its form on the stress response.

Measurement essentials

The seed tests thus far have supported our concept of a bi-dimensional model of consciousness, a concept which requires taking into account in every test of thought the dual data streams implied by the model. Table 24 told us that the action of belief on a system, like the action of holy thought, modified measurable effect equally across the differing stress ranges represented by the differing experimental configurations. Thus we were encouraged to pursue our exploration of the four ratios.

Additional tests of the four ratios

Most of the tests described in the following group require, as equipment, a balance in addition to the few plastic containers, water, and salt required in the preceding tests. For most of the tests we used the kind of three-beam balance commonly found in High School science rooms. It weighed to tenths of a gram.

We noted, in a cookbook, that freezing soybeans shortens their cooking time. Presuming, then, that freezing the beans is stressful to them we froze some soybeans for 24 hours and then soaked them overnight. We reasoned that the value of \(r\) would be increased by the stress of freezing and that \(E\) would therefore also be increased. In other words, there would be a measurable response to holy thought for treated soybeans prepared in this manner. In our test of this we evaluated both by numbers of germinating seeds (Table 29) and by weight gain (Table 30).
TABLE 29  
Soybeans

<table>
<thead>
<tr>
<th>Control Sown</th>
<th>Control Grown</th>
<th>Treated Sown</th>
<th>Treated Grown</th>
<th>%Change (t/c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>900</td>
<td>770</td>
<td>900</td>
<td>782</td>
<td>1.6</td>
</tr>
</tbody>
</table>

TABLE 30  
Soybeans

<table>
<thead>
<tr>
<th>Control Initial Weight</th>
<th>Control Increase</th>
<th>Percent Increase</th>
<th>Treated Initial Weight</th>
<th>Treated Increase</th>
<th>Percent Increase</th>
<th>%Change (t/c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>329.70</td>
<td>64.75</td>
<td>19.6</td>
<td>21.00</td>
<td>85.05</td>
<td>26.5</td>
<td>35.2</td>
</tr>
</tbody>
</table>

Our initial weighing of the soybeans came some hours after soaking them (after excess water had drained from them). We began our test by placing 900 beans in each of two containers, weighed them, rinsed these beans equally two or three times a day (depending on the weather) and treated (holy thought) once-a-day the beans in one of the two containers. The results are shown in Tables 29 and 30. In Table 29 the term "Grown" refers to a bean which possesses a distinct sprout, a sprout which has separated from the body of the seed. Table 29 evaluates by numbers of control and treated sprouts. Table 30 evaluates by weight gain of the control and treated seeds. We concluded our test several days after setting it up. How long it takes for sprouts to appear depends on temperature and humidity in the room and on amount of rinsing, among other things. The test was extremely simple, but effective.

We began our next test by placing 1,000 soybeans in each of six containers, three control and three to be treated, weighing them and then soaking them. After soaking we waited until excess water had drained from them and then we weighed them again. Our next step was to sort out, for each container, the healthy sprouting beans as distinct from the non-sprouting or broken beans. The selected beans for each container were then returned to that container and weighed again. The previous two weighings were proportionally adjusted for the number of beans (of the original 1,000) that were returned to the container. After that, the beans were rinsed two or three times a day depending on dryness, weighings were taken at 24-hour intervals, and the beans to be treated were treated daily.

For our subsequent runs we used only one control and one treated container; we used non-airtight lids for the containers and rinsed only twice a day. Rinsings were 12 hours apart and the daily weighing was taken just before the evening rinsing. (The number of usable sprouts in each run depended on the heat and humidity during the day the beans sprout before being sorted and counted.)

In all of these runs the beans were initially soaked in a saline solution of one tablespoon salt per eight cups of water and subsequently rinsed in fresh water (equal amounts for control and treated sprouts). The runs were discontinued after a weight loss in either the control or treated soybeans. The duration of the runs and the amount of weight increase day-by-day depended greatly on the amount of heat and humidity in the room during the runs.

After seven runs we made a further change in the procedure. Instead of sprouting soybeans in two initial batches we sprouted them in just one initial batch. We then mixed them by hand, much like mixing a salad, and separated them into two piles, randomly selected the piles and sorted viable healthy
sprouts from each pile into a control and a treated container. We then adjusted as before to obtain adjusted dry weights. In effect, we were starting at day three of the test instead of day one. One result of this change was the loss of two days of treatment for the treated beans. We felt the procedure was better controlled than what we had been doing before (less chance for unconscious bias in selecting control and treated sprouts). We continued in this way until we had 20 runs.

Table 31 was constructed by taking day-by-day percentages of increase over initial weight for both control and treated seeds and relating these increases to the amount of control increase over initial weight day-by-day. This let us look at the effects of treatment in terms of reference points related to the amount of stress on the seeds day-by-day. The $E=kq$ pattern readily appeared.

<table>
<thead>
<tr>
<th>Soybeans</th>
<th>20 tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>Number</td>
</tr>
<tr>
<td>%Growth of</td>
<td>Measurements</td>
</tr>
<tr>
<td>Range</td>
<td></td>
</tr>
<tr>
<td>3.0-5.0</td>
<td>13</td>
</tr>
<tr>
<td>5.1-10.0</td>
<td>36</td>
</tr>
<tr>
<td>10.1-15.0</td>
<td>64</td>
</tr>
<tr>
<td>15.1-20.0</td>
<td>64</td>
</tr>
<tr>
<td>20.1-25.0</td>
<td>26</td>
</tr>
<tr>
<td>25.1-28.0</td>
<td>11</td>
</tr>
<tr>
<td>28.1-35.2</td>
<td>9</td>
</tr>
</tbody>
</table>

Although one figure is out of line and the others are also only indicative (given the rather rough nature of our measurement system) the curve suggests the fall-off curve that would be produced if we were to graph the effects of stress on sprout growth. This, in turn, suggests that the effect of treatment, after adjustment with an equation of proportionality for the effects of stress on the sprouts, would be equally proportional across stress ranges.

$E = kq$

In Table 32 we look at the data in terms of the number of days of treatment that treated sprouts in the pairs of control and treated sprouts received. In this table we consider only the 128 samplings in the 10.1%-20.0% increase over control weight range and only that number of those samplings which received 1-13 days of treatment.

<table>
<thead>
<tr>
<th>Soybeans</th>
<th>20 tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days of Treatment</td>
<td>Average Days of Treatment</td>
</tr>
<tr>
<td>1-3</td>
<td>1.96</td>
</tr>
<tr>
<td>4-8</td>
<td>5.69</td>
</tr>
<tr>
<td>9-13</td>
<td>11.15</td>
</tr>
</tbody>
</table>
Table 33 recasts the information in Columns 2 and 6 of Table 32 in terms of percentages of Row 1 information (Table 4).

<table>
<thead>
<tr>
<th>Soybeans</th>
<th>20 tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>Increase</td>
</tr>
<tr>
<td>Units</td>
<td>Units</td>
</tr>
<tr>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>2.90</td>
<td>2.44</td>
</tr>
<tr>
<td>5.69</td>
<td>5.44</td>
</tr>
</tbody>
</table>

The data in Table 33 suggest, in a very rough way, a proportionality in the relationship of amount of treatment to measurable effect ($E = kq$).

A hidden target test

Our next test consisted of 6 runs made in the same manner as the last 13 runs of the previous test. In three of these runs the treated soybeans were treated as usual. In another three of the runs treatment was given under conditions of reduced associational linkage. In the three hidden target tests the two containers with soybeans were marked with identifying symbols (a O for one and an X for the other). These two containers, with their identifying marks, were placed in a tray. Two envelopes were also prepared. In one envelope was a piece of paper with one of the symbols on it. In the other envelope was a piece of paper with the other symbol on it. These envelopes were taken into a dark room and shuffled. Then, one of the envelopes was destroyed and the other envelope was taped to the side of the tray. Treatment was given to the soybeans in the container which had the marking corresponding to the unknown marking in the envelope taped to the tray.

In these six runs the runs were not stopped when weight decline began in either group of soybeans. The runs were continued until the roots of the plants in either container began to mat or when the rinse water running through the containers began to discolor. Thus a larger amount of numbers in the small daily control growth range were accumulated quickly. From Table 34 we note that by decreasing associational linkage we decrease measurable effect (from 7.1% to 5.8%) ($E = ka$).

<table>
<thead>
<tr>
<th>Range</th>
<th>5.1 - 10.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Directly Treated Control Weight</td>
<td>2.83</td>
</tr>
<tr>
<td>Average Directly Treated Weight</td>
<td>3.03</td>
</tr>
<tr>
<td>Average Hidden Target Control Weight</td>
<td>3.08</td>
</tr>
<tr>
<td>Average Hidden Target Treated Weight</td>
<td>3.26</td>
</tr>
<tr>
<td>%Directly Treated Treated Increase</td>
<td>7.1</td>
</tr>
<tr>
<td>%Hidden Target Treated Increase</td>
<td>5.8</td>
</tr>
<tr>
<td>%Decrease due to Hidden Target</td>
<td>-18.3</td>
</tr>
</tbody>
</table>
The directly treated weight increase of 7.1% compares to 7.7% as an average from the 20 runs made in the previous test (using sprouts in the same control range).

**Adjustment to water content**

We are explaining data from normalcy-referenced testing in terms of qualitative meaning. This qualitative characteristic enables us to set up tests using the general idea of what is "best for identity" or "supportive of identity" or "productive of identity" as a predictable characteristic.

We know, for example, that soybeans absorb water when soaked, more than doubling their weight when thoroughly soaked, and then release some of this moisture after being taken out of the water.

If soybeans were over-soaked, treatment should help them release water. If soybeans were under-soaked, treatment should help them retain water. If both situations were treated simultaneously, the same treatment should produce opposite results according to the need.

Tofu makers say that soybeans soak through completely in 10 to 12 hours, depending on room temperature. If tiny bubbles form on the surface of the water, beans are over-soaked. If, when the beans are split open, the center is concave instead of flat, and the bean is a darker yellow in the center instead of a creamy color all the way through, the bean is under-soaked.

In our next test we put 200 soybeans in each of 24 plastic mesh bags. Eight of the bags with the beans were soaked 9 hours, eight 12 hours, and eight 18 hours.

Soakings were scheduled so that all beans would come out of the water at the same time. They were drained for an hour on racks in covered plastic 20-gallon garbage cans. There was unheated water in the bottom of the cans to provide humidity.

Weight increase of the 18-hour control beans was 127.4%. For the 12-hour control beans it was 125.0%, and for the 9-hour control beans it was 120.7%. Variation of weight increase of untreated experimental (to be treated) beans from control was 0.1%, -0.2%, and 0.2%.

After weighing, the experimental beans were treated and all beans were returned to the cans. Weighing 12 hours later showed the 18-hour and 12-hour treated beans had lost 7.5% and 10.3% more water, respectively, than their control beans. The 9-hour treated beans, however, had retained 13.0% more water than their control beans.

After weighing, the beans were dipped in water and returned to the cans. In another 12 hours weights were taken again and the beans were returned to the cans. In this 12-hour period there was weight gain instead of weight loss. For the 18-hour beans, treated weight gain was 11.3% less than control; for the 12-hour beans treated weight gain was 1.8% more than control; for the 9-hour beans treated weight gain was 7.0% more than control.

In the over-soaked condition, treated beans released more water than control. In the under-soaked condition, treated beans released less water than control. In the second 12-hour period the 18-hour beans were still ridding themselves of water, the 12-hour beans were beginning to put on weight, and the 9-hours beans had a strong weight increase.

At the end of the 12-hour period following weight loss from soaking, control figures were 10.6% weight increase for the 18-hour beans, 11.0% weight increase for the 12-hour beans, and 12.8% weight increase for the 9-hour beans.
Weighing at the end of the second period showed the 18-hour beans were at 134.1% of original weight, the 12-hour beans were at 132.1% of original weight, the 9-hour beans were at 128.3% of original weight (control weight in each case).

We knew the 12-hour beans were not at the norm of water absorption or seed development. However, they were closer to it than the 18-hour or 9-hour beans. We knew this from the initial soaking intervals and the measurements of measurable effect of the 12-hour beans.

A dispersion index

If we use the 12-hour beans' weight as a standard for a crude dispersion index we can look at both the control and treated beans and see how the adjustment (to their over-soaked and under-soaked condition) is coming along both for the control and treated beans. For example, since the 12-hour control beans, at the end of the second weighing period, gained 132.1% of their initial weight (and they are our reference point) and the 18-hour beans gained 134.1% of their initial weight the difference (in absolute terms) from their reference point is 2.0%. This is the figure under "Control Sprouts" in Weighing 2 (18 hours) of Table 35. The other figures were similarly obtained.

| TABLE 35 |
| Soybeans |
| Dispersion Index (percentages) |

<table>
<thead>
<tr>
<th>Weighings</th>
<th>18 Hour</th>
<th>12 Hour</th>
<th>9 Hour</th>
<th>Total Spread</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Sprouts</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2.5</td>
<td>0.0</td>
<td>5.5</td>
<td>8.0</td>
</tr>
<tr>
<td>2</td>
<td>2.0</td>
<td>0.0</td>
<td>3.8</td>
<td>5.8</td>
</tr>
<tr>
<td>Treated Sprouts</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2.7</td>
<td>0.0</td>
<td>4.2</td>
<td>6.9</td>
</tr>
<tr>
<td>2</td>
<td>1.0</td>
<td>0.0</td>
<td>1.6</td>
<td>2.6</td>
</tr>
</tbody>
</table>

The figures (shown in Table 35) show that the treated beans are making a better adjustment, and a more rapid adjustment, to their environmental conditions than the untreated beans.

In the Total Spread column the dispersion index figure for the control beans is 8.0 at the end of the first period, and 5.8 at the end of the second period. This improvement represents the adjustment of the untreated beans to their conditions.

The dispersion index figure is better for the treated beans than the control beans for each of the two measurement periods (6.9 as compared to 8.0 for the first period, and 2.6 as compared to 5.8 for the second measurement period). The treated figures also show a considerably greater improvement for the two periods than the control figures do (from 6.9 to 2.6).

It is not possible to carry these comparisons into further weighings because of the adaptiveness of the beans. They adjust to their different conditions differently and their adaptive patterns quickly begin to distort other patterns.
Prayer and Healing: Tests With Germinating Seeds

Structuring absolute stress differentials into a test situation will not necessarily result in the maintenance of the integrity of the original differentials because of the adaptability of the organic system.

**Water release by soybeans**

Our next experiment was done with 200 grams of soybeans in each of 2 plastic mesh bags for each test. The beans were soaked for 9 hours, dried in our plastic garbage cans for 12 hours, dipped in water, and returned to the cans for 12 hours.

The beans were then weighed and the beans in one of the bags were treated. The beans were returned to the can for 12 hours and weighed again. They were then returned to the can for another 12 hours and weighed. Then they were dried on a rack in the open air in a draft-free place for 12 hours and given a final weighing.

We did these tests on cool days when humidity in the box would be low (growth retarding conditions). Moisture was most needed in the first twelve hours. In the second twelve hours, as the beans adjusted to conditions in the box, moisture was less needed. Then, when the beans were allowed to dry in the open air, moisture was needed again. Over seven tests measurable effect seemed to reflect these assumptions about water needs. In all three categories holy thought helped the treated beans to retain more moisture than the control beans. Table 36 presents the comparison.

### Table 36

**Soybeans**

_Treated Under Control -- Average of Seven Tests_

<table>
<thead>
<tr>
<th>Moisture Needs</th>
<th>t/c%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most</td>
<td>-16.6</td>
</tr>
<tr>
<td>Least</td>
<td>-2.6</td>
</tr>
<tr>
<td>Inbetween</td>
<td>-6.0</td>
</tr>
</tbody>
</table>

**E = kr and E = kq (again)**

Our next test covers ground similar to that of the test whose data are presented in Tables 31, 32, and 33 but does it with a somewhat different soybean germinating setup. We set the measurement system up differently in order to have more accurate measurement conditions. For this test we used two circular plastic containers 3 feet in diameter and 8 inches deep (actually children’s wading pools). Identical pools (overturned) were used for lids. Inside the circular containers there were racks for drainage of the "baskets" of sprouts sitting on them. The baskets were actually plastic sandbox toys for sitting sand. They happened to have holes in them that were just the right size to drain soybean sprouts easily while not allowing the sprouts to slip through. Basket area (for each basket) was approximately 100 square inches. The baskets were labeled and there were an equal number (3) in each of four groups: (1) control, (2) single-treated A, (3) single-treated B, and (4) double-treated.

Approximately 400 grams of sprouts (several days along) went into the baskets for each group. (This is approximately 860 sprouts, plus or minus up to 25). The sprouts were: (1) weighed twice a day, (2) rinsed twice a day, and (3) treated (holy prayer) every 12 hours for 2 to 3 weeks (until weight decline in any group). Each run thus yielded 30 to 40 measurements for each of the four groups.
Four runs were made with treatment (holly thought) provided by Participant A and three were made with similar treatment provided by Participant B. The sprouts in the single-treated A and single-treated B groups were treated (prayed for) separately. When either of these groups was being treated the sprouts from the double-treated groups were included with them. Thus the double-treated group received the same treatment (quality and quantity of prayer) that each of the two single-treated groups received.

We expected to make a great number of these runs but unfortunately the weather was not cooperative. We ran into difficulties sprouting our soybeans and discontinued, hoping to come back to the project. (Unfortunately, we never did.) Only Participant A had enough samplings in a small enough control growth range to make an evaluation for cumulative effect. Tables 37, 38, and 39 present the results and, as can be seen in Tables 37 and 38, the norm-referenced signature (the E=kr pattern) stands out clearly. In Table 39 a proportional relationship is shown to be approximated (E=kq). [The single-treated sprouts have a combined percentage growth over control (9.6) approximately equal to the percentage growth over control (9.5) of the double-treated sprouts.]

<table>
<thead>
<tr>
<th>Number of Measurements</th>
<th>Control Growth Range</th>
<th>Control Range Average</th>
<th>Percent Change (f/c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>-5.0 to 0.9</td>
<td>-1.6</td>
<td>129.4</td>
</tr>
<tr>
<td>22</td>
<td>1.0 to 5.9</td>
<td>3.5</td>
<td>9.9</td>
</tr>
<tr>
<td>23</td>
<td>6.0 to 10.9</td>
<td>8.6</td>
<td>5.8</td>
</tr>
<tr>
<td>21</td>
<td>11.0 to 14.9</td>
<td>13.1</td>
<td>3.9</td>
</tr>
<tr>
<td>12</td>
<td>15.0 to 17.9</td>
<td>16.5</td>
<td>-0.7</td>
</tr>
<tr>
<td>23</td>
<td>18.0 to 50.0</td>
<td>23.6</td>
<td>-2.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of Measurements</th>
<th>Control Growth Range</th>
<th>Control Range Average</th>
<th>Percent Change (f/c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>2.0 to 3.9</td>
<td>3.3</td>
<td>56.2</td>
</tr>
<tr>
<td>19</td>
<td>4.0 to 6.9</td>
<td>5.4</td>
<td>8.0</td>
</tr>
<tr>
<td>21</td>
<td>7.0 to 10.9</td>
<td>8.9</td>
<td>2.5</td>
</tr>
<tr>
<td>25</td>
<td>11.0 to 14.9</td>
<td>13.0</td>
<td>-0.5</td>
</tr>
<tr>
<td>10</td>
<td>15.0 to 18.9</td>
<td>16.9</td>
<td>-5.6</td>
</tr>
<tr>
<td>6</td>
<td>19.0 to 27.5</td>
<td>21.7</td>
<td>-7.4</td>
</tr>
</tbody>
</table>
Prayer and Healing: Tests With Germinating Seeds

TABLE 39
Soybeans
Participant A

Number of Measurements 39
Control Growth Range 7.0 to 14.9
Control Range Average 11.3
Treated A/Control Percent 5.9
Treated B/Control Percent 3.7
Treated Double/Control Percent 9.5

One more test of \( E = kq \)

Our next test was done using the same measurement procedure described in the commentary on Tables 31, 32, and 33. Soybean sprouts were placed in plastic containers with non-airtight lids and were rinsed twice daily. As before, the sprouts were weighed at about the same time every day. For each run we made we used four containers, one marked "C" for "control" and the others marked "X", "Y", and "Z". Every day, until weight loss in any one of the four containers, the sprouts in Containers X and Y and the sprouts in Containers Y and Z were treated. Thus, the sprouts in Container Y were double-treated. How many runs were made is not now known. The test was done more than a decade ago and some of our data has not survived the two moves that have been made since then. However, for purposes of completeness of this record, as complete as we can make it, we include the information we do have.

In our calculations we used only figures in the 9.0% to 13.9% control growth range. Data below that range was too scattered to be reliably averaged. Figures above that range were also scattered and, of course, weaker in terms of measurable effect.

Sprouts in the control container within the 9.0 to 13.9 percent control growth range averaged 11.5% growth. Increased treated sprout growth (percent treated over control) was 2.0% for Container X and 3.1% for Container Z, a total of 5.1%. Increased treated sprout growth for Container Y was 5.4%. Again, as in Tables 39 and 33, the \( E = kq \) relationship is roughly approximated.

Table 40 presents the summary of data from Table 39 (Row 1 of Table 40) and the data from the test just described (Row 2 of Table 40).

TABLE 40
Soybeans

<table>
<thead>
<tr>
<th>Single-treated Sprouts</th>
<th>Single-treated Sprouts</th>
<th>Sum of Single-treated Sprouts</th>
<th>Double-treated Sprouts</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.9</td>
<td>3.7</td>
<td>9.6</td>
<td>9.5</td>
</tr>
<tr>
<td>2.0</td>
<td>3.1</td>
<td>5.1</td>
<td>5.4</td>
</tr>
</tbody>
</table>
The four ratios

The tests described in the group just concluded gave some indication that the ratios \( E = kq \) and \( E = kr \) hold. It is also clear that \( E \) is larger for stronger associational links than for weaker ones although no way is presently known (using seeds) to relate strength of associational linkage to size of \( E \). It is clear that \( E \) is larger for one of the two researchers than for the other although no way is presently known to relate quality of thought to size of \( E \).

Resolution of an ethical question through experimental testing -- the triticale test

In recent decades scientists have successfully crossed strains of wheat and rye. A genetic accident coupled with the application of an alkaloid derived from the autumn crocus and the technique of embryo culture have made a new genus possible.

Developing a new genus in goal directed ways presents a moral question which can be answered by what can be called an "ethical equation." Control and treated groups of triticale seeds can be sown, holy prayer can be associationally linked to the treated group (they are the group prayed for), and the control and treated sprouts can afterwards be counted. The ethical question is whether or not holy thought will be supportive of the new identity. The ethical equation which answers the question can be written as \( E = t/c \), meaning that the measurable effect of holy thought can be expressed as a ratio between the number of treated sprouts and the number of control sprouts.

If a positive \( E \) is returned, then the development of triticale is defined as good by the universal ethic or moral structure of the universe as represented by holy thought, or prayer. If a negative \( E \) is returned, then the development of triticale is defined as an immoral development by the spiritual laws or universal ethic represented by holy prayer.

The many tests which we have done with seeds show that holy thought increases the rapidity of germination of the seeds under growth-retarding conditions. As germination continues the control seeds tend to catch up with the treated seeds and, eventually, germination counts show that almost as many control seeds have sprouted as treated seeds. Of course, as we have noted earlier, the "head start" of the treated seeds is probably manifested as healthier and stronger treated seeds than control seeds but we have no way to measure this. Given the simplicity of our approach we confine ourselves to measuring the differences between control and treated germinating seeds at an early point in the germination process.

The triticale test: Materials and Methods -- materials

Materials included wheat seeds, rye seeds, and triticale seeds, together with sponges, paper towels, and shallow trays. The sponges used were the common kitchen sponges found in housewares departments of many stores. They measure 3"x5"x.5" and come in various colors. We used yellow and green sponges. Our trays accommodated four of these sponges at a time.

The triticale test: Materials and Methods -- methods

On top of each sponge we laid two layers of paper towel cut to 3"x5" dimensions. Eight rows of six seeds each were placed on these towels. The sporiges sat in the plastic trays and a water table of approximately .25 inches (half the height of the sponge) was maintained. Care was taken to keep the trays level so that the water table was equal in height for each sponge. For control seeds we used green sponges and for treated seeds we used yellow sponges. When the seeds were treated the researcher treated the seeds on the yellow sponges. Germinating seeds were counted using a magnifying glass.
No temperature or humidity control equipment was used. Care was taken not to do the tests on hot humid days. Thus the germinating conditions were always growth retarding and the measurable effect of holy thought could be expected to be supportive of seed germination. Since temperature and humidity were not controlled there was wide variation in results between tests and from day to day in given tests. In addition, the data base was not large and this added to the variability of the figures. However, the results were strong enough to be unmistakable.

Since this test looks only at the number of germinating seeds and not at the health and vigor of the seeds, the measurement index falls as days pass and the control seeds begin to "catch up" to the treated seeds.

Results -- triticale test 1

Test 1 required four trays (four control, four treated, four sponges in each tray, 48 seeds on each sponge). Germinating seeds were counted after 6, 9, and 12 days. The treated groups of seeds were treated daily. The three data rows in Table 41 represent the 6, 9, and 12 day counts respectively. The column heading "CGR" represents the phrase "control germination rate." As time goes by the CGR rises and the percentage of treated to control germinated sprouts (Column 6) increases (approaches zero).

<table>
<thead>
<tr>
<th></th>
<th>Control Sown</th>
<th>Control Grown</th>
<th>Treated Sown</th>
<th>Treated Grown</th>
<th>CGR</th>
<th>t/c%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>768</td>
<td>82</td>
<td>768</td>
<td>2</td>
<td>10.7</td>
<td>-97.6</td>
</tr>
<tr>
<td></td>
<td>768</td>
<td>163</td>
<td>768</td>
<td>73</td>
<td>21.2</td>
<td>-55.2</td>
</tr>
<tr>
<td></td>
<td>768</td>
<td>530</td>
<td>768</td>
<td>442</td>
<td>69.0</td>
<td>-15.6</td>
</tr>
</tbody>
</table>

Results -- triticale test 2

A second test was made, a test in which, as in Test 1, eight trays were used. However, only two trays (instead of four) were controls. The remaining six trays were divided into three groups of two trays each and each group of two trays was prayed for separately (instead of all together as in Test 1). This procedure was repeated twice. One group was counted earlier than the other. Only final counts were made. Results are shown in Table 42.

<table>
<thead>
<tr>
<th></th>
<th>Control Sown</th>
<th>Control Grown</th>
<th>Treated Sown</th>
<th>Treated Grown</th>
<th>CGR</th>
<th>t/c%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>384</td>
<td>320</td>
<td>1152</td>
<td>913</td>
<td>83.3</td>
<td>-4.9</td>
</tr>
<tr>
<td></td>
<td>384</td>
<td>167</td>
<td>1152</td>
<td>472</td>
<td>43.5</td>
<td>-5.8</td>
</tr>
</tbody>
</table>
Results -- triticale test 3

In Test 3, 12 trays were used. Six were sown with triticale seeds (3 control, 3 treated) and six were sown with wheat seeds (3 control, 3 treated). In this test the wheat seeds and the triticale seeds were prayed for as a unit. Thus both groups of seeds received the same mental treatment (prayer). Sprouts became visible on the fourth day and they were counted on that day and every day thereafter until there were no additional sprouts on the day following a count. Table 43 presents the data: Table 44 presents the percentages.

<table>
<thead>
<tr>
<th>Day Counted</th>
<th>Triticale Control Grown</th>
<th>Triticale Treated Grown</th>
<th>Wheat Control Grown</th>
<th>Wheat Treated Grown</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>53</td>
<td>9</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>5</td>
<td>77</td>
<td>18</td>
<td>18</td>
<td>35</td>
</tr>
<tr>
<td>6</td>
<td>113</td>
<td>39</td>
<td>45</td>
<td>70</td>
</tr>
<tr>
<td>7</td>
<td>205</td>
<td>101</td>
<td>97</td>
<td>115</td>
</tr>
<tr>
<td>8</td>
<td>286</td>
<td>151</td>
<td>143</td>
<td>171</td>
</tr>
<tr>
<td>9</td>
<td>317</td>
<td>218</td>
<td>164</td>
<td>197</td>
</tr>
<tr>
<td>10</td>
<td>346</td>
<td>254</td>
<td>207</td>
<td>242</td>
</tr>
<tr>
<td>11</td>
<td>365</td>
<td>274</td>
<td>242</td>
<td>270</td>
</tr>
<tr>
<td>12</td>
<td>385</td>
<td>310</td>
<td>262</td>
<td>285</td>
</tr>
<tr>
<td>13</td>
<td>401</td>
<td>335</td>
<td>286</td>
<td>319</td>
</tr>
<tr>
<td>14</td>
<td>430</td>
<td>359</td>
<td>309</td>
<td>351</td>
</tr>
<tr>
<td>15</td>
<td>434</td>
<td>373</td>
<td>328</td>
<td>358</td>
</tr>
<tr>
<td>16</td>
<td>434</td>
<td>376</td>
<td>335</td>
<td>364</td>
</tr>
<tr>
<td>17</td>
<td>434</td>
<td>376</td>
<td>335</td>
<td>364</td>
</tr>
</tbody>
</table>

Seeds Sown

576 576 576 576
### TABLE 44

<table>
<thead>
<tr>
<th>Day Counted</th>
<th>Triticale CGR</th>
<th>Triticale t/c%</th>
<th>Wheat CGR</th>
<th>Wheat t/c%</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>9.2</td>
<td>-83.0</td>
<td>0.7</td>
<td>100.0</td>
</tr>
<tr>
<td>5</td>
<td>13.4</td>
<td>-76.6</td>
<td>3.1</td>
<td>94.4</td>
</tr>
<tr>
<td>6</td>
<td>19.6</td>
<td>-65.5</td>
<td>7.8</td>
<td>55.6</td>
</tr>
<tr>
<td>7</td>
<td>35.6</td>
<td>-50.7</td>
<td>16.8</td>
<td>18.6</td>
</tr>
<tr>
<td>8</td>
<td>49.7</td>
<td>-47.2</td>
<td>24.8</td>
<td>19.6</td>
</tr>
<tr>
<td>9</td>
<td>55.0</td>
<td>-31.2</td>
<td>28.5</td>
<td>20.1</td>
</tr>
<tr>
<td>10</td>
<td>60.1</td>
<td>-26.6</td>
<td>35.9</td>
<td>16.9</td>
</tr>
<tr>
<td>11</td>
<td>63.4</td>
<td>-24.9</td>
<td>42.0</td>
<td>11.6</td>
</tr>
<tr>
<td>12</td>
<td>66.8</td>
<td>-19.5</td>
<td>45.5</td>
<td>8.8</td>
</tr>
<tr>
<td>13</td>
<td>69.6</td>
<td>-16.5</td>
<td>49.7</td>
<td>11.5</td>
</tr>
<tr>
<td>14</td>
<td>74.7</td>
<td>-16.5</td>
<td>53.6</td>
<td>13.6</td>
</tr>
<tr>
<td>15</td>
<td>75.3</td>
<td>-14.1</td>
<td>56.9</td>
<td>9.1</td>
</tr>
<tr>
<td>16</td>
<td>75.3</td>
<td>-13.4</td>
<td>58.2</td>
<td>8.7</td>
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<tr>
<td>17</td>
<td>75.3</td>
<td>-13.4</td>
<td>58.2</td>
<td>8.7</td>
</tr>
</tbody>
</table>

### Results -- triticale test 4

In Test 4 (as in Test 3), 12 trays were used. Six were sown with triticale seeds (3 control, 3 treated) and six were sown with rye seeds (3 control, 3 treated). In this test the rye seeds and the triticale seeds were prayed for as a unit. Thus both groups of seeds received the same mental treatment (prayer). Sprouts became visible on the fourth day and they were counted on that day and every day thereafter until there were no additional sprouts on the day following a count. Table 45 presents the data. Table 46 presents the percentages. These seeds (Test 4) were treated (prayed for) by a different researcher than in Test 3.

### TABLE 45

<table>
<thead>
<tr>
<th>Day Counted</th>
<th>Triticale Control Grown</th>
<th>Triticale Treated Grown</th>
<th>Rye Control Grown</th>
<th>Rye Treated Grown</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>74</td>
<td>52</td>
<td>116</td>
<td>144</td>
</tr>
<tr>
<td>5</td>
<td>185</td>
<td>159</td>
<td>193</td>
<td>252</td>
</tr>
<tr>
<td>6</td>
<td>266</td>
<td>250</td>
<td>327</td>
<td>335</td>
</tr>
<tr>
<td>7</td>
<td>345</td>
<td>323</td>
<td>413</td>
<td>437</td>
</tr>
<tr>
<td>8</td>
<td>387</td>
<td>361</td>
<td>462</td>
<td>482</td>
</tr>
<tr>
<td>9</td>
<td>399</td>
<td>380</td>
<td>488</td>
<td>503</td>
</tr>
<tr>
<td>10</td>
<td>421</td>
<td>405</td>
<td>506</td>
<td>514</td>
</tr>
<tr>
<td>11</td>
<td>441</td>
<td>425</td>
<td>517</td>
<td>523</td>
</tr>
<tr>
<td>12</td>
<td>448</td>
<td>433·</td>
<td>525</td>
<td>526·</td>
</tr>
<tr>
<td>13</td>
<td>452</td>
<td>439</td>
<td>529</td>
<td>532</td>
</tr>
<tr>
<td>14</td>
<td>452</td>
<td>439</td>
<td>535</td>
<td>535</td>
</tr>
<tr>
<td>15</td>
<td>452</td>
<td>439</td>
<td>535</td>
<td>535</td>
</tr>
</tbody>
</table>

Seeds
Sown 576 576 576 576
TABLE 46

<table>
<thead>
<tr>
<th>Day Counted</th>
<th>Triticale CGR</th>
<th>Triticale t/c%</th>
<th>Rye CGR</th>
<th>Rye t/c%</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>12.8</td>
<td>-29.7</td>
<td>20.1</td>
<td>24.1</td>
</tr>
<tr>
<td>5</td>
<td>32.1</td>
<td>-14.1</td>
<td>33.5</td>
<td>30.6</td>
</tr>
<tr>
<td>6</td>
<td>46.2</td>
<td>-6.0</td>
<td>56.8</td>
<td>3.4</td>
</tr>
<tr>
<td>7</td>
<td>59.9</td>
<td>-6.4</td>
<td>71.7</td>
<td>5.8</td>
</tr>
<tr>
<td>8</td>
<td>67.2</td>
<td>-6.7</td>
<td>80.2</td>
<td>4.3</td>
</tr>
<tr>
<td>9</td>
<td>69.3</td>
<td>-4.8</td>
<td>84.7</td>
<td>3.1</td>
</tr>
<tr>
<td>10</td>
<td>73.1</td>
<td>-3.8</td>
<td>87.8</td>
<td>1.6</td>
</tr>
<tr>
<td>11</td>
<td>76.6</td>
<td>-3.6</td>
<td>89.8</td>
<td>1.2</td>
</tr>
<tr>
<td>12</td>
<td>77.8</td>
<td>-3.3</td>
<td>91.1</td>
<td>0.2</td>
</tr>
<tr>
<td>13</td>
<td>78.5</td>
<td>-2.9</td>
<td>91.8</td>
<td>0.6</td>
</tr>
<tr>
<td>14</td>
<td>78.5</td>
<td>-2.9</td>
<td>92.9</td>
<td>0.0</td>
</tr>
<tr>
<td>15</td>
<td>78.5</td>
<td>-2.9</td>
<td>92.9</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Results -- triticale test 5

Two additional runs (Groups 1 and 2 in Table 47) were made with control and treated trays of wheat. Group 3 in Table 47 calls on the Day 12 figures from Tables 43 and 44. In each case CGR (control germination rates) are close in values.

TABLE 47

<table>
<thead>
<tr>
<th>Wheat</th>
<th>Control</th>
<th>Control</th>
<th>Treated</th>
<th>Treated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td>Sown</td>
<td>Grown</td>
<td>Sown</td>
<td>Grown</td>
</tr>
<tr>
<td>1</td>
<td>768</td>
<td>374</td>
<td>768</td>
<td>457</td>
</tr>
<tr>
<td>2</td>
<td>768</td>
<td>333</td>
<td>768</td>
<td>461</td>
</tr>
<tr>
<td>3</td>
<td>576</td>
<td>262</td>
<td>576</td>
<td>285</td>
</tr>
<tr>
<td>Totals</td>
<td>2112</td>
<td>969</td>
<td>2112</td>
<td>1203</td>
</tr>
</tbody>
</table>

Since the direction of result (increase or decrease of prayed for seeds) is predictable and is the same for each kind of seeds (wheat, rye, or triticale) regardless of the number of tests made, a one-tailed Z-score may be calculated. For the results of Table 47 the Z-score is 7.25.

Results -- triticale test 6

Two additional runs (Groups 1 and 2 in Table 48) were made with control and treated trays of rye. Group 3 in Table 48 calls on the Day 8 figures from Tables 45 and 46. In each case CGR (control germination rates) are close in values.

For the results of Table 48 the Z-score is 2.54. It may be noted that rye is a harder grain than wheat and therefore the felt stress on the rye seeds is less than on the wheat seeds.
Prayer and Healing: Tests With Germinating Seeds

TABLE 48
Rye

<table>
<thead>
<tr>
<th>Group</th>
<th>Control Sown</th>
<th>Control Grown</th>
<th>Treated Sown</th>
<th>Treated Grown</th>
<th>CGR</th>
<th>%/c%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>768</td>
<td>605</td>
<td>768</td>
<td>641</td>
<td>78.8</td>
<td>6.0</td>
</tr>
<tr>
<td>2</td>
<td>768</td>
<td>573</td>
<td>768</td>
<td>584</td>
<td>74.6</td>
<td>1.9</td>
</tr>
<tr>
<td>3</td>
<td>576</td>
<td>462</td>
<td>576</td>
<td>482</td>
<td>80.2</td>
<td>4.3</td>
</tr>
<tr>
<td>Totals</td>
<td>2112</td>
<td>1640</td>
<td>2112</td>
<td>1707</td>
<td>77.7</td>
<td>4.1</td>
</tr>
</tbody>
</table>

Results -- triticale test 7

Tables 49 and 50 present data for triticale seeds. Table 49 was taken from the 9-day counts of Table 41, the 6-day counts of Tables 43 and 44, and the 4-day counts of Tables 45 and 46. Table 50 was taken from the 12-day counts of Table 41, the 13-day counts of Tables 43 and 44, and the 9-day counts of Tables 45 and 46.

The Z-score for the results of Table 49 is 8.91. For the results of Table 50 (when the seeds are farther along in the germination process) the Z-score is 5.87.

TABLE 49
Triticale

<table>
<thead>
<tr>
<th>Group</th>
<th>Control Sown</th>
<th>Control Grown</th>
<th>Treated Sown</th>
<th>Treated Grown</th>
<th>CGR</th>
<th>%/c%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>768</td>
<td>163</td>
<td>768</td>
<td>73</td>
<td>21.2</td>
<td>-55.2</td>
</tr>
<tr>
<td>2</td>
<td>576</td>
<td>113</td>
<td>576</td>
<td>39</td>
<td>19.6</td>
<td>-65.5</td>
</tr>
<tr>
<td>3</td>
<td>576</td>
<td>74</td>
<td>576</td>
<td>52</td>
<td>12.8</td>
<td>-29.7</td>
</tr>
<tr>
<td>Totals</td>
<td>1920</td>
<td>350</td>
<td>1920</td>
<td>164</td>
<td>18.2</td>
<td>-53.1</td>
</tr>
</tbody>
</table>

TABLE 50
Triticale

<table>
<thead>
<tr>
<th>Group</th>
<th>Control Sown</th>
<th>Control Grown</th>
<th>Treated Sown</th>
<th>Treated Grown</th>
<th>CGR</th>
<th>%/c%</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>768</td>
<td>530</td>
<td>768</td>
<td>442</td>
<td>69.0</td>
<td>-16.6</td>
</tr>
<tr>
<td>2</td>
<td>576</td>
<td>401</td>
<td>576</td>
<td>335</td>
<td>69.6</td>
<td>-16.5</td>
</tr>
<tr>
<td>3</td>
<td>576</td>
<td>399</td>
<td>576</td>
<td>380</td>
<td>69.3</td>
<td>-4.8</td>
</tr>
<tr>
<td>Totals</td>
<td>1920</td>
<td>1330</td>
<td>1920</td>
<td>1157</td>
<td>69.3</td>
<td>-13.0</td>
</tr>
</tbody>
</table>

Discussion -- tests with triticale seeds

The moral structure of the universe, as represented by holy prayer, does not approve of triticale. The ethical equation is not satisfied.
A more automated test

By the time we had come this far in our testing work we had acquired (for other experiments) two electronic balances measuring to tenths of a gram and an Apple II+ computer. Thus our final test with seeds, done in 1987 and 1988, was methodologically a more sophisticated effort than the preceding work. The test was designed to separate one element of unconscious volitional/intentional thought from conscious holy mental input to the target system (patient).

Spiritual healing: intrinsic power and placebo effect

It is an article of faith within the medical community that drugs have an intrinsic effect on the human body apart from an individual’s faith in them. In similar manner, it is an article of faith within the Christian community that prayer has a healing effect on the human body, an effect which includes a divine element, a spiritual power unrelated to the unaided power of the human mind.

In the medical community the double blind test is used to evaluate the power of the drug (intrinsic effect) apart from the power of the human mind (placebo effect). No similar test exists within the Christian community to separate an intrinsic healing effect of consciousness from the effects of the belief systems of the experimenters (experimenter effect).

Within the religious world the problem was identified and its seriousness noted by Mary Baker Eddy early in this century. In her last article on Christian Science, written less than three months before her death in 1910, she pointed to the Achilles’ heel of her efforts, writing that: “Christian Science is not a faith-cure, and unless human faith be distinguished from scientific healing, Christian Science will again be lost from the practice of religion as it was soon after the period of our great Master’s scientific teaching and practice.”

More than seven decades later a parapsychologist, G.F. Solfvin, writing from an entirely different perspective, captured the scientific thrust of the problem, a thrust underlying Mrs. Eddy’s statement but without that statement’s unique denominational application. In a paper published in 1982 in the European Journal of Parapsychology he commented on the problem as follows: “The inescapable conclusion that obtains for psychic healing research is that we cannot, with any degree of certainty, attribute the outcome of a successful psychic healing study to the treatment per se....We are inferring some invisible process as the cause of the result. This unseen effector could as likely originate in the experimenter or in some personal quality of the healer as in the treatment per se....For psychic healing research this means that we are currently incapable of establishing a causal link between the healing treatment and the observed outcome.”

Because there is, for spiritual healing, no equivalent of the double blind test the efficacy of spiritual healing is today as inherently untestable as was allopathic medicine prior to the development of the double blind technique.

The double blind test: a filter, not a firewall

Mainline scientists accept the double blind test as airtight. This test lies at the heart of modern biological and medical research. It is not accepted by modern science that the test is open to mental influence unmediated by the nervous system and that all results obtained therefrom are open to taint. The fact that the double blind test is a filter, not a firewall, does not square with today’s scientific paradigm.

In parapsychological research the effects of thought are recognized, measured, and evaluated. However, since there is no shielding against thought, effects of thought are everywhere and what is
termed "experimenter effect" -- the thinking of the experimenter or experimenters -- becomes a possible explanation for all experimental research phenomena. In parapsychology there is no conceptual or methodological basis for distinguishing between modes of consciousness. In Tables 23-28 and the commentary thereon we laid a basis for beginning to approach this problem.

The direction of faith

Faith healing (the effects of belief/faith also termed placebo effect, experimenter effect, the effects of suggestion and so on) is indistinguishable from the effects of spiritual healing (holy thought) when the directions of faith (the content of the belief system held in thought) are synchronous with the norms or pattern followed by holy thought. Tests designed to explore the ability of a spiritual healer must, then, be constructed in such a way as to assure that the directions of belief diverge from those of the norm-referenced pattern.

In practical terms, such tests can be easily constructed. The bias of modern culture that bigger/faster/larger and so on are "better" is ingrained.

In our next test we selected a phase of seed germination wherein moisture release was in the best interest of the seeds. Since "more" is the cultural expectation, we felt that the effect of faith in the mental treatment given would result in moving the seeds in an opposite direction, that is, influence them to retain water even against their own best interests. This strategy was not based wholly on intellectual musings, we had used it before very successfully in our work with yeast cells.

In our concluding seed test we set up an experimental configuration which allowed us to separate the conscious holy element of the practitioner's treatment (prayer for the seeds) from the unconscious belief/faith component of his thought and the thought of the technician responsible for the measurements. It should be noted that the heightened emotion or faith which may have unconsciously accompanied the actual treatment is not reflected in the faith measurements.

Controlling the variables

Whether or not the relationships between E and Q, q, a, and r can be represented as simple ratios, it seemed logical to us to assume that if Q, q, and a were held steady in a test and only r was allowed to vary under controlled conditions, many times repeated and results averaged, the need-related response of the seeds to holy thought should clearly emerge.

In testing our prediction we chose soybean sprouts as our measurement vehicle or reference system. We used a single practitioner for our spiritual input (thus holding Q, quality of thought, as steady as we could). Only one period of mental input per test was permitted. This period was two hours long and thirty such tests were made. It was felt that over a two-hour period possible variability ("highs" and "lows" of thought and of associational linkage) would tend to average out and that quantity of holy thought would also be as steady as we could make it. With 30 such runs additional averaging would bring Q, a, and q to fairly stable levels. The sprouts were in the practitioner's sight when they were treated and thus "a" was also held steady in this way.

Keeping r steady was the major challenge. The sprouting procedure had to be such as to ensure that the sprouts used in each of the 60 runs [30 control (control/control) and 30 treated (control/treated)] were in approximately the same stage of germination.

Before beginning our 60 runs we made a half-dozen or so pilot runs. In these preliminary runs we had the practitioner pray for sprouts in different stages of germination. When, in due course, we came across a stage of seed development in which holy prayer appeared to reduce, rather than
increase, sprout weight, we selected this stage of germination for our 60 projected runs. Thus, the direction of the control/treated measurements was deliberately selected.

We presumed that there would be times in the development of the sprouts when the needs of the seeds would not correspond to the direction of the belief/faith of the technician and the practitioner. It was acting on this presumption that we tested at various stages of sprout development until we found a stage which did, indeed, produce measurements in an opposite direction to what we supposed would be the direction of the unconscious belief/faith we intended to draw from the data measurements.

Since we were unaware of the internal chemistry of the sprouts at their various developmental stages we cannot determine what the reasons for this difference may be. We thought that, perhaps, giving off more moisture during a period of intense heat gave the sprouts in this particular developmental stage a better chance of making it through than simple conservation of water (as in the control/control runs) would do. This, however, is only speculation. The chosen direction of control/treated measurements was empirical.

In order to separate the effects of holy and non-holy (volitional/intentional) thought the circumstances of a test must be so arranged that holy and non-holy effects move in different directions or, alternately, occur at different points in time. In the case of this experiment holy thought caused the sprouts to lose weight in relation to control, an effect which runs counter to the cultural assumption that bigger/faster/more is "better." The unconscious conviction that prayer would benefit the sprouts (placebo effect) resulted (as we presumed it would) in weight gain for the sprouts (presumably mostly water retention).

Our earlier tests have shown that what we term "holy thought" increases the weight gain of soybeans under growth-retarding conditions, decreases the weight gain of soybeans under growth-forcing (hothouse) conditions, increases the water retention of soybeans under arid conditions, and helps soybeans expel water under over-saturated conditions.

In general, when holy thought is causing soybeans under arid conditions to retain water in a struggle to survive it also causes them to grow less. What constitutes too much or too little water in a soybean depends on both the health and the environment of the bean and on the developmental stage of the bean.

This test measured the response of soybean sprouts to holy thought under hot dry conditions. A specific preparation of the sprouts, a specific stage of germination, and a specific temperature range during the measurement period were mandated.

Experimental conditions

Our measurement equipment consisted of two balances (Sartorius 1400 MP-7) connected to a computer (Apple II+) so that weighings could be taken automatically. These balances read to tenths of a gram.

The measurement procedure consisting of putting equal amounts by weight of soybean sprouts on each of the balances and recording the weight loss of the control and treated groups as they dried out.

Holy thought (holy prayer) was given to the soybean sprouts on one of the balances for the first two hours of the run. The balances sat on a rolling table with a small screen between them so that only the soybean sprouts being treated were within sight of the practitioner (the individual providing prayer) during treatment (prayer). After treatment was given the screen was removed, room temperature was
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turned up to approximately ninety-three degrees, and weight losses of control and treated sprouts were recorded periodically as the sprouts dried out. After doing eight control/control and eight control/treated runs in this way we built a "hotbox" rather than dedicate a room to the test runs. The "control/treated" term refers to a run in which treatment is given to the sprouts on the "treatment" balance pan. The "control/control" term refers to a run in which no (conscious) treatment was applied anywhere, that is, the practitioner did not participate in the test.

We cut and glued two-inch-thick slabs of styrofoam into a four-walled enclosure, lowering this "box" over the rolling table holding the balances after the practitioner was through and the screen was removed. We put a hot plate on the bottom shelf of the rolling table and connected it to a thermostat made by Lawn-Boy (Plymouth, Wisconsin). The hot plate drew 750 watts and the thermostat ensured that temperature inside the hotbox wouldn't go much over 95°. Hotbox dimensions were: width, 30 inches; length, 40 inches; height, 32 inches.

The hotbox didn't hold a steady temperature as the room did. Temperatures would range from the low nineties to the high eighties. We found our test procedures would tolerate this if there was an initial quick run into the nineties (after the practitioner was through praying). If the equipment malfunctioned and this didn't happen the run was rejected and the equipment adjusted.

Over the top of the hotbox we put four long thick dowel rods and laid a piece of flexible rather heavy clear plastic over the box. Without the venting this provided (because of the dowel rods) moisture built up in the box and the runs took more than twice as long to complete. With this vented arrangement a run would, in the hotbox, complete in about 36 to 42 hours in the summer and about 12 hours less in the winter.

The same hotbox was used throughout all hotbox runs. The design of the hotbox and the nature of the heat source were not arbitrary but reflected tests we made of hotboxes and heat sources before beginning our runs. Larger hotboxes accommodating more trays increased the presence of convection currents as did heat sources which were more consistent and were on longer. We found that good experimental results (other than dedicating a draft-free room to the purpose) rested on using a small hotbox and a heat source which elevated temperature rapidly and then shut off.

Sprout preparation

Results of the test depended almost wholly on the preparation of the sprouts and on temperature during the run. By preparation of the sprouts is meant control of the amount of moisture the sprouts retained internally at the time the run began, the viability of the sprouts, and the stage of germination the sprouts were in. Different stages of germination have vastly different moisture requirements and respond differently to conditions of temperature and humidity as well.

We pre-soaked the soybeans and then sprouted them in plastic mesh baskets which sat in plastic trays with clear plastic lids. During sprouting the trays of soybeans were kept on a heat tape set at seventy degrees. The amount of rinsing the beans received as well as their amount of exposure to the open air was controlled. (Control of exposure to the open air was controlled by increasing or decreasing the amount of time lids were on the trays.) When the sprouts were ready, the viable sprouts were sorted from the broken, cracked, and non-sprouting beans. The term "ready" refers to bean color and sprout size.

Preparation of the sprouts was geared toward moist sprouts. In this context the term "moist" refers to internal water retention rather than to external wetness. Control over sprouting conditions was maintained by governing room temperature, heating tape temperature, sprouting tray size, rinsing frequency, length of time in the sprouting trays, and the amount of time the seeds were in the open air.
When we began making runs we thought that we could control sprouting requirements well enough to set up a single procedure which would hold indefinitely. This was not achieved. The procedure worked well in the summer but had to be modified slightly (an additional watering) during the winter months. Also, occasionally, the sprouts had to be sorted and the run begun a few hours early.

We also thought we would have more uniformity in the seeds than we did. Our supplier (an organic foods store) turned out to order from a variety of companies and the seeds obtained varied greatly. Also, seeds from the previous harvest (or so we judged) as well as from the current harvest were sometimes supplied. We found that, in general, the soybeans responded identically to holy thought if preparation conditions and measurement conditions were the same. We took the precaution of making control/control and control/treated runs alternately and with seeds from the same bag.

Our plastic holding trays in which the seeds were sprouted and kept until shortly before use measured 10 inches by 20 inches and were 2.5 inches high. The lids were 2 inches high. Thus internal area was 10x20x4.5 cubic inches.

The pattern of soybean sprouting had to be geared to the time schedule of the technician responsible for the sprouting. In other words, rinsing, sprouting, and sorting of sprouts had to fall during daytime or evening hours and had to end at a time convenient for the run to begin. On our time schedule initial soaking of the beans began at 9:30 PM and the run began at 7:30 PM, 46 hours later.

Eight to ten cups (depending on the beans) of organically grown non-chemically-treated soybeans were soaked for 12 hours, a bit longer than optimal. Water was taken cold from the faucet and the room was not unduly warm. After soaking (at 9:30 the next morning) the beans were rinsed and put into plastic mesh baskets, approximately equal amounts in each of four trays. The lids were put on the trays and 12 hours later (9:30 in the evening) the beans were rinsed again. The beans (in their plastic mesh baskets) were returned to their trays (which sat on the heating tape) and the lids were left off for one hour. The lids were then replaced and the beans were left covered. If an additional watering was needed it was given at 9:30 the following morning and the lids were again left off for an hour. At 3:30 in the afternoon the lids were removed and left off for 3 hours. At 6:30 the sprouts to be used were selected from the sprouts available in the four baskets and at 7:30 or so the run began.

**Sprout selection**

In the selection process the best of the sprouts were chosen. Broken, damaged, cracked, immature, and obviously imperfect sprouts were disregarded. The lids were taken off the trays for the last 3 hours in the trays in order to increase viability of the seeds. The infrequent rinsing, the humidity inside the holding trays, and the temperature inside the holding trays all contributed to a less than optimal environment for the seeds.

If, when the sorting was begun, the seeds were seen to have a faint greenish cast or if the prime selectable sprouts averaged from three-quarters-inch to an inch (or more) in length, the germination stage was too far along and the sprouts could not be used. A new batch had to be prepared. As the seeds pass into the more developed germination stage the excess water they’re holding is used for sprout development and moisture requirements for the sprouts change drastically. Also, if the sprouts average less than one-half to three-quarters inch in length the germination stage is not far enough along and the sprouts couldn’t be used. Again, a new batch had to be prepared.

If the sprouts were in the correct stage of germination they were then distributed (explained in
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next paragraph) into two plastic mesh baskets which sat in plastic trays (the same kind of holding trays used for germination with no lids on them). Those trays fit into two other identical plastic trays. One of these second trays was painted yellow on the sides. The practitioner (the individual providing prayer for the treated seeds) preferred this identification as an aid in distinguishing the beans to be treated from the control beans. The trays sat on the pans of the electronic balances.

Sprouts were distributed a handful at a time going back and forth from one basket to another. The sprouts were not closely packed in the baskets since this would interfere with even moisture loss to the open air. They were sprinkled one layer deep and were not too crowded. Thus the number of sprouts in each tray were equal in weight only.

After weights of the empty trays and baskets were noted the balances were tared to zero. Then, after the sprouts were placed in the baskets (equal amounts by weight) and the weights of the sprouts noted the balances were again tared to zero. At that point the practitioner began his mental treatment and weight loss of control and treated sprouts (as the beans lost moisture in the open air) was noted at appropriate intervals (approximate hourly intervals).

The mental input

During the two hours the practitioner treated (spiritually prayed for) the sprouts in the yellow-marked tray he sat where he could see the sprouts in the tray but did not touch the tray, the sprouts, or the measuring equipment in any way. Only the technician was permitted to touch the sprouts or any part of the measurement setup. During those two hours a screen was kept between the two trays so that the treated sprouts and only the treated sprouts could be seen by the practitioner. After two hours the practitioner's treatment period was over, the screen was removed, the hotbox was put in place, and the heating device was turned on. With the computer, measurements were automatically recorded. Temperature was checked by visual observation of a thermometer in the hotbox. Weight measurements could also be taken directly from the balances at any time.

Our goal was to evaluate the healing effect over 48,000 grams of seeds (12,000 control, 12,000 treated and 12,000 control, 12,000 control -- 400 grams on each balance in each run). We came close with an average of 390.48 grams in each tray in the control/control runs and an average of 394.49 grams in each tray in the control/treated runs.

As has been noted, it is necessary in a test of this kind to have the sprouts at a given stage of germination. Without precise control of a great number of variables during the sprouting stage the determination of the given stage of germination is dependent on human judgment. It is necessary, too, to select the best sprouts for the test and to reject sprouts whose inclusion would only add unacceptable variability to the test. This condition also adds human judgment to the test and brings in the specter of unconscious minor variations in procedure. To minimize this factor we thoroughly mixed the sprouts after sorting (we placed them in a large salad bowl and tossed them repeatedly as one would mix a salad) and then relied on the procedure of picking up handfuls of sprouts and then sprinkling these handfuls alternately in the two trays.

The test output

This test produced 30 runs in which control and treated figures were obtained. It was predicted, given the germination stage and the environmental conditions, that treated weights would run less than control weights.

This test also produced 30 runs in which control and control figures were obtained. The purpose of this additional set of figures was not to appraise the "looseness" of the measuring system. If this was
the purpose the balance positions would have been randomized which they were not. In our various tests we have observed that associational linkage develops in relation to person, place, or thing and that this includes specific balances and balance locations. This associational linkage builds up as repeated conscious linkage of thought continues. Before long the associational linkage is "automatic" which is to say that unconscious thought will follow the associational pathways. (We have a number of tests which illustrate this fact.)

The experimental configuration of this test did not permit us to separate the holy (patterning) and non-holy (volitional/intentional or pattern-indifferent) components of the consciously associationally linked thought resting on the sprouts (the dual elements of thought in the conscious prayer of the practitioner). Our prediction of the effect of the practitioner’s prayer was based on the fact that, on previous tests, this practitioner’s mental output was such that the conscious holy component was stronger than the non-holy component.

The experimental configuration of this test was such as to enable us to measure the unconscious non-holy components of the thoughts resting on the test (in this case the practitioner and the technician, both of whom were aware of the experimental configuration both consciously and unconsciously). The experimental configuration of this test was thus selected so as to produce a direction of “experimenter effect” opposite to that produced by the prayer of the practitioner.

The predictions

It was thus predicted that weights drawn from the control seeds would be larger than weights drawn from treated seeds. This prediction was dramatically confirmed.

The prediction for the comparison of measurements from the control/control balances was that the weights from the control balance in the treated position would exceed the weights from the balance in the control position (the effect of unconscious thought would be to increase the weight of the beans in the treated position). This effect was expected to be less than and opposite to the control/treated data. This prediction was also confirmed.

A preliminary evaluation

The cut-off point for the runs was initially the point at which the sprouts lost fifty percent of their starting weight through evaporation. Although the computer took measurements approximately every hour we used as our initial data reference points the ten measurements (differences in grams between control and treated weights) which corresponded approximately to control weight losses of 5%, 10%, 15%, 20%, 25%, 30%, 35%, 40%, 45%, and 50% of starting weight.

After 13 control runs and 13 treated runs were completed we made a preliminary evaluation of our results. By the tenth data point all of the runs “turned around.” This means that the averaged treated graph line was moving upward from its decline. This implied that the sprouts had died and that the control sprouts (which now retained more water than the treated sprouts) were releasing moisture more rapidly than the treated sprouts.

This turn-around (release of additional retained moisture when the control sprouts died) was often happening at the ninth data point (ninith measurement time). Working only with the data points where we were sure all the sprouts were still alive was the focus of our tests. Thus we stopped further runs after 40% of the initial moisture of the sprouts had evaporated instead of after the arbitrarily chosen cut-off point of 50%. A side benefit of this change was that the running time of the runs was cut about one-third. This reflects the fact that data points were not taken at fixed times but when fixed amounts of moisture had been lost by the control beans. Thus the test produced as a final product
eight control figures and eight treated figures.

The final results

We have noted that holy thought acts in response to the needs of the seeds and that the needs of the seeds vary with temperature, humidity, moisture retention of the seeds, state of germination, and so forth. We have also noted that this is not true of goal-directed thought. Given the amount of "looseness" in our measuring system in terms of variability of the factors affecting the sprouts as they go into a run it should follow that (since the measurable effect of holy thought is affected by these variables and the effect of non-holy thought is not, other than in terms of how much a sprout can be "pushed") the variability of the treated data would predictably be more than that of the control data. This presumption was dramatically confirmed.

In Table 51 "c/c" refers to the mean differences in grams between the two control balances (control balance weights in treated position less control balance weights in control position). "c/t" refers to the mean differences in grams between the control and treated balances (treated balance weights less control balance weights). Column headings refer to the measurement sequence.

<table>
<thead>
<tr>
<th>TABLE 51</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Means</strong></td>
</tr>
<tr>
<td><strong>Raw Data</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>c/c</td>
</tr>
<tr>
<td>c/t</td>
</tr>
</tbody>
</table>

Data Adjusted for Differences in Starting Weights of Runs

| c/c | -0.09 | 1.10 | 1.60 | 2.15 | 2.68 | 2.99 | 3.04 | 3.26 |
| c/t | -2.16 | -3.71 | -5.45 | -6.82 | -8.27 | -9.78 | -10.82 | -11.20 |

In Table 52 "c/c" refers to the standard deviations of the differences in grams between the two control balances (control balance weights in treated position less control balance weights in control position). "c/t" refers to the standard deviations of the differences in grams between the control and treated balances (treated balance weights less control balance weights). Column headings refer to the measurement sequence.

<table>
<thead>
<tr>
<th>TABLE 52</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standard Deviations</strong></td>
</tr>
<tr>
<td><strong>Weighted Data</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>c/c</td>
</tr>
<tr>
<td>c/t</td>
</tr>
</tbody>
</table>
It can be seen from Table 53 (mean net weight loss between measurements) that belief/faith pushed the seeds the hardest (its effect was most strongly felt) early on, between the first and second measurement periods, at a time when the seeds were most viable. The holy effect, on the other hand, decreased comparatively gradually. Both forms of thought made themselves felt in a last minute rally at measurement point eight, just before the seeds died.

**TABLE 53**

*Mean Net Weight Loss Between Measurements*

<table>
<thead>
<tr>
<th>Weighted Data</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>c/c</td>
<td>-0.09</td>
<td>1.19</td>
<td>0.50</td>
<td>0.55</td>
<td>0.53</td>
<td>0.31</td>
<td>0.05</td>
<td>0.22</td>
</tr>
<tr>
<td>c/t</td>
<td>1.13</td>
<td>1.29</td>
<td>1.01</td>
<td>0.98</td>
<td>0.93</td>
<td>0.59</td>
<td>0.27</td>
<td>0.32</td>
</tr>
</tbody>
</table>

If we take the data from the final measurements in Tables 51 and 52 [means of 3.26 and -11.20 for the faith and holy (spiritual healing) measurements respectively and standard deviations of 6.52 and 16.72 for the faith and holy (spiritual healing) measurements respectively] these figures lead to a Z-score of 4.41.

**DISCUSSION**

Virtually all research into the action of the mind today presumes a volitional/intentional model of effect. This is natural in terms of experimental inquiry into the nature of the mind since it seems clear that the human mind is intentional and/or volitional in its characteristics. The goals of the mind may fluctuate and change from moment to moment, conscious and unconscious thought may be in conflict, but emotion and will push toward certain ends even if those ends may shift and change.

The power of the placebo effect, and of faith healing, flows from the belief/faith of the individual. It is goal directed in the sense that the power of the mind pushes the body toward the object of faith, the consciously or unconsciously constructed mental image created by belief.

Prayer which thinks of its object in terms of the attributes or qualities of God, prayer which is powered by holiness in terms of the moral and spiritual qualities embodied in the Ten Commandments and the Sermon on the Mount, can be termed non-goal-directed prayer. Spindrift’s research asks the question “How would such a mental state be manifest under experimental conditions?” and then, from its theoretical position, provides an answer.

Out of the foregoing conceptual background the seed tests were conceived and developed. It is recognized that other explanations may well exist for the patterns found in the data, including psychodynamic explanations.

The testimonial literature of spiritual healing suggests that prayer returns the body to its natural or normal condition. As an example, if temperature is too high, prayer reduces temperature. If temperature is too low, prayer elevates temperature. This action is in contrast to the action of a drug which must be chosen for its direction of effect. This action is also in contrast to the goal directed action of the human mind which moves the body toward its consciously or unconsciously defined goal.
a goal which, in most cases, will coincide to a great extent with the known normal condition of the body.

There are, in any organic system, an enormous number of "norms" or points of optimal state and function, points of chemical and electrical balance, of temperature and moisture, an immense array of characteristics of shape, color, and operation. Since pattern is the quantitative dimension of identity, pattern can be defined as the associationally linked norms which make up a system. If the power of holy prayer does, indeed, heal, then such a power will be manifest as movement of a system toward its norms since healing can be defined as movement toward the optimal or "best" conditions of form and function.

Spindrift's research measures goal directed or non-holy thought in relationship to its goals or objects of belief. Spindrift's research measures identity referenced, pattern referenced, or holy thought in relationship to the norms which constitute the best or optimal state of form and function. In actual experimental work we use simple systems and approximate these norms in terms of simple functions of the system.

As the history of parapsychological inquiry has shown, the study of thought from the standpoint of the volitional/intentional model is an exercise in frustration. The generation of enough emotion or will to produce a psi effect is something not easily amenable to laboratory conditions. However, holy thought has proved to be available on demand, predictable in effect, and amenable to the conditions of the experimental test. The non-goal-directed component of consciousness can be studied as an element of pattern-referenced inquiry since many individuals have strong faith in their prayers. The effect of this belief/falith can be separated from the holy (spiritual healing) effect if the experimental protocols and mathematical evaluation are designed for the purpose.

This paper supports the concept that with extremely simple equipment the existence of an ordering and pattern-mending mode of consciousness can be easily demonstrated.
PRAYER AND HEALING: TESTS WITH YEAST

Spindrift, Inc.

ABSTRACT: In the first portion of this paper tests exploring the effect of holy thought (spiritual healing) on the carbon dioxide production of yeast, a one-celled plant, are described. In accordance with our usual procedures for measuring the effects of spiritual healing, various forms of stress on the yeast were provided during the test procedures. These tests were carried out from 1976 through the spring of 1983. Various spiritual healers were used. The second portion of this paper describes a number of runs of a test designed to evaluate the effects different spiritual healers have on the carbon dioxide production of yeast as it begins to degrade under less-than-optimal storage conditions. (Spiritual healing, the power of a patterning form of consciousness, causes such yeast to perform like "fresher" yeast.) These tests were done from the summer of 1983 through the spring of 1984 and, in effect, evaluate spiritual healers more extensively than the earlier tests did while still providing repeatable tests of the effects of thought on an organic system. Five different individuals contributed runs. These runs were evaluated both for the effect of patterning thought and for the effect of volitional/intentional thought. Tests done in this second format have become specifically referred to as Spindrift tests.
PART ONE: DELIBERATELY STRESSED YEST

Test 1

In Tests 1-3 the yeast was provided by the small packets of yeast (Red Star or Fleishmann) obtainable at any supermarket during the years 1976 through 1983. At the time these tests were done the newer fast-acting yeast was not available and the older product was used.

In Test 1 two 250 milliliter graduated cylinders filled with water were turned upside-down in a pan of water. 50 grains (we are referring to weight) of yeast were placed in each of two pyrex dishes. The dishes were placed on hot pads; the hot pads were located on the bottom of a bread pan placed in an ordinary kitchen oven. Thus the dishes of yeast were protected from convection currents and, to some extent, from the direct heat of the bottom of the pan.

Two groups of tests were made. In one group the yeast was left in the oven for one-half hour with the preheated oven at 200 degrees. In the other group the yeast was left in the oven for three-quarters of an hour with the preheated oven at 250 degrees. Both Control A/Control B measurements (using untreated yeast from the two pyrex dishes) and control/treated measurements were made. When control/treated measurements were made the yeast in one of the pyrex dishes was mentally treated (prayed for) during the time it was in the oven.

Three tablespoons of sugar per cup of lukewarm water was the feeding solution. When the yeast was taken from the oven 25 milliliters of each sample were pipetted into a 100 milliliter flask, 75 milliliters of sugar solution were similarly added and then a flask was taken in each hand and shaken up and down, an equal number of up-and-down motions for each flask. The rubber tubes were attached and the gas production of each flask was bubbled up into the graduated cylinders. It was recognized that there would be some gas absorption by the water and that gas production by the yeast would gradually shut down as alcohol built up in the yeast/sugar/water solution.

16 Control A/Control B runs were made at 200 degrees; 16 control/treated runs were made at 200 degrees; 17 control/treated runs were made at 250 degrees. The cumulative data are in Table 1 and percentage comparisons are in Table 2.

The drop in gas production seen in the final figures of Columns 1 and 2 of Table 2 may reflect increasing gas absorption by the water. The different responses of yeast cells to holy thought under different conditions of stress can be noted.
TABLE 1

<table>
<thead>
<tr>
<th></th>
<th>200°C Control A</th>
<th>200°C Control B</th>
<th>200°C Control</th>
<th>200°C Treated</th>
<th>250°C Control</th>
<th>250°C Treated</th>
</tr>
</thead>
<tbody>
<tr>
<td>800</td>
<td>800</td>
<td>808</td>
<td>800</td>
<td>723</td>
<td>850</td>
<td>984</td>
</tr>
<tr>
<td>1200</td>
<td>1200</td>
<td>1212</td>
<td>1200</td>
<td>1177</td>
<td>1275</td>
<td>1399</td>
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<tr>
<td>1600</td>
<td>1600</td>
<td>1613</td>
<td>1600</td>
<td>1590</td>
<td>1700</td>
<td>1774</td>
</tr>
<tr>
<td>2000</td>
<td>2000</td>
<td>2024</td>
<td>2000</td>
<td>2044</td>
<td>2125</td>
<td>2143</td>
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<td>2400</td>
<td>2424</td>
<td>2400</td>
<td>2493</td>
<td>2550</td>
<td>2552</td>
</tr>
<tr>
<td>2800</td>
<td>2800</td>
<td>2838</td>
<td>2800</td>
<td>2949</td>
<td>2975</td>
<td>2917</td>
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<td>3200</td>
<td>3230</td>
<td>3200</td>
<td>3381</td>
<td>3400</td>
<td>3294</td>
</tr>
<tr>
<td>3600</td>
<td>3600</td>
<td>3616</td>
<td>3600</td>
<td>3794</td>
<td>3825</td>
<td>3635</td>
</tr>
</tbody>
</table>

TABLE 2

<table>
<thead>
<tr>
<th></th>
<th>200°C c/c%</th>
<th>200°C 1/c%</th>
<th>250°C 1/c%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>-9.6</td>
<td>15.8</td>
<td></td>
</tr>
<tr>
<td>1.0</td>
<td>-1.9</td>
<td>9.7</td>
<td></td>
</tr>
<tr>
<td>0.8</td>
<td>-0.6</td>
<td>4.4</td>
<td></td>
</tr>
<tr>
<td>1.2</td>
<td>2.2</td>
<td>0.8</td>
<td></td>
</tr>
<tr>
<td>1.0</td>
<td>3.9</td>
<td>0.1</td>
<td></td>
</tr>
<tr>
<td>1.4</td>
<td>5.3</td>
<td>-1.9</td>
<td></td>
</tr>
<tr>
<td>0.9</td>
<td>5.7</td>
<td>-3.1</td>
<td></td>
</tr>
<tr>
<td>0.4</td>
<td>5.4</td>
<td>-5.0</td>
<td></td>
</tr>
</tbody>
</table>
Test 2

In Test 2 three methods of stressing the yeast were used: (1) refrigeration, (2) refrigeration plus exposure to ultraviolet light, and (3) different levels of heat. The ultraviolet light source was a short wave ultraviolet lamp (2537 angstroms).

In Test 2 (unlike Test 1) a batch system of treating the yeast was used. A large container of yeast/water solution was made and stressed, the solution divided into two parts, one part was treated, and the yeast solutions were pipetted into flasks for the individual tests. When the ultraviolet light stressing was done the solution was exposed to the UV light, stirred while it was under the light for 15-20 minutes, with the researcher observing the necessary shielding precautions for eyes and skin. As before, gas was bubbled up into the graduated cylinders. Five groups of measurements were made.

In Group One the two jars of control and treated yeast solution were put into a preheated 350° oven (one jar of yeast was treated while it was in the oven) and kept there until the liquid was quite hot to the touch. Then 11 Control A/Control B tests and 6 control/treated tests were run. 25 milliliters of yeast solution were pipetted into each flask, 75 milliliters of sugarwater solution were added and the gas was bubbled up into the graduated cylinders. Data for Group One is shown in Table 3.

In Group Two a yeast solution was prepared (yeast and warm water were mixed together), the yeast solution was irradiated with ultraviolet light, then the solution was divided into two jars and both jars were placed in the refrigerator for three days. The yeast in one jar was mentally treated (prayed for) daily for each of the three days. Then measurements were made in the same way as for Group Two (Table 3). Seven runs were made. The data for Group Two is in Table 4.

In Group 3 two jars of yeast solution were put in the refrigerator for three days and the yeast in one jar was mentally treated daily as before. In this group the object was to stress the yeast after, rather than before, refrigeration. For each run a hot pad was placed on the bottom of a bread loaf pan, the flasks were placed on the hot pad, and the pan was placed in a preheated 350° oven. We made 6 runs leaving the yeast in the oven for 6 minutes, 6 runs leaving the yeast in the oven for 7 minutes, and 6 runs without putting the yeast in the oven. The last 6 tests (without heat) were made to determine if degradation of the yeast in the refrigerator produced enough damage to make a measurement of the patterning effect possible. Table 5 presents the data for Group Three. Table 6 presents the percentages.

In all cases (Table 6) holy thought caused the treated yeast to produce less carbon dioxide. Measurable effect increased with severity of stress.
Prayer and Healing: Tests With Yeast

### Table 3

<table>
<thead>
<tr>
<th></th>
<th>Control A</th>
<th>Control B</th>
<th>Control</th>
<th>Treated</th>
<th>( % )</th>
<th>( % )</th>
</tr>
</thead>
<tbody>
<tr>
<td>550</td>
<td>547</td>
<td>300</td>
<td>120</td>
<td>-0.5</td>
<td>-60.0</td>
<td></td>
</tr>
<tr>
<td>1100</td>
<td>1094</td>
<td>600</td>
<td>257</td>
<td>-0.5</td>
<td>-57.9</td>
<td></td>
</tr>
<tr>
<td>1650</td>
<td>1687</td>
<td>900</td>
<td>428</td>
<td>1.0</td>
<td>-52.4</td>
<td></td>
</tr>
</tbody>
</table>

### Table 4

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>Treated</th>
<th>( % )</th>
</tr>
</thead>
<tbody>
<tr>
<td>350</td>
<td>287</td>
<td>-18.0</td>
<td></td>
</tr>
<tr>
<td>700</td>
<td>626</td>
<td>-10.6</td>
<td></td>
</tr>
<tr>
<td>1050</td>
<td>958</td>
<td>-8.7</td>
<td></td>
</tr>
</tbody>
</table>

### Table 5

<table>
<thead>
<tr>
<th>No Heat</th>
<th>Control</th>
<th>Treated</th>
<th>6° heat</th>
<th>Control</th>
<th>Treated</th>
<th>6° heat</th>
<th>Control</th>
<th>Treated</th>
<th>7° heat</th>
<th>Control</th>
<th>Treated</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>300</td>
<td>289</td>
<td>300</td>
<td>232</td>
<td>300</td>
<td>188</td>
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<td></td>
<td></td>
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<tr>
<td>600</td>
<td>555</td>
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<td>504</td>
<td>300</td>
<td>485</td>
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<tr>
<td>900</td>
<td>841</td>
<td>900</td>
<td>756</td>
<td>900</td>
<td>736</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 6

<table>
<thead>
<tr>
<th>No Heat</th>
<th>6° heat</th>
<th>7° heat</th>
</tr>
</thead>
<tbody>
<tr>
<td>( % )</td>
<td>( % )</td>
<td>( % )</td>
</tr>
<tr>
<td>-3.7</td>
<td>-22.7</td>
<td>-37.3</td>
</tr>
<tr>
<td>-7.5</td>
<td>-16.0</td>
<td>-19.2</td>
</tr>
<tr>
<td>-6.6</td>
<td>-16.0</td>
<td>-18.2</td>
</tr>
</tbody>
</table>
Test 3

This test measured gas production by weight rather than by volume. Two balances were required.

We preheated our oven (a conventional kitchen oven) to 350 degrees while mixing 12 packages of yeast (84 grams) in 7 cups of warm water. We then strained the solution and placed it in the oven until the solution was between 150 and 160 degrees. Then we strained the solution again and poured 750 grams of the solution into each of two containers. Following this we had a researcher mentally treat the yeast in one of the containers, allowing 6 or 7 minutes for this.

From oven to the weighing of the yeast took about 12 minutes. This plus the treating of the yeast took about 18 minutes. At that point 75 grams of sugar were added simultaneously to each container of yeast and each solution was stirred equally until the sugar was dissolved. Total elapsed time was then about 20 minutes.

The first weighing was taken 15 minutes after adding the sugar and the second weighing was taken 30 minutes after adding the sugar. The treated yeast will initially give off more gas than control (15 minute measurement) and later give off less gas than control (30 minute measurement). Measurements will vary widely between tests since the high point and low point of the cycle depends greatly on temperature and we could not control accurately for room temperature and solution temperature. We also could only approximate precise time measurements. However, even this crude approach showed clear results (see Table 7).

<table>
<thead>
<tr>
<th>Minutes</th>
<th>*Control</th>
<th>*Treated</th>
<th>t/c%</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>5.9</td>
<td>7.5</td>
<td>27.1</td>
</tr>
<tr>
<td>30</td>
<td>3.0</td>
<td>2.4</td>
<td>20.0</td>
</tr>
<tr>
<td>15</td>
<td>7.9</td>
<td>9.6</td>
<td>21.5</td>
</tr>
<tr>
<td>30</td>
<td>2.9</td>
<td>2.4</td>
<td>17.2</td>
</tr>
<tr>
<td>15</td>
<td>6.4</td>
<td>8.4</td>
<td>31.3</td>
</tr>
<tr>
<td>30</td>
<td>3.0</td>
<td>2.5</td>
<td>16.7</td>
</tr>
<tr>
<td>15</td>
<td>7.0</td>
<td>7.7</td>
<td>10.0</td>
</tr>
<tr>
<td>30</td>
<td>2.1</td>
<td>1.7</td>
<td>19.0</td>
</tr>
<tr>
<td>15</td>
<td>6.6</td>
<td>8.3</td>
<td>25.8</td>
</tr>
<tr>
<td>30</td>
<td>3.8</td>
<td>2.9</td>
<td>23.7</td>
</tr>
<tr>
<td>15</td>
<td>9.0</td>
<td>8.4</td>
<td>6.7</td>
</tr>
<tr>
<td>30</td>
<td>3.4</td>
<td>2.8</td>
<td>17.6</td>
</tr>
</tbody>
</table>

*grams of gas produced
We made 6 measurements using two controls and found a maximum difference of measurement of gas between the two containers of 0.7 grams with an average difference between containers of 0.3 grams. This contrasts strikingly with the control/treated figures for the 6 control/treated runs.

An individual who saw this test (not a researcher) tried it herself and provided figures on her results.

She borrowed two balances from her local High School science department and began by making two runs without treatment, simply to familiarize herself with the procedure and to determine that her measurements were in the same range of accuracy as our control/control measurements were.

Her first test with treated yeast ran 39 minutes from oven to adding sugar and the first weighing was taken 17 minutes after adding sugar rather than 15. Thus the time schedule was ten minutes off at that weighing. The expected drop at that point in time appeared and the test can be considered successful. The second weighing was outside the time range and therefore not useful.

The second test showed no effect.

Data for the third and fourth tests are shown in Table 8 (both were successful but measurements were a little late in the cycle meaning that more than 20 minutes elapsed from oven to adding sugar).

<table>
<thead>
<tr>
<th>Minutes</th>
<th>*Control</th>
<th>*Treated</th>
<th>t/c%</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>11.1</td>
<td>9.7</td>
<td>-12.6</td>
</tr>
<tr>
<td>30</td>
<td>1.5</td>
<td>1.5</td>
<td>0.0</td>
</tr>
<tr>
<td>15</td>
<td>9.1</td>
<td>9.2</td>
<td>1.1</td>
</tr>
<tr>
<td>30</td>
<td>4.8</td>
<td>3.6</td>
<td>-25.0</td>
</tr>
</tbody>
</table>

*grams of gas produced
At this point we ran another test ourselves. Expressed in the usual form data are shown in Table 9. Data broken down further are shown in Table 10.

<table>
<thead>
<tr>
<th>TABLE 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minutes</td>
</tr>
<tr>
<td>15</td>
</tr>
<tr>
<td>30</td>
</tr>
</tbody>
</table>

*grams of gas produced

<table>
<thead>
<tr>
<th>TABLE 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minutes</td>
</tr>
<tr>
<td>7.5</td>
</tr>
<tr>
<td>15.0</td>
</tr>
<tr>
<td>22.5</td>
</tr>
<tr>
<td>30.0</td>
</tr>
</tbody>
</table>

*grams of gas produced

Notice that, since each measurement reflects the amount of gas produced since the previous measurement, the 15 and 30 minute figures in Table 9 are not the same as the 15 and 30 minute figures in Table 10.

We then offered the following suggestions to the individual replicating this test:

The advantage in taking measurements at 15 and 30 minutes is that the number of grams of gas given off is larger and this is useful since the second measurement is rather small. However, if it is difficult to get into the cycle early enough, measurements could be taken at 7.5 and 15 minutes, or perhaps at 10 and 20 minutes. Also, shortening the time in the oven might help.

When this individual next did the test the results were on target. She took the yeast out of the oven at 152 degrees and made readings at 10 and 20 minutes. Data are shown in Table 11.

<table>
<thead>
<tr>
<th>TABLE 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minutes</td>
</tr>
<tr>
<td>10</td>
</tr>
<tr>
<td>20</td>
</tr>
</tbody>
</table>

*grams of gas produced
Test 4

The mere fact of dissolving yeast in water is stressful to the yeast cells, more so for some yeast than for others. This means that there will be a response to holy thought and it is a response which is very easily measured. We found that the holy, or patterning, response to the activation of yeast was an initial lowering of gas production in relation to control.

In these runs 200 grams of yeast were added to 1000 grams of water in each of two containers. Bulk yeast, obtained from Red Star’s Milwaukee plant in either 10-pound boxes or 50-pound bags was used. These tests, made in 1983, used a differently processed yeast than is usually available today (1989) from Red Star. After adding the yeast the two solutions (one in each container) were stirred equally for ten minutes. During that time the yeast in one of the containers was treated. Beginning measurements were taken after this 10-minute period. If the water is too hot vapor loss muddies the measurements considerably and thus we kept temperatures cool. In the first run (Table 12) the temperature of the water at the time of mixing was 130°. In the second run (Table 13) it was 105°.

In working with unferd yeast it is necessary to use distilled water. If this is not done the feeding response (in a mild form) will sometimes appear. We made several unsatisfactory tests with tap water before making the two tests described in Tables 12 and 13.

<table>
<thead>
<tr>
<th>TABLE 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minutes</td>
</tr>
<tr>
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</tr>
<tr>
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<tr>
<td>5</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>5</td>
</tr>
</tbody>
</table>

*grams of gas produced

<table>
<thead>
<tr>
<th>TABLE 13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minutes</td>
</tr>
<tr>
<td>10</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>5</td>
</tr>
</tbody>
</table>

*grams of gas produced
Test 5

We standardized Test 5 as described in the following instructions (steps 1-10) and made ten runs. Where measurements were not large we found that a warmer room helped. Also, measurements could be taken 5 or 10 minutes later than the 10 minute interval specified in steps 1-10 because the cycle would be stretched out. Each time measurements were taken the bubbles referred to in steps 1-10 were cut down. The pelletized yeast referred to in steps 1-10 refers to one of two forms of the Red Star yeast commonly available in bulk in the period of testing. One form was finely ground, the second was not and was sometimes referred to by the sales people as "granulated" or, more informally, as "rabbit pellets" in reference to its resemblance to rabbit food commercially available at the time.

The steps taken in Test 5 are as follows. Note that the steps end with the initial measurement, a measurement which should be negative under these conditions if the patterning effect is present. After the first 4 runs we did make additional measurements.

(1) Use pelletized yeast and distilled water.

(2) Heat 7 cups water to 125° Fahrenheit.

(3) Stir water briefly to more evenly distribute heat.

(4) Weigh out 750 grams water into each of 2 containers.

(5) Mix 200 grams yeast into water in each container. Add yeast slowly and stir each portion equally and evenly so much as possible.

(6) Put vented lid on each container. Container must be large enough so yeast does not foam onto lid.

(7) Weigh containers with contents.

(8) Note time or start stopwatch and begin treatment (prayer) for the yeast in one of the containers.

(9) Ten minutes later cut down bubbles with a knife, even if they are not large and only look like froth. Do not stir yeast when you do this, simply eliminate bubbly froth on surface of solution.

(10) Take weighings at about 10 minutes, right after cutting down bubbles.

Table 14 presents the results of the ten runs.

It can be noted that in Run 2 (Table 14) there was no patterning response. The researcher responsible for providing the required mental input feels this was due to his involvement in a book he was reading and which he reluctantly put down in an absorbing part in order to do this run. After finishing the book and preparing his thought the next run was successful, as usual.

Table 15 presents Runs 6-10 of Table 14 with additional measurements added. These measurements permit more of the cycle to be seen.
TABLE 14

<table>
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<td>0.9</td>
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</tr>
<tr>
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<td>1.0</td>
<td>-83.9</td>
</tr>
<tr>
<td>1.3</td>
<td>1.0</td>
<td>-23.1</td>
</tr>
<tr>
<td>1.0</td>
<td>0.4</td>
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<td>-62.1</td>
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</table>

TABLE 15

<table>
<thead>
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<th>Minutes</th>
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<th>%Change</th>
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</thead>
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</tr>
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<td>1.3</td>
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<td>1.5</td>
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Test 6

When pre-weighed yeast is added to pre-weighed water and treatment is given as the mixing and weighing goes on measurements can be made of the effect of patterning thought on the yeast’s adjustment to the stress of its new conditions. When the yeast is mixed and poured into containers and treatment is given to the yeast in one of the containers a clear tracing of the pattern from the beginning cannot be obtained. Whenever measurements are made of the results of feeding it should be remembered that activation patterns may well be skewing results.

When yeast is activated and fed three major elements of stress appear and are moderated by patterning thought. Both activation and feeding generate bursts of gas production, an activity which is moderated in one direction for activation and in another direction for feeding (followed by an opposite response). In addition to activation and feeding heat is a source of stress, stress which became noticeable in our tests between 125° and 130° Fahrenheit.

Test 6 consisted of 7 runs which measure the feeding response to patterning thought. In this test we added approximately two cups of yeast (about 300 grams) to 7 cups of water that had been heated to about 120° Fahrenheit (or about 50° Centigrade). Then the solution was gradually heated on top of the stove for a few minutes and poured into two containers, equal amounts, by weight, in each. In each case the solution was heated to approximately 175°. After the yeast in one of the containers had been treated 75 grams of sugar was mixed into each container and a measurement taken. 3 or 4 additional measurements were also taken. The measurements weren’t timed but just taken successively as quickly as could be conveniently done with one person using two balances. The percentages in Tables 16 and 17 are greatly understated because the large vapor losses at the higher temperatures are not accounted for.

Runs 6 and 7 are the only two in which sugar wasn’t added immediately. In Run 6 sugar was added after the second measurement and in Run 7 sugar was added after the first measurement.
### TABLE 16
**Runs 1-5**

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### TABLE 17
**Runs 6 and 7**

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<tr>
<td>4.0</td>
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</table>
Test 7

Test 7 utilizes the procedures of Test 5; the various runs were performed by the individual who replicated our work in Test 3.

Table 14 presents the results of 10 Test 5 runs with mental input from one of the researchers. The Table 14 readings are the early reading, that is, they are readings from the early down part of the cycle which characterizes patterning response to yeast activation. This patterning response is a response which is measurable as a difference between the measurable patterning effect and the goal directed or faith healing effect. The faith healing effect would, in this case, run counter to the patterning effect since the cultural expectation is that more/bigger/faster is better. This is the basis on which the spiritual and faith healing (goal directed or placebo) effects have been separated in tests we have done with reference systems (measurement vehicles) other than seeds.

If the spiritual power outweighs the goal directed power, the initial readings will be negative (as in Table 14). If the power of faith is greater than any spiritual power in the individual being tested there will be a positive initial reading. If neither spiritual power nor faith is present in the thought resting on the treated yeast there will be no effect. The null hypothesis is that the testing of various individuals would produce only randomly varying results. Since the theory predicts results from various individuals which are greater than, equal to, and less than control results, predicted results can only be distinguished from control results (in a small number of tests) by their magnitude. 11 individuals were tested (none of them researchers) and 19 runs were made. In Table 18 grouped data represent multiple runs. Thus, the first three individuals tested made one run each; the next two individuals made two runs each, the following two individuals made three runs each, and so on as indicated by the table.

The individuals represented in Table 18 come from various backgrounds and are pre-screened in the sense that they represent people who could be talked into taking this test. The last person tested showed the strongest faith of the 11 and she was the first person to be tested in a later and more definitive series of tests with yeast. Her runs in these later tests confirmed the strong faith component of her thought.
<table>
<thead>
<tr>
<th>Control</th>
<th>Treated</th>
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</thead>
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</table>
PART TWO: THE SPINDRIFT TEST

In this portion of our paper test numbering begins anew.

The Yeast Used

Red Star was the supplier of the yeast. The strain of yeast used is known to them as F53 (the yeast was introduced in 1963). The usual processing of this strain as checked in 1989 is not identical to the processing that was usual in 1983-84. The more recent processing produces yeast that is not workable for the purposes of the Spindrift test. The yeast was obtained from Red Star’s Milwaukee, Wisconsin plant.

Equipment for the Spindrift Test

The minimal equipment needed to set up the Spindrift test is: yeast and malt, a microcomputer interfaced with two electronic balances (reading to tenths of a gram), a small screen and such mixing equipment and containers as one would find in any kitchen (including an electric mixer).

Yeast and Malt

At the time of our testing the two major suppliers (Red Star and Fleishmann) were racing each other to get their new fast-acting yeast to market (late 1983 and early 1984) and yeast produced in the Philippines was sometimes substituted for Milwaukee yeast in their 50-pound bags but not in their 10-pound boxes. Gas production characteristics of the substituted yeast show greater stress (more time out of refrigeration) than the Milwaukee yeast. The substituted yeast was not workable for these tests.

Salesmen and sales managers were not informed of the substitution for a period of slightly more than four months. The difference was not noticeable under normal baking conditions and no baker’s complaints were forthcoming. Our own procedure reveals the status of yeast freshness very sensitively and our own complaints brought forth helpfulness without understanding from salesmen and sales managers. When the circumstances were understood we used the 10-pound boxes until the usual product was again available in 50-pound bags. During the approximately 4-month period with only Philippine yeast available we made some runs under “hidden target” conditions.

The F53 yeast used must be fresh, must be kept under refrigeration from the time of its manufacture to the time of purchase and, for testing, must be out of refrigeration at room temperature (no extremes) for not less than three nor more than eight days. Tests must be run in this “window” of yeast adjustment to non-refrigerated conditions.

Malt must be used rather than sugar to feed the yeast as part of test conditions. In addition to being a source of food the malt acts as a buffer and keeps acidity from building up in the yeast/malt/water solution and shutting down carbon dioxide production before the 40-minute test run is complete. We used the sixty-degree Lintner malt product sold by Red Star.

Computer and Balances

Ideally three balances should be used in this test so that a control run may be made at the same time as a test run. Such an arrangement is not only preferable data-wise but it saves yeast, malt, and the time of a technician. However, independent control runs may be made and the expense of a third balance eliminated. We used two balances.
Prayer and Healing: Tests With Yeast

We did not use the interfacing approaches (of the IEEE variety) usually employed to connect balances to a computer. As a cost-cutting measure a simpler approach was used. We used an Apple II+ computer interfaced with two Sartorius 2100 gram balances (1401-MP7-2). In the Apple slots we used two Dispatcher cards from Advanced Logic Systems. A way was found to cause the balances to send continuous readings to the computer. Because of this arrangement a little software checking needed to be done to the signal to be sure of correctness.

A Small Screen

A small screen, only large enough to shield the control pot from the sight of the individual taking the test should be used. It should not interfere with air circulation (there should be no air currents in the room).

Note One: If the participant being tested is in another room and the pot of yeast to be treated is marked and the marker described to the individual being tested the weakened associational link will cause the test score to be substantially lower. When tests are given for purposes of evaluation, this procedure should not be used.

Note Two: Since there is no shielding against thought only those administering an evaluative test should normally be present. The integrity of the technician should be such that mental non-interference can be assumed.

Note Three: Experimenter effect will be discussed later.

A Mixer and Containers

A hand mixer for mixing the yeast and malt is necessary; a few containers and spoons for stirring are necessary; and two 2-gallon containers with lids (we used aluminum pots for lightness) are needed to hold the yeast/malt/water solution on the balances (three if three balances are used).

Lids must be used on the containers or evaporation will render the resulting figures almost meaningless. We drilled two tiny holes in each lid to permit the escape of carbon dioxide. Of course, the lids themselves are not perfectly airtight.

Setting up a Run

Assuming two balances, 400 grams of yeast are mixed into 7 cups of lukewarm water (about 105 to 115 degrees Fahrenheit). Just prior to mixing the yeast 200 grams of malt are mixed into 2 cups of lukewarm water and equal amounts of the malt solution are weighed into two containers of equal size and shape.

Equal amounts of the yeast solution are poured into each of the containers on the balances; the two containers of malt solution are then poured at the same time into the two containers of yeast solution; no mixing of the yeast and malt other than this pouring is done.

Caution: Be careful with the yeast -- it settles quickly; use a long spoon to keep the solution stirred in the interval between electric mixing and final pouring into the containers on the balances. The yeast solution must be strained after the electric mixing.

Immediately after the malt is poured into the yeast and the lids put on the computer program is begun and the individual being tested begins praying for the yeast in one of the containers,
continuing for as much of the 40-minute period as they choose. The reading of each balance is computer-recorded minute-by-minute for 40 minutes.

Test Evaluation

In evaluating the Spindrift test treated runs (control/treated runs) are compared with control runs (control/control runs). Some control runs must be made before evaluation of an individual begins in order to be sure the yeast is in the proper stress range for evaluative runs. Control runs should also be made as the evaluation of the individual progresses in order to build up the data base of control figures which enter into the evaluation.

Checking the Yeast

If a run is divided into five eight-minute periods at least half of the gas production should occur in periods two and three. If the yeast has been unduly stressed (too long in refrigeration or not properly refrigerated before use) increased gas production will be shifted toward the end of the run.

In addition, if the yeast is as it should be for a patterning evaluation, almost all runs will show that gas production in the first half of a run (minutes 1 through 20) will constitute seventy percent or more of the total gas production of the run.

Number of Runs

The test is based on those runs in which the ratio of gas production in the first half of the run (at the end of minute 20) to the gas production of the entire run (at the end of minute 40) is not less than 72% nor more than 82%.

Since (with properly fresh yeast) at least half of the runs are in the evaluation range, and since we use a minimum of fifteen scorables runs for an evaluation, about thirty runs can be required for an evaluation. Below 72% yeast degradation is uneven and scoring is unreliable. Above 82% figures are unreliable for other reasons.

Experimenter Effect

Experimenter effect (the effect of the expectations of those involved in the tests) is a factor. Experimenter effect builds up as the runs are made and can be tracked in the control runs. Experimenter effect is small in comparison to the effect of mental input and ordinarily need not be adjusted for in test scoring.

Evaluation of Data

The evaluation is based on the standard deviations of minute-by-minute differences between the treated and control balances (the differences in gas production figures). The effect of holy prayer is related to storage conditions (stress) of the yeast and to the stress of feeding. It can take two forms: greater gas production by the treated yeast or lesser gas production by the treated yeast. In either case the effect is to increase the standard deviations of treated as compared to control since standard deviations are blind to the sign of the deviations from which they are figured. Thus, standard deviations are used in the evaluation.

Actual deviations of treated yeast in a particular minute tend to be less than control in the high gas production minutes with yeast in the stress-adjustment condition we are using. This is more than
offset (in terms of size of readings, which reflect cumulative differences) by the "chaining" or greater accumulations of consecutive positive or negative deviations minute-by-minute. (Control deviations are randomly fluctuating, treated deviations are being acted on by a non-random force).

Specific Data Used

In evaluating the Spindrift test, control and treated figures are compared. In this context "control" means the difference figures from control/control runs and "treated" means the difference figures from control/treated runs. Gas production figures on the control side of the control/control runs and the control/treated runs are used to be sure the yeast is right for the evaluation.

For the actual evaluation the minute-by-minute number of grams difference between the two balances (in tenths of a gram) are used as the basis for the evaluation.

Note: Balance positions are not randomized. The control position balance and the treated position balance in each test do not vary for either the control/control runs or for the control/treated runs. We like to have experimenter effect out where we can watch it and measure it. We don't like muddying the figures and experimenter effect is associationally linked -- the yeast on the balance in the treated position. If this position is kept constant the effect can be measured. Otherwise, it can't be.

Figuring the Scores

Scoring must be done with the runs in the specified gas production range. There is not enough stress on the yeast in the higher gas production range to accommodate all the individuals who may take the test. In scoring, the higher range can "top out" and scores will become unrepresentative. In addition, until scoring is more fine-tuned it is best to average in a range that is not too close to the freshness curve we are, in essence, scoring against.

The Patterning Score

The evaluation we made was rudimental but workable. It is based on the fact that, crudely speaking in a measurement sense, the treated yeast is brought closer to the performance pattern of control yeast that is fresher than the actual yeast used in the evaluation. Actually, as a program we wrote comparing control and treated runs strikingly illustrates, the measurement situation is much more complex.

Our basic measurement approach at the time the tests were done was based on percent of change in the standard deviations (treated over control). You will need to figure the standard deviations for each minute (you will have a minimum of fifteen figures to use for each minute and thus a minimum of 60 figures to work with).

When you have standard deviations of the scoring range for both control and treated runs, control figures must be divided into treated figures to obtain a ratio of increase. This is the "score" we look at.

Think of the run as divided into ten groups, each group consisting of four minutes of the 40-minute total run. In Group 4 (minutes 13 to 16) the highest variability in standard deviations between control and treated runs will occur (provided a patterning effect appears in the test).

Take the control standard deviations for each of the four "scoring minutes" (minutes 13 to 16). Divide these figures into the average treated scoring minutes for a percentage of increase of treated
over control. Average these four figures for a final score.

The Faith Score

The faith score is based on the last three of the ten 4-minute groups of the 40-minute runs. Bear in mind that the action of belief/faith is much more inconsistent than the action of patterning thought and the belief/faith influenced runs are thus more difficult to quantify in terms of a consistent score.

The faith score is figured much the same as the patterning score. The control standard deviation is divided into the treated standard deviation for the last three groups (minute-by-minute for minutes 29-40), control and treated averages taken, and the percentage of increase or decrease of treated to control is the "score."

The patterning score is based on the patterning characteristic of holy thought. The faith score is based on the goal-directed characteristic of belief. Because we are using standard deviations for our scoring a positive or negative goal-direction of belief makes no difference in the score. A negative faith score thus reflects a lowering of spread of the standard deviations.

The Scores

We had individuals achieve some very good patterning scores. Of course, the scores can range down to where they are simply expressing the random variations between control and treated figures when there is no patterning effect to measure in the individual's prayers. We simply don't have enough figures to tell us what we might normally expect as a range since we have been using individuals of known spiritual healing ability in our research. Also, we have only tested five people using the test as presently defined.

Faith scores are usually accompanied by component scores rising from group eight to group nine and group nine to group ten, thus showing (perhaps) that the faith or emotion generating the score is being increased by the individual as the run progresses. This occurs even if the individual has ceased to pray (which they usually do after 15 or 20 minutes or so). An alternative explanation is that the cycles seen in our earlier tests of patterning thought are producing the phenomenon. Working against this alternative explanation is the fact that there is no apparent correspondence between the patterning effect and the later "faith" or goal-directed effect.

The basic thinking behind this test is the idea that early in the test (the first 20 minutes) feeding stress will make the patterning effect more pronounced than the goal directed effect and that late in the test (the last 20 minutes) the goal directed effect will be more pronounced.

It is recognized that our present scoring is a preliminary and rudimentary approach to complex interactions.

We had 38 control runs in the scoring grange. This provided 152 standard deviations to work with for the patterning score and 456 standard deviations to work with for the faith score. Average scoring minute standard deviation was .156352 and average standard deviation of the last 12 minutes (the belief/faith scoring minutes) was .136547.

The Complexity of Measurable Response

Shedding light on the primitive nature of our scoring was a computer program we had which contained an algorithm that would turn on a light if the yeast acted according to the algorithm. The
triggering level was set very high and a control run never triggered it. But about one-fifth of the treated runs for our three best performers working under "normal" circumstances did. (We pre-sorted for scoring range runs.)

At the end of the run the program would analyze the peaks and valleys in the 40-minute sequence of differences between the balances. Aside from the fun of it, the program was intended to show that the difference between treated and control runs has a number of measurable characteristics other than large size differences in minutes 13 through 16.

The program was developed on a rather haphazard basis by examining the runs and trying different approaches. Not much work was done on it. We have included, for the record and in the Appendix, the BASIC computer program we used to compare control and treated responses and the BASIC computer program we used to "turn on the light."

The Rationale of the Spindrift Test

The Spindrift test is one among several methods we have developed for separating, in one test, the effects of both holy (pattern-referenced) and volitional/intentional (goal-directed) thought. It is less subjective and faster than methods which rely on seed counting and holds out the hope of automation. It is also quite possible that small amounts of yeast and better methods of carbon dioxide measurement could considerably refine the approach. The reliability and availability of usable yeast is a question. Also, hanging over the entire subject of testing individuals for spiritual healing power or the lack of it is the question of whether or not the tests can be sabotaged, deliberately or otherwise. Entirely unintentionally, this question came to the fore as the Spindrift tests were being researched and the question is still a serious one.

The Spindrift test separates patterning and volitional/intentional effects by observing their actions on a system at different points in time. Early in the test the goal directed effect seems minimal so far as we can tell. As the test progresses the volitional/intentional effect seems to build up and the measurable effect of patterning thought recedes to the vanishing point since stress virtually disappears as feeding ends. Perhaps, if the test were carried out longer than 40 minutes a longer cycle related to patterning thought could be seen; perhaps our assumptions are in error. However, if the methodology is refined, if usable yeast is consistently available, if the response patterns of the yeast to patterning and volitional/intentional thought are determined, and if the statistical difficulties connected with scoring the response patterns are addressed, a simple, workable evaluative test which scores both patterning and volitional/intentional (belief/faith) modes of consciousness could apparently be achieved.

What Kind of Yeast do we Need?

Attempts in the past few years to produce super-yeast for bakers, fast-acting yeast, has produced yeast products unusable for the Spindrift test. It's also true that modern yeast chemistry and standardization of strains has taken yeast from its wild state with unpredictable bursts of gas production to a state the Spindrift test can use, a state midway between unpredictability and "homogenization." Perhaps we can best explain what we need and have used with a graph, Figure 1.

The fresher yeast is the more quickly it responds to feeding and the sooner the larger differences between the standard deviations we use in our evaluations appear. Thus, if we graph these standard deviations the curves of the fresher yeast will have peaks appearing sooner time-wise than the less-fresh yeast.
The profiles of the three stress ranges seen in Figure 1 show a fairly smooth line for each range. This smoothness of line was achieved by a bootstrapping technique which makes the standard deviations somewhat larger than they would normally be. What we did was augment existing control/control figures with figures obtained by comparing control figures from one run with control figures from another run using figures from the control balance in the control position. The graph loses in accuracy but the increased data base enables comparisons to be made. This was essential for the Philippine yeast for which no control/control figures existed.

The graph lines for the three ranges represent the standard deviations of the difference figures between the balances as they are read minute-by-minute. Thus the figures are cumulative, not individual. Only control figures have been used in developing the graph. The curve with the highest peak in Figure 1 represents a range in which 80% or more of gas production fell in the first half of the run. The curve with the peak between the extremes in Figure 1 represents a range in which less than 80% and 70% or more of gas production occurred in the first half of the run. The curve with the lowest peak represents the Philippine yeast referred to in earlier commentary. The high range represents 70 pairs of figures; the median range represents 82 pairs of figures; the Philippine bottom range represents 60 pairs of figures.

The 40 units of the x-axis represent the 40 minute intervals of the represented runs. Vertical lines break these minutes into ten 4-minute intervals. The y-axis represents standard deviations and, as noted, these deviations are unusually large.

What kind of yeast do we need? We need yeast which produces the middle kind of graph line. If the line moves too far in either direction, we can’t use the yeast. This is tantamount to saying that: (1) we need yeast which produces this type of graph, and (2) we need to have that yeast in a certain condition of freshness.

**Observations about the Effect of Patterning Thought**

Theoretical considerations tell us that gas production will be moderated by patterning thought in terms of what is "good for" or "best for" the yeast. This means that in the moments of most intense feeding activity when the tendency toward over-action might be greatest (the peaks of the graph in Figure 1) a moderating influence could possibly be seen in the treated runs. Figures 2 and 3 are constructed in such a way as to reveal such a moderating influence if it is there.

For the sorts which produced Figures 2 and 3 (page 2-24) we used all 120 control/control runs that we had made and all of the 71 control/treated runs which were available from three spiritual healers of known ability in producing the patterning response working in a period of general associational isolation for the tests.

In making the sorts, minute 39 was subtracted from minute 40 in order to obtain an individual rather than a cumulative measurement of actual gas production during that minute and so on. The actual minute readings for all 120 control runs were averaged and the actual minute readings for all 71 treated runs were averaged.

The possible predicted dip in measurements in the vicinity of minutes 13 to 16 does appear in the treated runs.
Figure 1. The three graph lines represent yeast in three freshness ranges. The line with the highest peak represents the freshest yeast. The line with the lowest peak represents the least fresh yeast. As freshness decreases, the peak loses its sharpness, spreads out, and the high point of the peak occurs later in the run. The effect of spiritual healing is to cause less-fresh yeast to act more like fresher yeast. This is the basis of our method of evaluating the efficacy of spiritual healers with the Spindrift test. The balances read to tenths of a gram and the standard deviation figures on the y-axis represent figures which are gathered in these .1 gram units.
Figure 2. By "deviation units" is meant the amount by which the control yeast measurements in the treated position deviated from the control yeast measurements in the control position. These differences were averaged into "average balance readings". What we are observing is the extent of experimenter effect as modified by the variability of the measurement system. The point of interest in this figure is the fact that in the control runs there was no modification of gas production activity at any point in the 40 minutes of the run.

Figure 3. By "deviation units" is meant the amount by which treated yeast measurements deviated from control yeast measurements. These differences were averaged into "average balance readings". What we are observing is the effect of spiritual healing as modified by the variability of the measurement system. The point of interest in this figure is the fact that in the treated runs a restraint on gas production was exercised during the period of strongest gas production.
Theoretically, the means of the difference figures between the control/control balances should be zero over a sufficient number of runs. Because of experimenter effect this is not the case.

Figure 4. This figure uses the same data as Figure 2. Differences in the sorts are: (1) actual minute-by-minute readings (cumulative measurements) are used and (2) the runs are sorted for scoring range runs as described earlier in the scoring procedures.

Figure 5. This figure uses the standard deviations of the means used in Figure 2. Differences in the sorts are: (1) actual minute-by-minute readings (cumulative measurements) are used and (2) the runs are sorted for scoring range runs as described earlier in the scoring procedures.
Figure 6. This figure uses the same data as Figure 3. Differences in the sorts are: (1) actual minute-by-minute readings (cumulative measurements) are used and (2) the runs are sorted for scoring range runs as described earlier in the scoring procedures.

Figure 7. This figure uses the standard deviations of the means used in Figure 3. Differences in the sorts are: (1) actual minute-by-minute readings (cumulative measurements) are used and (2) the runs are sorted for scoring range runs as described earlier in the scoring procedures.
The Four Phases of our Testing

Two unforeseen circumstances disrupted our work with the Spindrift test. one in the physical realm (the substitution of Philippine yeast for Milwaukee yeast) and one in the mental realm (strong directed hostility toward the test). Thus we categorize our work with the Spindrift test as to which phase it belongs in.

Test 1

We made control runs more-or-less alternately with treated runs as we went along. Precise alternate scheduling was impossible since the schedules of the participants providing mental input had to be accommodated. Ultimately we collected 120 control runs.

Phase One began in late July and continued through early August. During this time we had available the individual who made such a strong faith scoring on our earlier yeast tests and we took advantage of this opportunity. This participant provided 20 treated runs, 15 of which fell in the scoring range. Of the 120 control runs, 38 fell in the scoring range. This participant (Participant A) made a moderate patterning showing and had the strongest faith score of any of the five participants tested.

Phase Two began in September, peaked in November and began to fade in December of 1983. About this time the usable yeast became unobtainable and Phase Three, testing with the Philippine yeast, began. In Spring of 1984 (March, April, and early May) Phase Four, more testing with workable yeast, went on.

It is axiomatic that since there is no shielding against thought, tests which are sensitive to thought are vulnerable to whatever thought rests on them. The fact that experimental testing of the effects of thought can go on at all attests to differences in associational linkage of thought with the reference systems used for measurement. It is an open question what effect strong emotionally directed thought resting on the tests may have.

When the tests began in 1975 two researchers were involved. In 1977 one researcher dropped out of the work because he was forbidden by his church to participate, indeed he was forbidden to even believe in the “rightness” of the tests. In the eyes of his church, the tests were heretical.

The researcher was obedient. However, late in 1983 and during Phase Two, due to a change in congregations, his belief in the tests became known. This triggered action by the central church authorities and, when the individual refused to retract his belief in the power of the experimental test in all areas of human experience, including the world of thought, he was expelled from his ministry. The experience involved family divisions, church divisions, career loss, and a great deal of church upheaval. Phone calls were coming in constantly, a great deal of hatred, of sorrow on the part of many at the plight of the individual involved, of condemnation on the part of others and, above all, much hatred of the tests and disbelief that they could be effective or useful. When the religious mind sees something as demonic or evil, a great deal of emotion is unleashed. Ultimately, the researchers had to move to a different part of the country which they did in May of 1984 (at the end of Phase Four).

In Phase Two Participant B (a researcher) made 100 runs. There were 24 scoring range runs in the first portion of the 100 runs and 23 scoring range runs in the second portion of the 100 runs. In the first group of scoring range runs treated standard deviations in the scoring minutes were actually lower than control while the faith standard deviations were higher. In the second group of scoring range runs the patterning scoring rose slightly above control while the faith scoring sank below control.
During Phase Two Participant C (also a researcher) made 30 runs. This group included only 8 scoring range runs. On those runs this individual (our highest scorer later on) had only a very modest patterning score.

The argument can be made that we are only looking at random variations. However, we can note that there is a synchronicity of scoring depression and adverse mental activity -- while we are measuring mental activity -- and we can also point to the turn-on-the-light runs. Even in Phase Two (although at reduced levels) turn-on-the-light runs were appearing while control runs never produced any such runs.

In Phase Four -- after the tumult had passed -- Participant C and two other participants (Participants D and E) produced excellent results. Tables 19, 20, and 21 tell the story.

<table>
<thead>
<tr>
<th>TABLE 19</th>
<th>38 scoring range control runs</th>
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<tbody>
<tr>
<td></td>
<td>Scoring Range</td>
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<tr>
<td>Participant</td>
<td>Runs</td>
</tr>
<tr>
<td>Phase One</td>
<td></td>
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<tr>
<td>A</td>
<td>15</td>
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<td>Phase Two</td>
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<tr>
<td>B(1)</td>
<td>24</td>
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<tr>
<td>B(2)</td>
<td>23</td>
</tr>
<tr>
<td>C(1)</td>
<td>8</td>
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<tr>
<td>Phase Four</td>
<td></td>
</tr>
<tr>
<td>C(2)</td>
<td>24</td>
</tr>
<tr>
<td>D</td>
<td>24</td>
</tr>
<tr>
<td>E</td>
<td>15</td>
</tr>
</tbody>
</table>
TABLE 20

scores are percentages over/under control

<table>
<thead>
<tr>
<th>Participant</th>
<th>Patterning Score</th>
<th>Goal Directed Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phase One</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>20.2</td>
<td>114.9</td>
</tr>
<tr>
<td><strong>Phase Two</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B(1)</td>
<td>-15.5</td>
<td>31.1</td>
</tr>
<tr>
<td>B(2)</td>
<td>7.0</td>
<td>-13.1</td>
</tr>
<tr>
<td>C(1)</td>
<td>16.0</td>
<td>4.2</td>
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<tr>
<td><strong>Phase Four</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C(2)</td>
<td>188.2</td>
<td>80.6</td>
</tr>
<tr>
<td>D</td>
<td>116.0</td>
<td>-8.6</td>
</tr>
<tr>
<td>E</td>
<td>149.6</td>
<td>-36.7</td>
</tr>
</tbody>
</table>

TABLE 21

turn-on-the-light runs

<table>
<thead>
<tr>
<th>Phase</th>
<th>Runs</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>15</td>
<td>1</td>
<td>6.7</td>
</tr>
<tr>
<td>2</td>
<td>55</td>
<td>7</td>
<td>12.7</td>
</tr>
<tr>
<td>4</td>
<td>63</td>
<td>12</td>
<td>19.0</td>
</tr>
</tbody>
</table>
Test 2

Each of the 120 control/control runs produces 40 difference measurements between the two balances. If the yeast in the treated position is producing more gas than the yeast in the control position, the sign of the difference measurement between the two balances will be positive. If not, it will be either zero or negative. The sort used to illustrate the existence of experimenter effect (goal directed thought affecting the runs) looks at the sign of the difference measurements minute-by-minute for each of the 120 control/control runs. The result is presented in Figure 8.

Figure 8. Each x-axis column represents one minute in the 40 minutes of a test run and (y-axis) the height of each column represents 120 measurement units. The top white portion of the column represents the number of positive measurement differences. The black portion of the column represents zero measurement differences. The lower white portion of the column represents the number of negative measurement differences. The difference in size of the upper white portion of the column from the bottom white portion of the column indicates the size of experimenter effect.
Test 3

In Phase Three we found ourselves with a considerable amount of yeast that we could not use for the Spindrift test (it was not in the right scoring range). Rather than waste the yeast we decided to make a series of both directly treated and hidden target runs. The directly treated runs (we made 60 of them) were made as usual. The hidden target runs (we also made 60 of them) differed only in the location of the participant and in the method of identification of the treated pot of yeast. A researcher accessed the computer for a random number (we had a circuit in the computer producing truly random numbers) and the computer selected which pot of yeast was to be treated. The selected pot had a red "wreath" placed on top of it and the participant (in another room) treated the yeast in the pot so selected. We felt that the hidden target runs would (given the weakening of the associational link) probably have smaller standard deviations than the directly treated runs. When the figures came in this was the case. The data from an average run are graphed in Figure 9.

![Graph](image)

Figure 9. The "bottom" of the "dark" rectangles which make up the curve represent the average standard deviation (average of 60 runs minute by minute) of hidden target runs. The "top" of the "dark" rectangles which make up the curve represent the average standard deviation (average of 60 runs minute by minute) of directly treated runs. Thus the dark portion of the graph measures loss of effectiveness of spiritual healing with the weakening of the associational link.
APPENDIX

THE SCORING PROGRAM

'yeasttest (yeast test evaluation)
'the c(i, 40) array represents the control balance gas production
'for each of the 40 minutes of a control/control run
'the cd(i, 40) array represents the control balance gas production less
'the treated position control balance gas production (difference)
'for each of the 40 minutes of a control/control run
'the t and td arrays are the corresponding data for control/treated runs

'in terms of the original arrays in which the data were gathered
'd(i) = c(i) - t(i) and t(i) = c(i) - d(i)

DIM c(120, 40), cd(120, 40), t(100, 40), td(100, 40) 'data arrays
DIM meanc(40), meant(40) 'arrays for computing means
DIM cstd(40), tstd(40) 'control and treated scoring range standard deviations
DIM counterc(120), countert(100) 'these arrays are counters
DIM q(13 TO 16), t(29 TO 40) 'arrays for scoring

'input control data
CLS
a$ = "ccc"
n = 120
FOR i = 1 TO n
b$ = a$ + LTRIM$(RTRIM$(STR$(i)))
OPEN b$ FOR INPUT AS #1
FOR j = 1 TO 40
INPUT #1, c(i, j)
NEXT j
FOR j = 1 TO 40
INPUT #1, cd(i, j)
NEXT j
CLOSE #1
NEXT i

'input treated data
INPUT "treated filename "; a$
INPUT "number of tiles "; n
FOR i = 1 TO n
b$ = a$ + LTRIM$(RTRIM$(STR$(i)))
OPEN b$ FOR INPUT AS #1
FOR j = 1 TO 40
INPUT #1, t(i, j)
NEXT j
FOR j = 1 TO 40
INPUT #1, td(i, j)
NEXT j
CLOSE #1
NEXT i

'sort out scoring range runs
FOR i = 1 TO 120
cr = c(i, 20) / c(i, 40)
IF cr >= .72 AND cr <= .82 THEN counterc(i) = 1
NEXT i
FOR i = 1 TO n
    cr = t(i, 20) / t(i, 40)
    IF cr > = .72 AND cr < = .82 THEN counterr(i) = 1
NEXT i

'compute means and standard deviations of scoring range runs
FOR f = 1 TO 120: cn = cn + counterr(i): NEXT
FOR i = 1 TO n: tn = tn + countert(i): NEXT
FOR i = 1 TO 120
    FOR j = 1 TO 40
        IF counterr(i) = 1 THEN meanc(j) = meanc(j) + cd(i, j)
    NEXT j
NEXT i
FOR i = 1 TO n
    FOR j = 1 TO 40
        IF countert(i) = 1 THEN meant(j) = meant(j) + td(i, j)
    NEXT j
NEXT i
FOR i = 1 TO 120
    FOR j = 1 TO 40
        cd(i, j) = meanc(j) - cd(i, j)
        IF counterr(i) = 1 THEN csd(j) = csd(j) + cd(i, j) * cd(i, j)
    NEXT j
NEXT i
FOR i = 1 TO n
    FOR j = 1 TO 40
        td(i, j) = meant(j) - td(i, j)
        IF countert(i) = 1 THEN tsd(j) = tsd(j) + td(i, j) * td(i, j)
    NEXT j
NEXT i
FOR i = 1 TO 40
    csd(i) = csd(i) / cn
    csd(i) = SQR(csd(i))
    tsd(i) = tsd(i) / tn
    tsd(i) = SQR(tsd(i))
NEXT i

'compute patterning score (patterning scoring minutes)
FOR i = 13 TO 18
    q(i) = tsd(i) / csd(i)
    q = q + q(i)
    csdq = csdq + csd(i)
    tsdq = tsdq + tsd(i)
NEXT i
    csdq = csdq / 4: tsdq = tsdq / 4
    q = q / 4
    q = (q - 1) * 100

'compute faith score (goal directed scoring minutes)
FOR i = 29 TO 40
    f(i) = tsd(i) / csd(i)
    f = f + f(i)
    cscdf = cscdf + csd(i)
    tsdf = tsdf + tsd(i)
NEXT i
The Turn-on-the-light Program

'lightsearch (yeast test evaluation)
'the c(i,40) array represents the control balance gas production
'for each of the 40 minutes of a run
'the cd(i,40) array represents the control balance gas production less
'the treated position control balance gas production (difference)
'for each of the 40 minutes of a run
'in terms of the original arrays in which the data were gathered
'd(i) = c(i) - 1(t) and t(i) = c(i) - d(i)

DIM c(120, 40), cd(120, 40) 'data arrays
DIM counter(120)
'the following arrays are for the search algorithms
DIM s(120, 5), g(120, 5), counter(120)
DIM d(120, 6), ddd(120, 6), z(120), e(120, 6)
DIM s(5), ss(120, 5)
DIM x1(120), x2(120), x3(120), x4(120)
DIM y1(120), y2(120), y3(120), y4(120)

'Input data
CLS
INPUT "filename "; a$ 
INPUT "number of files "; n

FOR i = 1 TO n
b$ = a$ + LTRIM$(RTRIM$(STR$(i)))
OPEN b$ FOR INPUT AS #1
FOR j = 1 TO 40
  INPUT #1, c(i, j)
NEXT j
FOR j = 1 TO 40
  INPUT #1, d(i, j)
NEXT j
CLOSE #1

'find out scoring range runs
FOR i = 1 TO n
  cr = c(i, 20) / c(i, 40)
  IF cr >= .72 AND cr <= .82 THEN counter(i) = 1
NEXT i
FOR i = 1 TO n
  cn = cn + counter(i)
NEXT i
Prayer and Healing: Tests With Yeast

'get data into groups of 5 (differences between balances)
FOR i = 1 TO n
    FOR j = 1 TO 5
        FOR k = j * 8 - 7 TO j * 8
            IF counterc(i) = 1 THEN g(i, j) = g(i, j) + d(i, k)
        NEXT k
    NEXT j
NEXT i

'calculate standard deviations of differences between balances
'for each of five groups (assumed mean of 0)
FOR i = 1 TO 5
    FOR j = 1 TO n
        FOR k = i * 8 - 7 TO i * 8
            IF counterc(i) = 1 THEN sd(j, i) = sd(j, i) + d(j, k) * d(j, k)
        NEXT k
    NEXT j
NEXT i
FOR i = 1 TO 5
    sd(j, i) = SQR(sd(j, i) / 8)
NEXT j
NEXT i

'calculate average standard deviation of each group
FOR i = 1 TO 5
    FOR j = 1 TO n
        ds(i) = ds(i) + sd(j, i)
    NEXT j
    NEXT i
FOR i = 1 TO 5: ds(i) = ds(i) / cn: NEXT
FOR i = 1 TO 5: ds(i) = INT(ds(i) * 1000 + .5) / 1000: NEXT

'calculate light turn-ons
FOR i = 1 TO n
    ss(i, 2) = sd(i, 2) / .128
    ss(i, 4) = sd(i, 4) / .115
NEXT i

FOR i = 1 TO n
    FOR j = 2 TO 4 STEP 2
        IF counterc(i) = 1 AND ss(i, j) < 1 THEN ss(i, j) = -(1 - ss(i, j))
        IF counterc(i) = 1 AND ss(i, j) > 1 THEN ss(i, j) = ss(i, j) - 1
    NEXT j
NEXT i

a = 0: b = 0: c = 0: d = 0
IF counterc(i) = 1 AND g(i, 1) > 0 AND g(i, 2) > g(i, 1) AND g(i, 3) < = g(i, 2) AND g(i, 4) < = g(i, 3) AND g(i, 5) < = g(i, 4) THEN GOTO one
GOTO two

one:
IF counterc(i) = 1 AND sd(i, 2) > .256 AND g(i, 3) < .6 * g(i, 2) AND g(i, 2) > 2.5 * g(i, 1) THEN a = a + 1
IF a = 1 THEN counterc(i) = 1
two:
IF counterc(i) = 1 AND g(i, 1) < 0 AND g(i, 2) < g(i, 1) AND g(i, 3) > = g(i, 2) AND g(i, 4) > = g(i, 3) AND g(i, 5) > = g(i, 4) THEN GOTO three
GOTO four
three:
IF counterc(i) = 1 AND sd(i, 2) > .256 THEN b = 1
IF b = 1 THEN counter(i) = 1
four:
IF counterc(i) = 1 AND sd(i, 2) > c1 * .128 AND ss(i, 4) < (ss(i, 2) / c2) THEN c = 1
IF c = 1 THEN counter(i) = 1
L = L + a + b
IF c = 1 AND c < a AND c < b THEN L = L + c
IF counterc(i) = 1 AND g(i, 1) > g(i, 2) AND g(i, 2) < g(i, 3) AND g(i, 3) < g(i, 4) AND g(i, 4) < g(i, 5) AND g(i, 5) < g(i, 3) < 0 AND g(i, 3) < 0 AND g(i, 5) - g(i, 2) > = 3 THEN d = 1
IF d = 1 AND d < a AND d < b AND d < c THEN L = L + 1
IF d = 1 THEN counter(i) = 1

next i

' peak shift areas
FOR i = 1 TO n
    FOR j = 1 TO 20
        z(i) = z(i) + d(i, j)
    NEXT j
NEXT i

FOR i = 1 TO n
    FOR j = 1 TO 4
        y4(i) = d(i, 8 + j)
        y3(i) = d(i, 9 + j)
        y2(i) = d(i, 10 + j)
        y1(i) = d(i, 11 + j)
        x4(i) = d(i, 12 + j)
        x3(i) = d(i, 13 + j)
        x2(i) = d(i, 14 + j)
        x1(i) = d(i, 15 + j)
    NEXT j
NEXT i

FOR i = 1 TO n
    IF z(i) = 0 THEN z(i) = .00001
    x1(i) = x1(i) / z(i)
    x2(i) = x2(i) / z(i)
    x3(i) = x3(i) / z(i)
    x4(i) = x4(i) / z(i)
    y1(i) = y1(i) / z(i)
    y2(i) = y2(i) / z(i)
    y3(i) = y3(i) / z(i)
    y4(i) = y4(i) / z(i)
NEXT i
r = .167
FOR i = 1 TO n
    FOR j = 1 TO 20
        IF d(i, j) > .2 THEN yz = 1
    NEXT j
    IF counterc(i) <> 1 THEN GOTO five
    IF yz <> 1 THEN GOTO five
    IF y1(i) > r THEN counter(i) = 1
    IF y2(i) > r THEN counter(i) = 1
    IF y3(i) > r THEN counter(i) = 1
    IF y4(i) > r THEN counter(i) = 1
    IF x1(i) > .182 THEN counter(i) = 1
    IF x2(i) > .215 THEN counter(i) = 1
    IF x3(i) > .231 THEN counter(i) = 1
    IF x4(i) > .215 THEN counter(i) = 1
five:
    yz = 0
    NEXT i
PRINT
FOR i = 1 TO n
    IF counter(i) = 1 THEN PRINT i
NEXT i
END
DESCENT INTO IMAGERY: MICRO RANDOMNESS

Spindrift, Inc.

ABSTRACT: Double loops tests are tests which rely on the fact that conscious and unconscious thought can be associatively linked to one part of a computer program and not to another. Both theoretical considerations and earlier tests with such things as seeds, Yeast, mold cultures, and falling dice had convinced us that the technique was possible. What our earlier tests had not prepared us for was the nature of the results obtained. We had no idea that results would be different on the micro level in working with randomly formed binary sequences than they were on the macro level. We were totally unprepared for the large scale manipulation of patterns by the unconscious mind which we tumbled into with these tests. This paper covers our research with the double loops technique over the approximately five year period extending from early 1987 through 1991. A small amount of work had been done over the preceding seven years using an Apple II+ computer. The research began in earnest, however, when a more powerful computer and more easily accessed circuitry were obtained. For about a year we worked on little else than double loops tests. After that, we worked only occasionally with the technique, being preoccupied with other tests. Our work with the double loops technique began as an extension of our experimental study of the relationship of prayer and spiritual healing and is rooted in the conceptual structure we were using for our earlier work with organic and inorganic systems.

Early in this century exploration of the quantum mechanical world of elementary particles began. Those who initiated the exploration of this world expected to find the principles of the "macro" world applying in the "micro" world as well. Instead, they found observer defined reality rather than experimental objectivity; they also found probabilistic functioning instead of the familiar cause-and-effect relationships on which they had relied in their scientific theories.

In like manner, when Spindrift's research moved from investigating the effects of thought on "macro" randomly formed distributions (falling dice and calling cards) to investigating the effects of thought on "micro" randomly formed distributions (the output of electronic noise sources operating on quantum mechanical principles) Spindrift found more than the familiar patterning effects and psychodynamic tension of the macro probabilistic world, they found, as well, a micro probabilistic world dominated in large measure by patterning influences emanating from the unconscious minds of the researchers.

Electronic random event generation

It is traditional (and considered necessary) in parapsychological research to use electronic random event generators which are as "perfect" as they can be made to be. Once a random event generator is known to adhere to expected values for its functioning within a known small range of variation then the effects of thought on the system are studied. It is presumed in such experiments that the will, or intention, of the participant attempting to affect the system will, in successful experiments, move the system from its norms or expected values.

In our research a different conceptual structure is brought to the experimental task. It is not necessary (and, indeed, sometimes undesirable) to use "perfect" random event generators just as it is unnecessary (and unworkable) to attempt to measure the effects of healing or pattern-mending thought
on germinating seeds of perfect state and function growing under environmental conditions ideally suited to them. (Measurements of healing thought on a system in no need of healing produce no measurable effect.)

For our studies of electronically generated random events we used an AT clone and a card with an electronic random source which plugged into a slot on our computer. In the circuits we relied on noise generated from a reverse-biased base-emitter junction of an NPN transistor, biased beyond the avalanche point. Such noise is caused by a number of processes, among them random generation and recombination of hole-electron pairs and thermal noise due to ohmic resistance. For most tests the random source was accessed for data from two loops in the monitoring program.

The double loops technique

When you hear the instrumental version of a popular song the words immediately come to mind. These words which well up in consciousness, whether you like it or not, are part of what we, at Spindrift, call an "associational link." Thus an associational link is, by definition, the involuntary linkage of two ideas by the unconscious mind -- ideas which otherwise would not be associated.

Associational links are often formed by strong emotion -- the place on a lonely road where your car collided with another, for example, is associationally linked to the accident in your mind. You cannot pass that spot on the road without thinking about the accident.

Associational links formed by strong emotion are outside the easy study which associational links formed by repetition provide. Repetition is an easy thing to set up in an experimental test, almost as easy as listening to a record over and over and effortlessly forming an associational link between words and music, a link which will probably last the rest of your life. If you heard the music 50 years from now snatches of the words would probably still be remembered.

We wondered if an associational link could be set up in the unconscious mind of a researcher, a link between part of a computer program and an electrical circuit. There was a method to this particular madness -- the circuitry we had in mind was a circuitry which plugged into the inside of a computer and provided randomly generated 0's and 1's to the computer. If we could link this random source to part -- and only part -- of a computer program then (after the link was formed) the computer program could be run and the difference between the two parts of the program gathering data from the circuit would tell us what effect (if any) the unconscious mind was having on the circuit.

For years scientists have been studying the effect of thought on random action and their study has included the effects of the study of thought on random action generated by electrical circuits. However, this study has always been study of the volitional action of the conscious mind or motivationally impelled action of the unconscious mind, never study of the free action of the unconscious mind: We wanted to extend our own research into the unconscious area in terms both of the pattern mending effect and of "free" action, action wholly apart from conscious will or unconscious motivation (unconscious motivation in terms of the consciously structured characteristics of a test situation designed to explore unconscious motivation).

The computer programs we used gathered data from the circuit in two parts. Technically these two parts are called "loops." To form the associational link a double loops program was run a great many times with the researcher praying for the circuit when the second loop of the program was running and not when the first loop was running. We hoped that, in due course, an associational link between the second loop and the circuit would be formed in the mind of the researcher. Every so often we ran the program without the researcher praying and waited for differences to appear. To our amazement, our theory seemed to work. Eventually, differences did begin to appear and these
Differences appeared in the form of the expected patterning effect and of other simple patterns, patterns which were, apparently, creations of the unconscious mind.

As simple as the "double loops technique" was it had never been done before and we had no landmarks to guide us in our research. Even today, we cannot be as sure of our double loops work as we are of our other tests simply because we cannot actually see and feel and count what goes on inside an electrical circuit and a computer.

In summary, Spindrift's double loops technique collects data from a random source in alternating FOR/NEXT (or equivalent construction) loops within a computer program. Over a period of time, and through conscious thought (in our case prayer), an associational link with the second loop is formed. After this is done the program can be run without conscious mental input and the differences in data patterns between data collected by the two loops can be studied. In programs run without conscious input the researcher to whom the circuit is associationally linked can even be asleep while data is being gathered. However, double loops programs are greatly sensitive to the amount of conscious and unconscious attention resting on the experiment at the time it is run. If the researcher sits at the computer and runs the programs the measurable effect produced by the test will be greater than if the programs are set to run themselves and store the results.

ASSOCIATIONAL LINKS: FORMED BY USE, LOST BY DISUSE

Abstract

The fact that associational linkages increase with use and decrease with lack of use, that they increase with attention and decrease with lack of attention, is powerfully illustrated with the double loops technique.

Introduction

After developing the double loops technique early in 1987 we developed our "standard associational linkage test". The source code is as follows.

```
DEFINT A, C, I-K, T
FOR i = 1 TO 100

'control position
FOR j = 1 TO 25000
    FOR k = 1 TO 24
        a = INP(793) + a
    NEXT k
    IF a < 8 OR a > 16 THEN c1 = c1 + 1
    IF a > 10 AND a < 16 THEN c2 = c2 + 1
    a = 0
    NEXT j

'treated position
FOR j = 1 TO 25000
    FOR k = 1 TO 24
        a = INP(793) + a
    NEXT k
    IF a < 8 OR a > 16 THEN t1 = t1 + 1
```
IF a > 10 AND a < 16 THEN t2 = t2 + 1
a = 0
NEXT j
n1 = t1 / c1:n2 = t2 / c2
IF n1 >= 1 AND n2 <= 1 THEN n = n + 1
IF n1 <= 1 AND n2 >= 1 THEN n = n + 1
c1 = 0: c2 = 0: t1 = 0: t2 = 0
NEXT i
PRINT: PRINT "There were ";100;" trials with ";n" hits."

We found that using this program (which produces 100 hits or misses) the number of hits produced depended on the strength of the associational link with the program and the circuit and on the amount of attention given when the program was running and data were being produced.

Early in 1987, when the associational link was formed, the hit rate was in the low 90's (more than 90 hits were averaged in each 100 trials, each run of the program). In November and December of that year, 1987, we checked the circuit again.

We began our check by increasing the loop to make 1,000 trials instead of 100 trials and we ran that program 7 times. At that time we were, in our record of tests, speaking in terms of failure rate rather than number of hits. In other words, 800 correct hits out of 1,000 trials was considered a failure rate of 20%.

Failure rates averaged 20.4% and were as follows for the 7 runs:

21.0, 21.4, 21.4, 19.8, 19.1, 21.6, 18.7

We then asked the researcher to sit at the computer and do clerical work while the program was running. In the next 1,000 runs the failure rate dropped to 12.0%.

Our next step was to ask the researcher to make a number of runs which produced one trial at a time. This required more of his attention and, in 545 runs, the failure rate dropped to 10.8%.

The researcher then made 500 individual runs requiring conscious mental input. (This was the way we strengthened the associational link.) Following this we made another 7 runs of 1,000 trials each and the failure rate dropped from 20.4% (from the last 7 run-by-themselves runs) to an average of 19.8%. Individual failure rates were as follows:


We then made 250 more individual runs followed by 5 of the 1,000 trial runs. In the 5 run-by-themselves runs the failure rate dropped from 19.8% to 19.1%. Thus there was a clear pattern of more hits with more attention and more hits after the associational link has been strengthened with conscious mental input. It was also clear that the associational link was weaker six months after its creation than it was when first established.

The associational link was established using QuickBASIC 3.0. We thought for a time that some compilers were easier for the associational link to follow than others but have come to realize that the explanation of differences between compilers and results is more simple. The associational link is strongest for the program logic and compiler logic which was used when the associational link was formed.
When we switched over to QuickBASIC 4.0 the results were erratic for a time. By erratic is meant that on some groups of runs there was no result (approximately 50/50 hits and misses per 100 trials) and on other groups of runs there was "flipping" (reversal of image). This was most unusual since the image on which this program is based almost never flips. After a while the results returned to their usual pattern. When we made the transition to QuickBASIC 4.5 no erraticism was noticed. Results were a little less each time on the new program than on the old.

In 1988 we used the program and the circuit off and on although we were also doing other tests. The circuit was scoring consistently in 1988 in the 80% range (a failure rate of less than 20%, a hit rate of more than 80 in each 100 trials).

In October of 1991, we made further tests with the circuit and found that its ability to produce results, its link with our unconscious thought, had lessened in the past three years of disuse. In our first test we made 30 runs of 100 trials each using the QuickBASIC 4.0 compiler. The mean of the hits was 74.9 and the standard deviation of the hits was 4.26.

In our second test we encased the program in a loop which made the 30 runs of 100 trials automatically. With this lessened attention the mean dropped to 74.1. Standard deviation was 3.80.

In our third test we repeated the second test using the QuickBASIC 4.5 compiler. The mean dropped to 73.2. The standard deviation was 5.35. Note that the standard deviations in all three cases are larger than would be expected.

How many hits would the program produce wholly mechanistically, without being touched by thought? Individuals not part of the Spindrift Research Group have been examining our double loops technique and point out that in the program used here there is a dependency between the c1 and c2 figures and the t1 and t2 figures in the sampling technique. Simulations they have made show the program to have a bias in favor of the second loop from this source of about three percent. (Thus the expected split is not 50/50 but about 47/53.) In addition, and potentially more to be taken into account, running of the program with pseudorandom inputs returns, we are told, about a 40/60 split over various compilers used. Thus this particular program has its pros and cons. In its construction it has built-in bias which we do not wholly understand. On the other hand, it is a symbolic configuration which is extremely responsive to thought. It is safest to assume a baseline (expected split) of about 40/60 (the second loop is favored).

Methods and materials

For the checks about to be described we modified the program to make 15 trials instead of 100 (we used the QuickBASIC 4.5 compiler). Then, 300 runs of the circuit were made. Each run consisted of 15 successive trials. The results of each trial appeared successively on the computer screen. The researcher was instructed to think about the circuit for the first five trials, then to write down the results of the first five trials in order to break his circuit-focused attention. He was asked not to think about the circuit for the rest of the 15 trials. After that he finished recording the results of the 15 trials and the run was repeated. 50 runs were made on each day that runs were done.

Results

It is very difficult to prove statistically that attention resting on a system will produce a measurable effect when conscious thought is relied on to produce the results. This is because the attempt to consciously keep thought focused on person, place, or thing is not something which can be sustained. Even though an individual believes he is sustaining his attention, it does not follow that he is and almost invariably he is not. Thus, it can always be argued that the strong measurements of
conscious attention which are found initially are just flukes, and that this is proved since additional runs will inevitably draw the results down to inconsequential levels. Thus, many runs by many different people must be made in order to establish the validity of the phenomenon. We do not attempt to do that in this paper. What we do attempt to do is demonstrate (insofar as we can) that the double loops procedure is well adapted to the purpose.

In Tables 1-3 (facing page) the first five counts made by the program (out of 15) are termed "Conscious Attention," the second five counts are termed "Transition" and the last five counts are termed "No Conscious Attention." For each category we count the number of times 5 hits are scored, 4 hits, and so on. We do this for the first 100 runs, the second 100 runs, and the third 100 runs.

Our premise is that conscious attention creates more hits. Thus, we group the number of hits accordingly, setting up tables (Tables 4, 5, and 6, page 3-8) which show the most number of hits (5), the median group (3 and 4) and the lowest number of hits (1 and 2). We term the "No Conscious Attention" group our "Expected Values" and our "Conscious Attention" group our "Observed Values." Having done this, we can apply the chi-square statistical evaluation.

For the first 100 runs chi-square is 21.56. At two degrees of freedom this is a very strong showing on only 100 runs. A 1% confidence level requires a chi-square score of 9.21 while a 0.1% confidence level requires a chi-square score of 13.82. Beyond that, the score goes off the table.

For the second and third 100 runs chi-square shows results which are not statistically significant, 2.55 and 4.38 respectively.

We wondered if there was a correlation between the amount of initial attention which the circuit received and the amount of "linger effect" on the remaining trials. Thus, we assessed the relationship between the number of hits in the first five trials and the number of hits in the remaining ten trials. Figure 1 (page 3-9) shows this relationship. There were not enough single hits in the first five trials to make this data usable. Thus, the figure begins with the data for 2 hits per initial 5 trials. The suspected relationship is suggested although the correlation drops off for five hits in the first five runs. This is understandable.

Discussion

It is interesting to note that the unconscious pathways of association used in the double loops technique are established through the use of conscious thought and, after that, the ebb and flow of unconscious thought along those pathways is the most easily measurable feature.

It is also interesting to note that the double loops tests are not patterning thought dependent for their effects as most of our tests are. What appears to be measured in most double loops tests is the activity of the unconscious mind apart from healing and patterning thought. Prayer was the form of conscious thought used to carve the unconscious associational linkage needed for double loops testing, but, quite probably, other forms of thought could have been used just as easily.
**TABLE 1**  
First 100 Runs

<table>
<thead>
<tr>
<th>Number Of Hits</th>
<th>Conscious Attention</th>
<th>Transition</th>
<th>No Conscious Attention</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>30</td>
<td>28</td>
<td>14</td>
</tr>
<tr>
<td>4</td>
<td>31</td>
<td>31</td>
<td>50</td>
</tr>
<tr>
<td>3</td>
<td>31</td>
<td>28</td>
<td>24</td>
</tr>
<tr>
<td>2</td>
<td>7</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Totals</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

**TABLE 2**  
Second 100 Runs

<table>
<thead>
<tr>
<th>Number Of Hits</th>
<th>Conscious Attention</th>
<th>Transition</th>
<th>No Conscious Attention</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>21</td>
<td>20</td>
<td>28</td>
</tr>
<tr>
<td>4</td>
<td>44</td>
<td>39</td>
<td>37</td>
</tr>
<tr>
<td>3</td>
<td>23</td>
<td>30</td>
<td>25</td>
</tr>
<tr>
<td>2</td>
<td>9</td>
<td>11</td>
<td>9</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Totals</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

**TABLE 3**  
Third 100 Runs

<table>
<thead>
<tr>
<th>Number Of Hits</th>
<th>Conscious Attention</th>
<th>Transition</th>
<th>No Conscious Attention</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>18</td>
<td>20</td>
<td>18</td>
</tr>
<tr>
<td>4</td>
<td>51</td>
<td>40</td>
<td>38</td>
</tr>
<tr>
<td>3</td>
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<td>25</td>
<td>25</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Totals</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>
### TABLE 4
**First 100 Runs**

<table>
<thead>
<tr>
<th>Number Of Hits</th>
<th>Observed Values</th>
<th>Expected Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>30</td>
<td>14</td>
</tr>
<tr>
<td>4-3</td>
<td>62</td>
<td>74</td>
</tr>
<tr>
<td>2-1</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>Totals</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

### TABLE 5
**Second 100 Runs**

<table>
<thead>
<tr>
<th>Number Of Hits</th>
<th>Observed Values</th>
<th>Expected Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>21</td>
<td>28</td>
</tr>
<tr>
<td>4-3</td>
<td>67</td>
<td>62</td>
</tr>
<tr>
<td>2-1</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>Totals</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

### TABLE 6
**Third 100 Runs**

<table>
<thead>
<tr>
<th>Number Of Hits</th>
<th>Observed Values</th>
<th>Expected Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>4-3</td>
<td>71</td>
<td>63</td>
</tr>
<tr>
<td>2-1</td>
<td>11</td>
<td>19</td>
</tr>
<tr>
<td>Totals</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>
Figure 1. A correlation between the scoring rate in the first 5 trials of 15 trial runs with the scoring rate in the last 10 trials of the runs is shown. The figure indicates that the amount of conscious attention (first 5 trials) influences the amount of unconscious attention (last 10 trials) resting on the circuit. It also appears that the highest level of conscious attention (indicated by 5 hits in the first 5 trials) is followed by some unconscious “letdown”.
SPIRITUAL HEALING AND THE DOUBLE LOOPS TECHNIQUE

Abstract

The effects of holy thought (qualitatively rich prayer, pattern-referenced thought) on binary sequences generated by electronic circuits are examined by means of the double loops technique.

Introduction

After developing the double loops technique early in 1987 our initial efforts were devoted to exploring the effects of patterning thought on the binary sequences produced by electronic circuits. This is because we were not immediately aware of the extent to which the (apparently) non-norm-referenced patterning power of the human mind affected the circuits. We were extending the patterns we were used to in the macro world into the micro world, unaware that we had entered an entirely new area with entirely new rules. The old rules still held, spiritual healing still worked, but we were also involved with a patterning power of the mind in ways we had never before encountered.

The great bulk of this study is drawn from the earliest parts of the research diary we kept during those early months of 1987. We worked in this area for about a year before realizing that we could not make our work comprehensible to others, or fully trust it ourselves, without extending the concepts to the macro world of binary sequences -- which is, in part, why we went on to develop the VIUR (Visual Image, Unconscious Response) tests.

The experimental diary we kept in those days was a pioneering record, not free of mistakes, and not a wholly organized foray into new territory. Nevertheless, the fundamental ideas stood out like mountain peaks above a valley.

Method: The double loops technique.

Materials: A desktop computer and a plug-in random events (random 0’s and 1’s) generating electronic circuit.

Results

We will present our results primarily in the form of selected quotations from the early pages of the experimental diary we kept in 1987 and early 1988.

Quote: The research findings in these pages differ markedly from our earlier research work, a difference reminiscent of the vast difference in the data picture when earlier physical research [in the natural sciences] went from the comparatively easily observable to the sub-atomic level.

Our own earlier work rested on the observation of the effects of conscious thought. We measured the differences conscious mental input made on physical systems, systems not buffeted by nor greatly sensitive to unconscious mental action. In the area we are now exploring, the system used for measurement is extremely sensitive to the action of unconscious thought....

It has been no more suspected that pattern formation depends on the strength of a certain mode of consciousness than it was suspected (in pre-relativity days) that the passage of time was related to the strength of a gravitational field. Yet, since the strength levels of patterning consciousness can be changed through prayer and focused through association the phenomenon is easy to demonstrate.
Exploration of the world of sub-atomic particles [by modern science] has revealed a lack of deterministic law. The actions of particles are probabilistic in nature with paths of least energy, time, and distance representing the most probable paths taken. One of the great unanswered questions of quantum mechanics...is why particles (in general) follow the most probable path....

Spindrift's research reveals that it is a characteristic of creation to be definite in form. Spiritualized consciousness is identity referenced; pure and holy thought invariably increases the perfection and enhances the development of every identity it associationally touches. All it rests on is blessed and this blessing is seen as an enhancement of identity, individual being. This is the central fact of every experimental test of qualitatively rich prayer.

Because the universe is both qualitative and quantitative in nature no measurement based conceptual system can ever be a definitive theoretical model of the universe....

[Double loops tests] differ greatly from our other tests. This is because we are dealing with identities so fleeting they can be altered in their form by a very little mental push. Thus, patterns mingle far more freely than they otherwise would with shifting associational linkages, conflicts with volitional forces come more easily into the open, as do volitional forces. Thus, something of a kaleidoscope of data images results....

In our setup the keyboard and monitor are in an upstairs room; the computer (with the circuit in it) is in a downstairs room on the end of a 100-foot cable. This is primarily because the researchers don't care for the noisy fan on the computer itself. [Many of their tests at the computer involve prayer.]

The question now arises: Where does the prayer come in? How is consciousness connected with the pattern?

In a control/treated run the investigator turns the computer on, selects a program and runs it. Control (untreated) figures flow from the circuit into the computer. Then a prompt appears on the screen asking him to pray. When he is ready he presses a key on the keyboard and prays for the circuit until the computer beeps the conclusion of its gathering of treated (prayed for) figures.

After this is done enough times unconscious associational links between the researcher and the position of the treated sampling algorithm in the computer program develop and it is no longer necessary to specifically pray for the circuit. Simply run the program and the control/treated differences "automatically" appear between the control-position and the treated-position figures.

As incredible as all this is, consider the fact that control-position/treated-position programs can then be written which go back and forth between control position and treated position thousands of times a second and the unconscious mind supplies the needed mental input and maintains the necessary separation between control position and treated position figures.

Consider, too, the fact that the investigator can run a lengthy program (say 12 hours running time), go to bed for the night, get up the next morning and find that the same prayed-for/unprayed for distinctions have been made in the final data.

All of these unusual circumstances add up to the fact that once the pattern of mental association has been put in place and the concept or spiritual perception of the circuit has been established by the researcher in his prayers then the tests will "run themselves."

The computer we are using in our tests is an 80286 AT clone...running at 12 megahertz with one wait state. The circuit can be accessed for a bit (a 0 or 1) or a byte (a random number between
0 and 255). Our programming has been done in Microsoft's QuickBASIC....

Let's begin with a word about our circuit. In terms of binary numbers (the ability of the circuit to produce 0's and 1's) it isn't perfectly balanced. Specifically, the circuit produces more 1's than 0's. About 49.3% of the time it produces 0's; about 50.7% of the time it produces 1's. The exact percentage varies slightly according to operating conditions.

It's a simple matter to run a program of a few lines which counts the number of 0's and 1's coming from the circuit. First you count a million control position 0's and 1's and then you count a million treated position 0's and 1's.

Ideally, (if the circuit was perfect) the number of 0's and 1's coming from the circuit would be the same. There would be zero spread between the two figures. In practice the circuit is not perfect and there is a spread of about 1.4% between the two figures.

A prediction and a test

The prediction of theory is that holy thought will tend to "heal" the imperfection and that figures from the treated position in the program will show less spread (be smaller, closer to zero) than figures from the control position.

The program runs in less than a minute so it's easy to get figures. Program results show the treated position spread at about half the value of the control position spread every time, at least in the first month of our investigation....

Order is size indifferent. A one-valued order system is neither order nor disorder. In a two-valued order system two measurements of order are possible. One measurement measures the disorder of the system, the other the order. If we count the 0's and 1's coming from the circuit the breakdown approximates the 50/50 split predicted by probability theory.

If we adjust our program to count categories of 0/1, and 1/0 pairs (these are the ordered pairs) and 1/1 or 0/0 pairs (these are the disordered pairs) we enter the world of the peculiarities of electronic circuitry and our measurement vehicle is a two-valued order system in this case.

A two-valued order system has two rankings. A three-valued order system has four rankings, a four-valued order system has eight, and so on. Each additional order value causes the number of order rankings to double.

For example, the three-valued order system represented by a sequence of three binary numbers has four rankings. They are (ranging from the highest level of disorder to the highest level of order): 000, 001, 011, and 010 [001 and 011 are equivalent]. Since the binary units (0 and 1) are theoretically equal in frequency of occurrence the four "mirror image" (0's and 1's reversed) binary sequences are equal in order value to the sequences shown and are so counted. In computational terms this circumstance has a compensating effect on deviations of the random number producing circuit from a perfect 50/50 zero-and-one split.

One would suppose that if numbers are broken down into categories based on these order rankings the percentage divisions predicted by probability theory would be approximate as they are in the 0/1 split. This is not so. [This is due to sampling speed. The faster the sampling speed, the worse the splits.]

The question arises as to the effect holy thought has on this circuit [sampling] characteristic.
We ran 30 tests to find out. These tests were control/treated (rather than control position/treated position) because they were done at a time when we were building up associational linkage with

The procedure was to alternately input 100,000 control x’s and 100,000 control y’s (first an x and then a y) and then to alternately input 100,000 treated x’s and 100,000 treated y’s. [The x’s and y’s represented inputs from the circuit, either 0’s or 1’s.] We looked at the spread between the 0’s and the 1’s and at the spread between the ordered and disordered combinations (between the 01/10 and the 00/11 groups).

In both cases the spreads should be less for the treated random numbers than for the control random numbers, or so the prediction from theory goes. In both cases they were and so were the standard deviations. The figures were becoming stable at ten runs; we went to thirty.

The 0/1 spread was reduced 0.32% and the standard deviation of the 30 means of the 30 tests for these figures was reduced 11.29% for the treated numbers [as compared to the standard deviation for the control numbers].

The order/disorder spread was reduced 2.69% and the standard deviation of the 30 means of the 30 tests for the treated figures was reduced 2.08% [as compared to the standard deviation of the 30 control figures].

Extending the approach

The most balanced flow of 0’s and 1’s which can come from the circuit is an alternating sequence of 0’s and 1’s. Thus, if we check on the 0’s coming from the circuit and find a 0 followed by a 1 we can say that this 0 is in a “most ordered” state. This is a matter of definition for evaluating our figures.

If we find a 0 followed by another 0 and then by a 1 we can term this a “least disordered” state. 

Expected values tell us that 0’s should be followed by 1’s 50% of the time. A zero should be followed by another zero 25% of the time and should also be followed by two or more zeros 25% of the time.

If we sample the stand-alone zeros in two equal groups so that probable percent of occurrence is 25% for each group and then count our 2’s and 3+’s as well we will have four sampling categories each with an equal probability of occurrence.

We did evaluate numbers -- a lot of them, more than 27 billion -- in this way. Our approach was such that each sampling category (which means each group of 1’s and the groups of 2’s and 3+’s) should give 16,000 as a theoretical mean count. Thus our check of 27,095,040,000 figures gave us 846,720 samplings, half control or control position and half treated or treated position.

If holy thought is harmonizing the pattern, then the standard deviations of the treated position numbers should be smaller than the standard deviations of the control position numbers. Our evaluation showed the treated position standard deviation to be 2.07% less than the control position standard deviation.

It is a characteristic of electronic circuits, or perhaps of the nature of things, that the more disorderly a category becomes the larger the deviation from mean of its samplings will tend to be. If
holy thought is harmonizing the pattern this characteristic, too, should be lessened by holy thought.

In terms of numbers this means that the average amount by which the 2’s group differs from the sampling mean will be larger than the average amount by which the 1’s group differs from the sampling mean and the average amount by which the 3+’s group differs from the sampling mean will be larger than the average amount by which the 2’s group differs from the sampling mean.

In the case of the 1’s and 2’s groups the control position and the treated position were too close to evaluate (0.02% difference). However, it is a characteristic of all our tests [of patterning thought] that measurable effect increases as disorder increases and the difference between the 2’s and 3+’s groups showed that treated position figures were 5.09% less (differences between absolute deviations from sampling means) than were the control position figures.

Since large measurable effect shows up readily in highly disordered categories highly disordered categories are an easy place to measure. Thus we can turn to our 3+ samplings (two or more 0’s following a 0; one-fourth of our total samplings, our most disordered category) and we can apply the same concept of order we applied to our original binary random numbers.

More specifically, we can split this group in two. The distribution of samplings approximates a normal curve and we can specifically look at those samplings whose numerical values are in the highest half of the group (we can look at the most disorderly half of the most disorderly group).

Then we can look to see how often a “most disorderly” number stands alone, how often it’s followed by another “most disorderly” number and how often it’s followed by two “most disorderly” numbers.

If holy thought is harmonizing the pattern of binary random flow, then the singles group should be increasing at the expense of the triples group.

Our initial check rested on 18,063,360,000 binary random numbers (564,480 samplings, half control and half treated). This check showed that the highly disordered category for the treated position numbers was 0.86% less than for the control position numbers.

The transitional category had increased 0.18% and the most ordered category was 1.17% higher for the treated position numbers than for the control position numbers. Thus the predicted shift had occurred.

In another test we set up a program which evaluated 6,144,000,000 binary random numbers in a run, counting the number of “most disorderly” categories (three 0’s in a row) in sampling units of 32,000. The program took about eleven hours to run; we ran five such tests.

The means of the treated position disorderly samplings were always less than the means of the control position disorderly samplings. The standard deviations of the treated position disorderly samplings were always more than the standard deviations of the control position disorderly samplings.

Percentages by which the means of the treated position disorderly samplings were less than the control position disorderly samplings were: -0.93%, -0.88%, -0.84%, -0.84%, -0.88%.

Percentages by which the standard deviations of the treated position disorderly samplings were greater than the control position disorderly samplings were: 0.59%, 0.42%, 0.78%, 1.89%, 0.38%.

We also pulled a little additional information out of these runs. The program counted the number
of sequences of three 0's whose samplings were in the largest half of sampling values and then counted those in this group which were followed by two more such samplings.

This procedure gave us a group of “high disorder” samplings (sequences of three 0’s whose sampling deviations from norm were in the highest one-half of such deviations) and a group of “very high disorder” samplings (the “high disorder” samplings followed by two “high disorder” samplings).

Our tests generally indicate that measurable effect increases as disorder increases (there is a larger measurement scale against which to measure). Thus we can expect the effect of holy thought to be measurably greater in the “very high disorder” group than in the “high disorder” group.

The count of the high disorder groups was 0.36% less for the treated position numbers than for the control position numbers. The count of very high disorder groups was 1.37% less for the treated position numbers than for the control position numbers.

Looking for ordered groups (Figure 2)

In another test we looked for 8-, 9-, and 10-sequence patterns of alternating 0’s and 1’s and [predictably] found more of them in the treated position than in the control position.

Our program required the processing of 108 million control position and 108 treated position binary random numbers. From these binary random numbers 36,000 control position and 36,000 treated position samplings were obtained in each of the 8-, 9-, and 10-sequence categories.

In the 8-sequence category, treated position counts were 2.7% higher than control position counts. In the 9-sequence category, treated position counts were 3.8% higher than control position counts. In the 10-sequence category, treated position counts were 4.5% higher than control position counts. Again it can be seen that measurable effect increases as the difficulty of achieving order or of lowering disorder increases. (See Figure 2, next page.)

Effect is greater when there’s not so much to think about

The three measurements just given can be compared only because they were run in the same program at the same time and under the same circumstances. If, for example, an alternating series of 0’s and 1’s is checked for by using the same method...[but if] the program looks only for the 8-sequence instead of the three sequences (8-, 9-, and 10-sequences) then the 2.7% figure (percent treated position count is larger than control position count of such sequences) becomes several times higher [12.32% -- we will refer to this figure again shortly].

Looking for disordered groups (Figure 3)

Disordered groups were much more in evidence than were orderly groups. Therefore, if we use the same program we just used to look for ordered sequences to look for disordered sequences, sequences composed entirely of 1’s, we should get more stable percentages and we did. In this case, however, the percentages should [predictably] be negative rather than positive since the same unconsciously linked spiritual power which is increasing order is decreasing disorder.

We made three runs of such a test and the pattern of “the greater the disorder the larger the measurable effect” \(E = kr\) appeared again. (See Figure 3, next page.)

Percentages for the 8-sequence group (treated position less than control position) were: -2.54%, -2.58%, -2.55%.
Figure 2. This figure demonstrates the increase in measurable effect of the ordering force with the increasing difficulty of achieving order (resistance to order). The longer (and rarer) the ordered sequence, the greater the measurable effect of the ordering force.

Figure 3. This figure demonstrates an increasing decrease in disorder with increasing levels of disorder. This figure (lessening disorder) compliments Figure 2 (increasing order) in the binary sequences.
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Percentages for the 9-sequence group (treated position less than control position) were: -3.55%, -3.37%, -3.41%.

Percentages for the 10-sequence group (treated position less than control position) were: -3.89%, -3.87%, -3.92%.

The defense mechanism again?

The concept of struggle between ordering and non-ordering elements of thought affecting random flow surfaces most forcefully when conscious mental input is being provided to the circuit, thus increasing the spirituality of the mental elements which affect the circuit.

...An average of 2,220 runs, each of which evaluated 100,000 control position and 100,000 treated position sequences showed the 8-sequence alternating 0's and 1's showed up 12.32% more frequently in the treated position than in the control position. [This is the less-to-think-about reference we mentioned a few paragraphs ago. Note that, as before, there was no conscious mental input to these runs.]

As an illustration of the resistance effect...200 control/treated runs (conscious mental input) showed ordered (alternating 0's and 1's) 8-sequences appearing only 4.30% more often for treated than for control.

Another test of conscious thought and defense mechanism struggle

We wrote a program which examined 210,000 groupings of sequential 1's in the control or control position and then 210,000 groupings of 1's in the treated or treated position. The process repeated 10 times in a program run. The size of the groupings and the selection of 1's represented programming convenience.

The program was run 30 times which means that a total of 126,000,000 numbers were evaluated. Control position/treated position and control/treated runs were alternated.

The groupings of 1's were classified by the program into five categories: a high order group (a single 1 constituting a group), a low order group (two or three 1's together in a group), a low disorder group (4-12 1's in a group) a moderate disorder (13-18 consecutive 1's in the group) and a high disorder group (more than 18 1's in the group). (A group in this context is a sequence of 1's unbroken by a 0.) [Given the sampling rate in relation to the circuit, lengthy strings of 0's and 1's are produced in the sampling process, far more such strings than perfect randomness would produce.]

The control position/treated position pattern was that disorder was increasing [in the treated position and as the category of disorder increased]. Direct input of spiritualized thought [increasing the patterning strength of thought] reversed this pattern direction.

Control position/treated position figures [unconscious thought only resting on the circuit] (percentage treated position is over or under control position) were as follows ranging from high order to high disorder: -0.01, 0.04, -0.06, 0.11, 3.71.

Control/treated figures [conscious input added to the unconscious mental influence] (percentage treated is over or under control) are as follows ranging from high order to high disorder: -0.02, 0.03, -0.02, -0.55, -3.10. [We are back to the predictable pattern of disorder being reduced with the higher disorder categories showing the most effect.]
Things get much more complicated

[We began our work with our circuits looking for the norm-referenced patterns we were familiar with. Initially we found them, as our write-up so far shows. The tests are repeatable (for us at any rate) so the effects are still there. However, we soon began to find more, much more than we expected.

In the paragraphs preceding this one we note a test where it is necessary to introduce new concepts (the defense mechanism and psychodynamic struggle) in order to make sense of the data. In the following paragraphs we introduce tests which put even more of a demand on the imagination to produce concepts which explain the data.

In some additional testing] we made 3,000 control position checks, then 3,000 treated position checks.... [These loops were nested in a larger loop] so incremented as to produce 300,000 control position checks and 300,000 treated position checks per test. We made 60 such tests, a total of 180,000,000 control position counts and 180,000,000 treated position counts.

Each control position check and each treated position check called three 0's or 1's from the circuit. If all three numbers were alike (all 0's or all 1's) then a counter was incremented....

While this testing was going on the practitioner [researcher] prayed from time to time for the 000 and 111 sequences coming from the circuit....At the end of the testing, control position and treated position counts were only one one-hundredths of a percent apart.

We then turned to [our earlier] program which had produced very large results....Using this program a check of 222,000,000 control figures and 222,000,000 treated position figures had shown the treated position count to be 12.32% above the control position count. A further check of 1,250,000,000 control position and 1,250,000,000 treated position figures had shown the treated position count to be 14.90% above the control position count. Thus a check of close to three billion figures (half control position and half treated position) yielded a treated position/control position percentage of 14.51%.

...We [then] set the test up to collect 100,000 control position and 100,000 treated position numbers in the back-to-back position and incremented our outside loop so as to produce ten million control position and ten million treated position checks of the circuit in each test.

In our first check we ran ten tests. The heart of the program was the inputting line (if inp(792) = 170 then x = x + 1). This line brings a number from 0 to 255 from the circuit and increments the counter x if the number brought in represents a maximum order pattern on the counter, namely 10101010. This number should show up more frequently in the treated position than in the control position.

In our second check we ran ten tests. Here we incremented our counter for the number 85 instead of the number 170. Thus we were looking for the pattern 01010101 which is the alternate high order pattern. This number should also show up more frequently in the treated position than in the control position.

In each check the percentages of increase came in in the same range. Thus it didn't seem to make any difference how the line was written in the program. Average percentage of increase was 3.8.

In our original program (which yielded a percentage of 14.51) we evaluated for the sequence 01010101 and brought this sequence in bit by bit (in eight checks of the circuit for 0's or 1's) rather than as a byte. [Now] in our third check we ran ten tests looking for 01010101 and in our fourth check
Descent Into Imagery: Micro Randomness

we ran ten tests looking for 10101010 and constructing our input bit by bit in each case.

Again, it seemed to make no difference how we did it. Average percentage of increase was 3.24.

We then wrote a program which inputted an eight bit number (a number from 0 to 255) from the circuit and incremented one counter if the number was 170 or 85 and another counter if the number was 255 or 0. What we were doing was counting the most orderly sequences and the most disorderly sequences. The norm-referenced qualitative result should be that the treated position/control position percentage should be positive for the most orderly sequences and negative for the most disorderly sequences.

We made three runs with this program. The most orderly sequence percentage averaged 0.33 and the most disorderly sequence percentage averaged -0.26.

We have seen from earlier tests that the less [fewer] numbers are sought by a program the higher the percentages are. Therefore, we reduced the four numbers we sought to two. Our program was changed to increment counters only if the inputted number was 170 or 0....Our check involved ten runs of the program. The average most orderly percentage was 3.9. The average most disorderly percentage was 8.5 [a big surprise!].

...[We surmised that (since we had replaced four lines with two)] the mind, having been looking initially for two positive numbers in the program, was still doing so. [This kind of circumstance was dramatically confirmed later in our "Jesus and Judas" programs.].

Our program simply stated (in two lines) (if a = 170 then x = x + 1) [and] (if a = 0 then xx = xx + 1). We decided to see if the conscious mind could fool the unconscious mind and switched the two lines around. The program was changed not at all in real terms [computational terms], we simply [reversed the order of the two lines in the program].

Our check involved ten runs of the program. The percentages immediately became smaller and immediately conformed to the predictions of theory. Average high order percentage was 1.4 and average low order percentage was -1.9.

The unconscious mind and algorithmic pattern

...Thus far we have looked at figures which show how holy thought is harmonizing or healing the circuit (improving its pattern or identity)...[We have also moved on to] data which show how the unconscious mind reinterprets the intent of a program and recasts the data pattern. [We now move on to more such programs, programs where the mind interacts with program logic, and we introduce the added feature of conscious mental input to the circuit and programs.]

Let's begin by writing a program which brings in an 8-bit number (a random number from 0 to 255) from our circuit. These numbers from 0 to 255 are represented on the shift register of the circuit and in the computer by a sequence of eight mingled 0's and 1's.

...[We find that if 10-bit numbers (a byte and two bits) are brought in from the shift register the patterns are greatly different than if only a byte is brought in]...As strange as all this is, it can get stranger yet. Suppose we take the same program we just used which brings in a number from 0 to 1023 and instead of looking for ten numbers we look for four numbers in two categories.

Let's look for the most ordered category (alternating sequences of 0's and 1's or alternating sequences of 1's and 0's) and look, too, for the most disordered category (four 0's or four 1's).
Amazingly, the entire data pattern shifts again and this time the data pattern is so stable that a million back-to-back control position and treated position pairs in a program which runs in a couple of minutes shows the picture.

The 80 tests [represented in this testing]...were done in groups of 10. In between each group of 10 tests, 10 control/treated tests (as opposed to control position/treated position tests) were done. (This is why test lengths were kept short.)

Thus we had eight groups of control position/treated position tests in alternating sequential position [alternating order] with seven groups of control/treated tests. The general idea was to see what difference, if any, specific inputs of holy thought would make in the data pattern...[Figures 4 and 5 present the data picture.]

Discussion

[We have seen that unconscious holy thought (and conscious holy thought) impose norm-referenced patterns on sampling data]...We have [also] seen that the unconscious mind imposes pattern on the flow of randomized impulses from the circuit. Rather meaningless counting patterns are subject to whimsical and trivial idiosyncracies, patterns with more meaning are more dependable. End of Quote

In the micro world of random electronic impulses the data patterns often differ enormously from the macro patterns formed by falling dice, shuffled cards or pictures, and calls of cards or other images. The differences appear to arise from the freer reign the unconscious human mind has in interpreting the patterns of program logic found in the programs accessing the random events generator.

THE DOUBLE LOOPS VIUR TEST

Materials

A computer and an electronic random event generating source.

Method

Because the circuit is imperfectly producing random events, data cannot be directly referenced to expected values. Results are usually evaluated by dividing the data from the first loop (the control or control position loop) into the data from the second loop (the treated or treated position loop). Thus, the extent by which the patterns produced by the loops are stronger in the second loop than in the first loop can be seen.

When we began this test we initially used a program which matched the inputs of two circuits against each other and produced matches and non-matches in approximately equal amounts. In 20 runs of the program 600,000 trials produced 299,568 matches from loop 1 and 299,605 matches from loop 2. Loop 2 was closer to expected value than loop 1 but the difference was not large enough to produce a viable test. Thus we tried another program, a program which threw the results off more than they were in the initial program. This approach follows the philosophy behind the equation E = kr, an approach we developed in our seed tests. The program we used matches the input from a circuit to the pseudorandom input from the computer to produce a "random" number. The data-producing and evaluating program was as follows:
Figure 4. (most ordered sequences) Graph A (the solid columns) represents control/treated runs and Graph B represents control/control runs. The pattern coming from the circuit is augmented by the prayer (conscious attention?) of the researcher.

Figure 5. (most disordered sequences) Graph A (the solid columns) represents control/treated runs and Graph B represents control/control runs. The pattern coming from the circuit is augmented by the prayer (conscious attention?) of the researcher.
The data were evaluated for the extent to which loop 2 data were closer to the expected values of a "perfect" system than the loop 1 data. The program looked at the number of hits produced by the matching process, the number of most-ordered groups of 2 and of 4 that were produced, and at the number of balanced groups-of-4 that were produced. By most-ordered groups of 2 is meant sequences of trials 2 trials long which have an alternating pattern of hits and misses (matches and non-matches). By most-ordered groups of 4 is meant sequences of trials 4 trials long which have an alternating pattern of hits and misses. By balanced groups-of-4 is meant sequential trials 4 trials long which have an equal number of hits and misses. The reasoning which led us to choose these "norms" to which the ordering force would draw the data patterns derived in great measure from our experience with the VIUR Test.
Results

We made 100 runs of the program. Each run ran the two loops of the program 30,000 times. With a perfectly constructed random source and a perfect pseudorandom function in the computer, matches with the pseudorandom function of the computer should occur approximately 25% of the time. The challenge placed before the ordering force was to moderate the biases inherent in the flaws of the system. Table 7 shows the output of the two loops over the 100 runs, a total of 3,000,000 trials.

| TABLE 7 |
| Correct Matches (Hits) |

<table>
<thead>
<tr>
<th>loop 1 data</th>
<th>loop 2 data</th>
</tr>
</thead>
<tbody>
<tr>
<td>808,773</td>
<td>796,944</td>
</tr>
</tbody>
</table>

In a double loops test we cannot compare the data against expected values since, by definition, the random source is not functioning at or close to such values. We must compare the output of the two loops against each other to bring out either a movement toward order or to bring out what we suppose are the free form patterns imposed by consciousness. In this case we suppose the ordering force is drawing the loop 2 data toward the norms (expected values) of the system more powerfully than it is drawing the loop 1 data toward the norms of the system (because of the stronger associational linkage of consciousness with loop 2 than with loop 1). Thus we evaluate the data to determine if the two distributions (loop 1 data and loop 2 data) are from the same population. Using the formula for approximating the standard deviation of binomial distributions \[\sqrt{p*q*n}\] we arrive at a z-score of 10.91. \[\{(1) SQR(.2696*.7304*3,000,000) = 768.60 \ (2) SQR(.2656*.7344*3,000,000) = 764.96 \ (3) 808.773 - 796.944 = 11.829 \ (4) z = 11.829/SQR(768.60^2 + 764.96^2) = 10.91\]

Table 8 looks at the data in terms of means and standard deviations from the 100 runs.

| TABLE 8 |
| Matches and VIJR Indicators (Ordered and Balanced Groups) |

<table>
<thead>
<tr>
<th>loop 1</th>
<th>loop 2</th>
<th>loop 1</th>
<th>loop 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>means</td>
<td>means</td>
<td>std.devs.</td>
<td>std.devs.</td>
</tr>
<tr>
<td>8087.73</td>
<td>7969.44</td>
<td>69.9</td>
<td>68.8</td>
</tr>
</tbody>
</table>

**Matches**

**Most Ordered Groups of 2**

| 5897.80 | 5838.68 | 49.3 | 50.4 |

**Most Ordered Groups of 4**

| 586.64  | 566.44  | 22.4 | 21.2 |

**Balanced Groups of 4**

| 1742.52 | 1714.33 | 35.2 | 33.2 |
If we wish to compute a z-score based on the matches and using the standard deviations of the matches as approximations of the standard deviations of the population (rather than the formula) this leads to a z-score of 12.1. [(1) \( 8087.73 - 7969.44 = 118.29 \) (2) \( \text{SQR}(69.9^2/100 + 68.8^2/100) = 9.8 \) (3) \( z = 118.29/9.8 = 12.1 \)]

Table 9 presents the percentages by which the loop 1 data has been modified (in loop 2) in the direction of expected values for a perfectly functioning system.

The expected values in Table 9 were calculated on the basis of a perfectly functioning system (random and pseudorandom sources). [(1) Matches = 30,000/4 = 7500 (2) Most ordered groups of 2 = \((.25*.75)^2*2*15000 = 5625 \) (3) Most ordered groups of 4 = \((.25*.75)^4 * 2*7500 = 527.34 \) (4) Balanced groups of 4 = \((.25*.75)^4*6*7500 = 1582.03 \)]

<table>
<thead>
<tr>
<th>TABLE 9</th>
<th>Matches and VIUR Indicators (Ordered and Balanced Groups)</th>
</tr>
</thead>
<tbody>
<tr>
<td>loop 1</td>
<td>loop 2</td>
</tr>
<tr>
<td>means</td>
<td>means</td>
</tr>
<tr>
<td>Matches</td>
<td>8087.73</td>
</tr>
<tr>
<td></td>
<td>5897.80</td>
</tr>
<tr>
<td>Most Ordered Groups of 2</td>
<td></td>
</tr>
<tr>
<td>Most Ordered Groups of 4</td>
<td></td>
</tr>
<tr>
<td>Balanced Groups of 4</td>
<td></td>
</tr>
</tbody>
</table>

Discussion

From the times of the beginning of quantum mechanics it has been an open question how subatomic particles "know" the paths of least energy to follow (or other paths they choose). The VIUR test, the double loops VIUR test (and other double loops tests), introduce the possibility that the patterning characteristics of consciousness may be the determining factor in such probabilistic action. These tests, and other Spindrift tests, also introduce the possibility that the patterning characteristics of consciousness may largely govern the evolutionary process.

Various Easy Tests

The combining of some of the approaches of our research with the double loops technique has produced many interesting tests. These tests appear to enable characteristics of both conscious and unconscious thought to be studied through their effects on distributions formed by electronically produced random action.
We did not strive for perfect randomness from our random source as other researchers working with electronic random event generation have done nor did we attempt to maintain stable operating conditions for the noise source nor was the response of the noise source to operating conditions filtered out or compensated for to produce “perfect” randomness.

Our own interest was in the effect of thought on the random source and if the random source was imperfect (in the sense of varying in its response to environmental conditions) this was, for us, to be expected. In some of our other tests imperfect seeds were being drawn toward norms by holy thought; we felt that random sources should be no different in this respect. The important thing, to us, was to devise tests which adequately separated the signal of mental effect from the noise of imperfect randomness or from the skewing of improper monitoring of the source.

We usually produced our data by: (1) setting up program logic which produced distributions (sequences of numbers), (2) putting the elements of these distributions into arrays (one array for the first loop and another array for the second loop), and (3) dividing the control (or control position) counts into the treated (or treated position) counts and looking at the patterns these percentage figures provided.

One early test was to go to the circuit 24 times in a row (in each loop) and count the number of times a 1 appeared (either a 0 or a 1 can be returned by the circuit). This is like flipping a penny 24 times and counting the number of times a head appears. In each 24 flips you will get a number from 0 to 24. We had the program do this 35 million times producing 70 million counts, flipping back and forth between the control position and the treated position 35 million times. Thus the double loops produced control position and treated position counts only split seconds apart.

When the control position counts (ranging from 0 to 24) were divided into the treated position counts (ranging from 0 to 24) and the results were graphed the graph was approximately parabolic in form with the two arms of the parabola parallel to the y-axis and the nose of the parabola slightly below the x-axis. In the 0 and 24 positions of the distribution (the number of times the 24 “flips of the penny” produced all heads or no heads) the treated position figures were approximately 70% higher than the control position figures. (See Figure 6, next page.)

We then wrote a program which just looked at some tails positions and at the center positions (of the distribution) and (because the tails positions were above the x-axis and the center positions were below) dividing the control position counts into the treated position counts produced (for the tails positions) a positive number and (for the center positions) a negative number. The program accessed the circuit for a relatively small number of counts, ran in a minute or so, and produced the typical positive and negative numbers more than 90% of the time.

Occasionally the distribution would “flip” (in other words come in upside down). However, the flipping was rare. We came to call this test our “standard associational linkage test.”

If the program (which relied on 25 if-then statements to count the values coming from the circuit) was shortened to decrease running time of the program (if the 25 if-then lines were replaced with the single line “if b < 25 then c(b)=c(b) + 1”) this simple change in counting method recast the data pattern. The pattern then produced gave us points which looked rather like the period of a sine curve. This pattern flipped rather frequently, usually being “high” on the right hand side of the curve and low on the left but sometimes the other way around. Figures 7 and 8 (page 3-27) show the two program patterns (one is a “flip” of the other).
Figure 6. This is the pattern produced by the "full count" test on which our shorter "standard associational linkage test" is based.
Figure 7. This is one of two patterns (Figure 8, below, is the other) which replace the Figure 6 pattern when the 0's and 1's are counted using a different counting algorithm.

Figure 8. This is one of two patterns (Figure 7, above, is the other) which replace the Figure 6 pattern when the 0's and 1's are counted using a different counting algorithm.
Another approach we used was to write a program which evaluated strings of 1’s. In this case we looked only for strings larger than 18 one’s in a row -- a very highly disordered group. Each run of the test looked at slightly over a million sequences of 1’s and we made 560 runs of the test, looking at well over half a billion clusters and counting (in both the control position and the treated position or in the control/treated position) the number of times 18 one’s in a row appeared. Graphs 9 through 14 (pages 3-29 through 3-31) present the results.

In this group of tests we made 100 control/treated runs, then 100 control position/treated position runs, following this with 210 more control position/treated position runs. This sequence was followed by 50 control position/treated position runs, then 50 control/treated runs using a different individual to provide prayer for the random source, and then concluding with 50 additional control position/treated position runs.

In this test tremendous differences between the runs that were given treatment (prayer) and those runs that weren’t given conscious thought were found. The graphs showed the percentages of differences between the data from the control and treated loops (or the control position and treated position loops) with the percentage differences represented on the y-axis and the sequence of data from the succeeding runs representing on the x-axis.

In the control/treated graphs percentages ran both positive and negative and were rather variable, in one instance as high as roughly twelve percent. In the control position/treated position graphs the percentages were always negative with one brief exception and were much less variable, usually less than a negative two percent.

The exception occurred in the third group of runs. After 185 consecutive negative percentages two immensely large negative spikes appeared (treated position approximately 200% less than control position in each case) and thenceforth all percentages were positive in this group of runs.

In our various tests we found that if, instead of making many counts in a program, only a few counts are made the percentage results often increased dramatically, as if the mind found it easier to focus on a simpler "target." However, in doing this the logic of the program can be lost and the program degenerate into a simple exercise in counting. As an example of this approach we wrote a program which examined sequences of alternating 0’s and 1’s coming from a circuit and counted the number of sequences eight units long, nine units long, and ten units long (before the alternating order was broken).

In the 8-sequence category treated position counts were 2.7% higher than control position counts. In the 9-sequence category treated position counts were 3.8% higher than control position counts. In the 10-sequence category treated position counts were 4.5% higher than control position counts.

However, if a program looked for only an 8-sequence instead of for three different sequences the percentage of treated position counts over control position counts increased dramatically. An average of 2,220 runs, each of which evaluated 100,000 control position and 100,000 treated position sequences, showed that 8-sequence alternating 0’s and 1’s showed up 12.32% more frequently in the treated position than in the control position. A check six weeks later returned a figure of 14.90%.

We began to believe that the results produced in any given program depended on the construction or meaning which the unconscious mind perceived in or ascribed to a program. We found that simply counting 0’s or 1’s coming from the circuit often produced variable results, as if the mind was not always sure just what to make of this primitive "bean-counting" operation.
Figure 9. This figure represents the effect of conscious (and unconscious) thought affecting the circuit. Effect is shown to diminish as the runs continue.

Figure 10. The figure shows the effect of unconscious thought affecting the circuit. Random variability is offset by uni-directional mental force.
Figure 11. In this set of runs showing the effect of unconscious thought on the circuit the uni-directional force produces a strong initial burst of energy. Runs 186 and 187 show enormous negative values (treated position approximately 200% less than control position in each case) with subsequent runs showing an oppositely directed force offsetting random variability.

Figure 12. This sequence of runs (a follow-up to the series shown in Figure 11) shows the uni-directional force acting in its "accustomed" way.
Figure 13. This figure represents treated runs (as does Figure 9). Figures 9 and 13 represent treated runs by different researchers but similarities can be seen.

Figure 14. This figure represents unconscious thought affecting the circuit. Notice the difference in pattern between this researcher (who produced the pattern in Figure 13) and the first researcher to do these runs (Figure 10).
However, if the conscious mind gave meaning to a program by incorporating a slightly more complex algorithm in the program, patterns immediately appeared. Although the patterns would often "flip" (produce mirror images of themselves) they were consistent within a given programming environment. Different programming environments would often change the patterns but then the patterns would be consistent in the new environments. (By different programming environments is meant different compilers, often just upgrades of a program such as Microsoft's QuickBASIC would change the results.)

The apparent fact that the mind responded differently to different programming environments and to different algorithms within a given program naturally raised the question as to whether or not the mind could be fooled. We found that the mingling of intentions within a program muddied the results. We also found that if two somewhat dissimilar programs were producing different patterns and if one of the programs was modified incrementally to approach the other there was a point at which the results would begin to jump back and forth and then, as the modification continued, would consistently be that of the program being approached through modification of the dissimilar program.

The "Jesus and Judas" programs

We then discovered a class of programs we called "Jesus and Judas" programs. Considering the fact that the researchers were religious people we wrote a program which made eight statements, four of which were true of Jesus and four of which were true of Judas. The heart of the program was sixteen lines. First there was one of the eight statements, then there was a line which checked to see if the input from the circuit was a 0 or a 1. If a 1 appeared, a counter was incremented. An "a" counter was incremented if the statement was true of Jesus; a "b" counter was incremented if the statement was true of Judas.

We made thirty runs of the program and found the Jesus counter was ahead of the Judas counter every time, usually about 50% ahead. We then set the program up for Beethoven and Michael Jackson, then Reagan and Lincoln, then for tables and chairs. What we found was: (1) the initial stirring of emotion which triggered the pattern gradually ran down, and (2) the initial stirring of emotion was linked to the position in the program which had initially stirred the emotion. After the initial stirring the counts all came out that way until they ran down. Even if Jesus and Judas were reversed in the program the initial patterns came up until the emotion subsided.

After a program ran down a new "trigger" had to be found, much like telling a joke and trying to get a laugh. We had to try until one hit. Our next success was gained by using the names of two quite different family members in the program and again the emotional response was triggered.

It would be impossible to describe all the variations on a theme we tried using various kinds of programs and certainly we didn't pin down all the things which seemed to hold true. We found, for instance, that bringing the numbers (the 0's and 1's) into a program and putting them into an array before applying the algorithms to them tended to greatly diminish or eliminate the pattern which would otherwise be produced by the program. Apparently the mind was somewhat separated from the algorithmic intent by this procedure.

Something else that seemed to hold true was that patterns came through more clearly if the program was run over and over again by the researcher. If he sat at the computer and ran the program time after time the results were larger than if he simply set the program to repeat itself and record its own results. The more he ran the program the more the results tended to increase. The extra attention, even if it was bored attention, increased the percentages. Differences in results were, in some cases, as much as 100%.
The correlation of greater attention and greater results applies most noticeably to control position/treated position runs. When control/treated runs are made things change. The unconscious mind seems to be much more consistent than the conscious mind in that it is less variable in its effect. It is, however, capable of occasional and powerful shifts in direction.

We also found that rather arbitrary attempts to impose pattern weren’t too successful. We wrote a program in which the sums of 0’s and 1’s coming from the circuit were summed in a variety of ways some of which resulted in the number nine. If nines were produced a counter was incremented. Thus the program was constructed to produce a count of a specific number.

When the program was run in the control position/treated position mode the number of treated position counts (the counts of nine) ranged between two and three percent higher than the control position counts. The average increase was 2.44% and, with treatment, rose only to 2.54% and this was probably due to increased associational linkage rather than to any other power. When patterns are not imposed and simple distributions of various kinds are formed by the program much greater results occur.

Voltage changes and the computer’s clock

In an effort to gain greater insight into what thought was doing to the random source we ran a test which relied on the fact that the clock in the computer which is timing the random source in the circuit is also running faster, on average, than the random source. The computer’s clock speed provided us with measured time increments which could be held up to the random source as something of a crude measurement sieve. The measured time increments enabled us to determine what the conscious and unconscious mental inputs to the circuit were doing to the time distribution of the random source’s voltage changes in the context of the interaction between thought, program algorithms, and hardware.

Each run of the program we wrote provided ten million control position counts and ten million treated position counts; the program ran in about 20 minutes on our setup. These counts formed a distribution from 0 to 50, a distribution in which each count represented the number of time increments the random source required to change voltage.

The percentage differences between the control position and treated position counts (or between control and treated counts) produced two distributions. As frequently happens, one was the mirror image or “flip” of the other. For purposes of our evaluation we combined the counts in the eleventh and twelfth position and the counts in the thirteenth through the fiftieth position. This gave us a sequence of thirteen numbers (beginning with the zero position) coming from each run of the program. Over a number of days we made runs of both programs (actually the same program with and without conscious mental input), continuing until we had 106 runs of each program.

This gave us a distribution of 13 elements, a distribution representing the various lengths of time the random source required to change voltage. Since voltage change is the source of the 0’s and 1’s on which our double loop programs depend, this distribution of 13 elements provided a fairly direct look at what was going on. Of course, the results again depend on program logic!

Each pattern consisted of a sequence of thirteen numbers. If the sequence began with a negative number each successive number (in a “pure” pattern) was larger than the number before it. If the sequence began with a positive number each successive number (in a “pure” pattern) was smaller than the number before it. These ascending or descending sequences were the two basic patterns (the usual pattern and the “flip”). There were also a number of “mixed” patterns which appeared to be combinations of the two “pure” patterns. We supposed that the mixed patterns were the results of
changeover during the running time of the program, a matter of catching the pattern flipping. To check on this supposition as best we could we ran sorts which looked at the patterns in various ways.

The third and fourth numbers in the sequence were closest to zero. Therefore our initial sorting algorithm (designed to separate the two patterns) required that the two first elements in the array (the sequence) be of the same sign and the last nine elements in the array all be of the opposite sign. The sort revealed that the two patterns thus identified appeared about equally in the mix. Other than sign differences the two patterns responded identically to the various sorts we used and we will, therefore, for simplicity of description of our evaluation, refer henceforth to the "patterned" arrays, meaning sequences of either pattern.

On the basis of this initial sort there were 45 patterned sequences in the 106 control position/treated position runs and 82 patterned sequences in the 106 control/treated runs. The effect of conscious thought stood out powerfully. The addition of conscious holy mental input had the effect of coming close to doubling the pattern formations which appeared in the data.

We found there was a connection between regularity of pattern in the sequence (the number of the thirteen elements in the sequence which were in ascending or descending order) and the length of the sequence in numerical terms (the amount of spread between the lowest negative term on one end of the sequence and the highest positive term on the other end of the sequence). The more perfectly ordered the terms were, the larger the spread was.

This meant that if we added to our initial sorting algorithm the requirement that the thirteenth term of the sequence be larger than the twelfth term of the sequence, then the average sequence produced from the data would have a larger spread than the sort would produce without the additional requirement. We could then add another restriction, requiring that another two elements of the array be in the "right" ordered relationship to each other and with each additional such requirement the length of the average sequence produced by the sort would increase. Of course, the number of runs picked up by the sort would decrease with each additional requirement.

What is interesting here is that as the search for pattern became more stringent the adherence to pattern of the treated runs as compared to the untreated runs became more and more apparent. By the time nine additional requirements (as to the order of the elements of the sequence) had been added to the original sorting algorithm only six of the 106 control position/treated position runs met the sorting requirements whereas 26 of the control/treated runs met the sorting requirements. Thus the 82.24% increase of patterned runs in the original sort had become four-and-one-third times as many patterned runs in the more strict final sort. Again, the effect of conscious thought stood out clearly.

In addition, the length of the control/treated runs (which were, on average, 92% longer than the control position/treated position runs as measured by the initial sort) increased relative to the control position/treated position runs as additional requirements were added to the sorting algorithm. The most stringent sort found the average control/treated run to be 109% longer than the average control position/treated position run.

It's very possible to pull powerful figures out of the data without a number of sorts. If one takes the means and standard deviations of the 106 control position/treated position figures and of the 106 control/treated figures the differences between the prayed-for and the unprayed-for tests were very pronounced.

We did this for each of the thirteen elements of the sequence and in position thirteen (where the differences were greatest) we found that in the prayed-for tests the mean was two-and-a-quarter times larger than in the unprayed-for tests and that the standard deviation in the prayed for tests was
roughly five-and-two-thirds times larger than the standard deviation in the unprayed for tests. More sophisticated sorts produced even more striking results.

In our evaluations of the double loops technique we noted that, unlike working in the macro world (as with the fall of dice), when we entered the world of electronically generated random flow, the world of electronic impulses, we found that our measurements were complicated by an unexpected mental force. This force was the patterning characteristic of the human mind when this mind was associationally linked to electronically generated random flow through the double loops technique.

In the algorithm which produced the parabolic curve as a ratio of differences between the control position and the treated position it was noted that, in addition to the mental force forming the pattern, there was a mental force working to balance the pattern. The circuit was producing the pattern imperfectly; the right hand side of the parabola didn’t rise quite as high as the left hand side of the parabola, and in the control/treated version of the parabola (as opposed to the control position/treated position version) the right hand side was more nearly equal to the left.

This difference could be due either to an increase of holy thought (an increase of quantity of holy thought) or to a greater associational linkage of the patterning force of the human mind since a greater associational linkage of the patterning power of the human mind with the circuit would bend the action of the circuit more powerfully to its will.

This trend of increasing pattern with increasing mental input ran throughout our measurements. The mind would produce a pattern and when, through prayer, the associational link was strengthened (and the quantity of holy thought increased as well) the pattern was more pronounced. In addition, the pattern was also better balanced. The trend was always in evidence but it was impossible to ascribe it definitively either to the patterning power of the human mind or to holy thought.

It seems the human mind will impose pattern whenever it is able, although the patterns it imposes are often aberrational in terms of pattern-referenced normative standards. We have noted, for example, that when "bean counting" runs are made there is no evidence of pattern, apparently because the algorithms are too rudimental to be interpreted in patterned ways by the unconscious mind. This does not mean that the unconscious mind does not act on the bean counting (bit counting) runs. Even such a simple thing as counting 0’s and 1’s coming from the circuit will produce greatly different results depending on how the counting algorithm is written.

A comparison with falling dice

We carried our investigation further by comparing the effect of holy thought on the randomness of the random circuit with the effect of holy thought on the randomness of dice throwing. In throwing dice we found that the norms of the binomial expansion were departed from in the interests of greater sequential order. Sequence was what the mind was relating to in this case. A pattern of greater sequential order was replacing the pattern predicted by accepted statistical methods. The pattern was not one of greater adherence to statistical norms. The particular pattern enhanced by holy thought was selected by holy thought and that pattern was at variance with the patterns imposed by the human mind on our circuit as it acted to balance the distributions it produced.

Differently stated, we wanted to see in a simulation of the dice throwing experiment (with the circuit imperfectly balanced as virtually all circuits are) whether or not holy thought would act to balance the circuit or if holy thought would (after the dice throwing pattern) increase the sequential order of the pattern.

In our investigation the approach we chose was to write a double loops program which, in each
loop, counted pairs of 0,1's and 1,0's and to do this in groupings of four. The program was run in QuickBASIC, version 4.0. In programming terms:

```
DO WHILE k + 1 < 4
    a = INP(793) REM random input
    b = INP(793) REM random input
    IF a = 0 AND b = 1 then k = k + 1
    IF a = 1 AND b = 0 then l = l + 1
LOOP
```

Probability theory tells us that (if the randomness of the circuit and the accessing of values by the algorithm is perfect) the 0,1 group and the 1,0 group will appear an equal number of times when \( n \) is infinite and that the distribution of counts in the groups of four will be predicted by the binomial expansion. With the dice we looked for the number of times pairs were thrown; here we looked for the number of times a 0,1 combination appeared as a percentage of the time 0,1 and 1,0 combinations appeared.

We worked with runs which made a million control position and a million treated position (or a million control and a million treated) counts. We needed fifty such runs for the percentages to stabilize at the sixth decimal place. Thus, our measurements of change in the distribution were in terms of the millionths part of unity. At this level the treated position was producing both 0,1’s and 1,0’s six units closer to the 50/50 norm (equal amounts of each) than the control position (0.0006% in each case, the 0,1’s and the 1,0’s).

The norms dictated by the binomial expansion are: .0625, .2500, .3750, .2500, .0625. The actual production of the circuit (control position) was (to four decimal places): .0614, .2518, .3795, .2479, .0594.

When the treated position was compared to the control position it was found that the center of the distribution (counts of two 0,1’s per group) was diminished in the treated position. In turn, the other four elements of the distribution were increased. The right side of the distribution (the small side) was increased more than the left side and the tails of the distribution were increased the most. Thus the circuit was being better balanced and, as well, being brought more into conformity with the statistical norms.

The extreme right position showed an increase of 42 units, the extreme left position of 39 units. The immediate right of center position showed an increase of 10 units, the immediate left of center position showed an increase of 8 units.

The next question was: what will happen in a treated run? If holy thought (as it did for the fall of dice) supports the sequential pattern of order, then the number of treated counts in the 2’s position will increase and the other four positions (0, 1, 3, 4) will decrease. After fifty control/treated runs we had our figures.

In the control position/treated position runs the center decreased by 83 units and the flight to the tails was 99 units. In the control/treated runs the center increased by 536 units and the flight from the tails (the other four positions) was 537 units. Specifically associationally linked holy thought was producing the same effect here that it did with the falling dice.

At the same time the patterning power of the human mind was still at work in an opposite direction. This can be measured in the difference between the control position in the treated runs and the control position in the untreated runs, a statement which requires some explanation.
The associational ratio is the hardest of all ratios to work with. Associational links can exist on different levels of thought, both conscious and unconscious, and crop up in the same test. In our research we had found that in the double loops technique the control position received part of the associational "hit" in every control/treated run. In other words, the control position in an untreated run was as close to "norm" as we could get. In a treated run the control was affected through "spillover" associational linkage, something which occurred when the treated position was actually treated.

Knowing this we could predict a mathematical test which would differentiate between the patterning power of the human mind and the norm-referenced patterning effect. As the associational links were strengthened through prayer the conscious norm-referenced patterning effect would predominately be seen in the treated data during the control/treated runs. The unconscious spillover which carried the patterning power or imagery of the human mind would affect the control in the control/treated runs and by comparing this control to the control position figures in the control position/treated position runs any change could be seen.

We looked to see if the center of the distribution was depressed in the control figures as compared to the control position figures. We found that the control position of the treated runs was 641 units less than the control position of the untreated runs. Thus it seemed clear that the balancing of the distribution was being done by the patterning characteristic of the human mind and the increase of sequential order was flowing from holy thought.

In summary: as the associational link strengthened, the patterning power or imagery of the human mind increased its effect on the circuit in one direction while the norm-referenced patterning input increased its effect on the circuit in the other direction.

Let’s now turn to theory, make some more predictions, and examine the data in the light of these predictions. Spindrift’s research, in its theoretical construction, asserts that the power of the human mind and the power of holiness differ in their healing effects. More specifically, spiritual healing is said to flow from the holiness of the individual and to occur when an individual embodying some degree of the attributes of God in his or her consciousness turn their thoughts specifically to the particular individual and the particular problem to be healed.

Faith healing, on the other hand, is defined as the goal directed action of the human mind, the power of the placebo effect, and occurs when emotion is aroused, will is strengthened, or faith is intensified, when these elements of thought are linked to the circumstances, and when the goal direction happens to coincide with the need of the individual for healing.

Data from the various tests we have done imply that the holiness of a given individual is relatively stable. This implies, for the data we’re looking at, that the difference between control position/treated position runs and control/treated runs is actually one of "focus" or associational linkage rather than of an "intensity" of holy input achieved during prayer. This is an important observation and the accuracy of this assertion can be checked by appropriate sorting of the data.

When we made this check we added 50 additional control position/treated position runs and 8 additional control/treated runs to our initial 50 control position/treated position and 50 control/treated runs. The intensity of the associational linkage can be assessed from the degree of depression of the center of the distribution in the control position in both the control position/treated position and the control/treated runs. If it is true that the primary variable is the degree of associational linkage then the control position/treated position and the control/treated runs can be mingled and sorted on this basis, sorted in the order of increased associational linkage.

The prediction we can make to test the assertion that associational linkage is the primary
variable is as follows: low associational linkage (as assessed by the actual value of the control position figure or control figure in each run) will be correlated with the ratio between the corresponding control or control position figure from that run. (In other words we look to see if the value for the first loop has a direct correlation with the ratio between the first loop value and the second loop value. We do this for each run using the middle position of the distribution for our values. A correlation would also exist for each of the other positions in the distribution.)

We made our evaluation in two ways. In our first approach we sorted by associational linkage (we established sections of a range) and we evaluated the loop 2/loop 1 ratio for the center of the distribution in terms of sections of this range. In doing so we found that we jumped from looking at differences in data of terms of units which were a millilenth part of unity to differences which appeared in tenths of a percent.

Secondly, we expressed the loop 2/loop 1 ratio as a percentage, used it as a function of the amount of depression of the control position (expressed in terms of the range of the actual variation in counts in this position from the lowest to the highest, a range from 1 to 1354) and evaluated the correlation coefficient. This value we determined to be -0.71.

Note that our theoretical assertion implicitly distinguishes holy thought from the action of the unconscious mind and this distinction is supported if the theoretical prediction is confirmed by the data. Our correlation coefficient indicates that, in this case, approximately 50% of the variance of the relationship between the two modes of thought can be explained in terms of a linear relationship.

Thus we see that the patterning action of the unconscious mind and the patterning action of holy thought appear to be two separate powers and we see, too, that the action of the unconscious mind operates somewhat independently, not necessarily being restrained by the holiness also present in thought unless this holiness is specifically linked to the unconscious modes to restrain or eliminate them. This restraint can be invoked through prayer and the healing of diseases which arise out of unconscious mental action is illustrative of this fact as it applies to human lives. With a desktop computer we can illustrate the phenomenon experimentally.

As a cautionary note to the conclusions just voiced it must be pointed out that the two patterning characteristics used in this test cannot be specifically identified in terms of spiritual value by their reference to pattern or their lack of it for they each have reference to pattern. The identification of one pattern as being “holy” in these circumstances is based entirely on its stronger identification with conscious thought and the prior identification of this conscious element of thought as holy using various tests we have developed.

**Testing for a norm-referenced signature**

For the double loops norm-referenced signature test we wrote a program which produced data which could be assessed in terms of earlier work done with seeds and with the sequence ordeerness test. We reasoned that if all physical identities, inorganic as well as organic, are modes of consciousness (a premise we work from) and, as such, respond in a healing way (closer adherence to pattern) as the balance of holy/volitional thought resting on the system shifts, the same norm-referenced signature should be found in inorganic as well as organic systems. We felt this could be true of a slow unsteady random source; the output of such a random source should become more ordered under the influence of holy thought. We felt that, like seeds, it was probably a thought-sensitive measurement vehicle. The double loops norm-referenced signature test looks, among other things, for the norm-referenced signature in the presumed positive and negative stress response pattern of the random source to holy thought.
A "norm-referenced signature" is a characteristic pattern-related response to thought. For example, if over-soaked seeds and under-soaked seeds are "treated" with qualitatively-rich prayer at the same time the over-soaked seeds will lose water in relation to control and the under-soaked seeds will retain water in relation to control. This is a pattern related response. All pattern related responses may be said to be "norm-referenced signatures." In many tests the holy response is looked for and the faith response is ignored. In other tests the experiment is designed so as to separate and quantify both responses.

One of the experimentally simplest norm-referenced signatures to work with is the over-action/under-action response. One may put seeds in two trays, one for control seeds and one for treated seeds, and then treat the seeds in the "treated" tray with holy prayer. Let us say that we sow rye grass seeds on vermiculite and count the number of seeds in each tray that develop both a root and a shoot. If temperature and humidity in the room are in the usual comfort range, that is to say, conditions are somewhat less than optimal for the seeds, then more sprouts will be found in the "treated" tray than in the "control" tray. It will be noted that the more growth-retarding conditions of temperature and humidity are, the greater the difference will be between the number of sprouts in the two trays.

If the seeds are watered with a saline solution the differences between the two trays will be greater still. If increasingly stronger saline solutions are used for successive tests it will be found that the ratio of treated to control sprouts will continue to increase until conditions are such that no sprouts at all will appear. If we graph the ratios it will be seen that the curve rises quickly as salinity increases.

If we shift our attention to weight increase of sprouts in both growth retarding and growth forcing (hot house) conditions we can test the effect of circumstances which induce over-action as well as circumstances which induce under-action. We found soybeans to be an excellent vehicle for this kind of testing. On one side of the norm or "best" condition for soybean growth holy thought increases the growth of the seeds and this can be measured as an increase in weight of the sprouts relative to control. On the other side of the norm for soybean growth holy thought decreases the growth of the seeds and this can be measured as a decrease in weight of the sprouts relative to control.

It can be seen that on one side of the norm treated weight gain is positive in relationship to control and on the other side of the norm treated weight gain is negative in relationship to control. Exactly at norm there is no measurable effect of holy thought. If the percentages of weight gain or loss are graphed to the left and right of the norm (this means that we use the norm as the zero reference point), then the graph curves both upward and downward from the norm. If absolute values are used for the graph a roughly parabola-like pattern emerges. This kind of stress response curve, the response to positive and negative stress, is the norm-referenced signature we are interested in in evaluating the double loops norm-referenced signature test.

The double loops norm-referenced signature test consisted of running a very simple computer program over and over again, recording the pair of figures produced by each run. A single researcher made every run and manually recorded each pair of figures. The program was run from the QuickBASIC, version 4.5, development environment. This meant the program was run uncompiled and with the debugging code still in it. This caused the program to take approximately 13.67 seconds to execute on our setup. 13,250 runs of the program were made. The program was as follows:
DEFINT I-K
FOR i = 1 TO 30000
  IF INP(793) + INP(793) = 1 THEN c = c + 1
NEXT i
FOR i = 1 TO 30000
  IF INP(793) + INP(793) = 1 THEN t = t + 1
NEXT i
PRINT: PRINT c, t
END

At this early period of study of double loops tests no claim is made that our results "prove" anything. Much additional work needs to be done before "proof" can be asserted. However, the fact is hereby stated that the test design and the evaluative procedures flow from theoretical concepts and results we have developed over the past fifteen years or so of experimental work. The implied assertion is that the conceptual structure is continuing to yield results which, while logical from our point of view, are anomalous by other paradigms. Results from this test seem to be powerful, easily obtained, and endlessly repeatable.

In this test the program command INP(793) sampled the logic state of the random source. In each loop of each run of the program two consecutive samples were taken 30,000 times. High and low logic states of the random source were represented to the computer as a successive flow of 0's and 1's. The program sampled this flow, in essence imposing a fairly stable measurement grid on the fairly unstable flow from the random source. Naturally, not every logic change is registered but a representative sampling is obtained. Because the total of each pair of samplings must be unity in order to be counted only logic changes caught by the program are recorded. It is supposed that the random source is subjected to different environmental conditions in the computer just as seeds were subject to different environmental conditions when we tested them. When working with seeds we could not control temperature and humidity (the basic environment of the seeds) and we took what came along. So, with the random source, we could not control the operating environment and we took what came along.

We assumed that the two loops catch the random source in roughly the same operating environment. The time span is approximately the same in every run of the program; each loop counts with good time precision and one loop is followed by the other with good time precision. Each group of 250 runs of the program was done at one sitting. This is the number of figures (500, 250 pairs) that fit easily onto the columnar pads on which the figures are recorded.

The manual recording of data was deliberate. As noted earlier, we had noticed in previous tests that test results with the double loops technique are apparently greater when the operator to whom the random source is mentally linked is actually sitting at the computer and running the tests one by one. It is, procedurally speaking, a great temptation to just set the program up to run itself over and over again and feed results directly into computer memory to be stored at regular intervals. However, we went to the trouble in this initial effort to get the best results we could. The running time of the program gave the researcher ample time to record and check the figures and, in addition, gave him something to do. We have also found that if he just sits at the computer and is not involved results are not as great as if he is involved. We have found that results will come through even if the circuit is thousands of miles away and if the researcher is asleep or otherwise unaware of the data gathering. However, the unconscious associational link is enhanced by even minimal attention to the data gathering by the researcher linked to the random source and the computer program. We don't know what will happen as more and more people begin using techniques like this to relate to computer programs.

In this test we were apparently measuring the effect of unconscious holy thought. Because of
the unconscious nature of the thought being measured and the apparent lack of instability in the mental state being measured it followed that quality of thought, quantity of thought, and strength of associational link were being held extremely steady. The major variable (in terms of measuring effects of thought) was distance from norm (variable operating conditions). This meant that the data should be admirably free of the effect of variables which we didn’t want to consider in this particular test (quality of thought, quantity of thought, and strength of associational link). And, because data were being drawn off sequentially and related to pattern, measurements could be easily made (using the sequence orderliness test) of the moment-by-moment dynamic balance between the ordering force and its opposing defense mechanism.

Results from the double loops norm-referenced signature test provided a data pattern which is the graphic equivalent of the positive and negative stress response pattern found with germinating seeds (the under-action/over-action norm-referenced signature). Other mathematical evaluations show the patterns of psychodynamic tension found in our earlier work with randomly formed distributions. Thus the case for the predictable and continuous modification of electronic circuitry by associationally linked unconscious mind is strengthened.

Testing for a norm-referenced signature: Results

If it is true that holy thought is drawing the action of the random source closer to a “norm” of "perfect" or "best" operation, increasing under-action and decreasing over-action and thereby mitigating detrimental environmental characteristics as they affect the random source, there must exist (as with seeds) a norm at which the effect of holy thought will be unmeasurable. The effect of holy thought will be increasingly measurable as distance from that norm increases in either direction (more-and-more under-action or more-and-more over-action due to adverse environmental influence). The first necessity in evaluating for the existence of a norm-referenced signature is to determine that norm.

If holy thought is increasing under-action then it is true that differences between treated position and control position counts (the difference for each pair of values produced by each run of the double loops program) for all pairs in which the control position value is less than norm will show positive values more often than not (treated position less control position). If holy thought is decreasing over-action then it is true that differences between treated position and control position counts for all pairs in which the control position value is greater than norm will show negative values more often than not (treated position less control position). The percentage of time these circumstances will occur (if the postulation is correct) will exceed 50% and will be larger the more closely the norm is approximated.

The preceding sentence is an assertion that although size of effect (treated position divided by control position percentage) is greater as distance from norm increases the number of measurably affected trials is greater with closeness to norm. This may, in large part, reflect less variability of data under "best" operating conditions. For whatever reasons, the assertion appears to be true as shown by the data.

We calculated the percentages for most of the range of data involved, moving up in increments of 50 from 13,300 to 14,300. (Note that these percentages refer to number of differences and not to size of differences.) The postulated phenomenon did appear and is illustrated in Figure 15 (next page). We then calculated the percentages from 13,850 to 13,950, moving upward in increments of 10. Working in these smaller units (with less data per calculation) a couple of numbers are somewhat out of line (see Figure 16, next page). When we made calculations from 13,880 to 13,910, moving upwards one unit at a time, the pattern became more broken. We selected 13,883 as the norm. With this figure as the norm the percentage was the highest achieved, 58.37%.
Figure 15. The range of control position values in 50 unit increments (from 13,300 to 14,300) is shown on the x-axis. The percentages of treated position hits above or below control values as the case may be (absolute values are shown) and peaking at about 58% are shown on the y-axis. "n" represents the number of control position values in each increment.

Figure 16. The range of control position values in 10 unit increments (from 13,850 to 13,950) is shown on the x-axis. The percentage of treated position hits above "n" (number of control position values for that increment) is between 56% and 58%.
Our next step was to divide the data into 8 ranges according to control position values. Data were grouped within these ranges and average control position and average treated position values determined. The percentage relationship (treated average value divided by control average value expressed as a percentage) was then calculated for each range. (Note that these percentages refer to size of differences and not to number of differences.) The norm-referenced signature did appear and is shown in Figure 17. (In Figure 17 absolute values of the percentages are graphed. This was done to enable the two sides of the curve to be more easily compared. The 3 rightmost y-values are actually negative values.)

Figure 17. The range of average control position values (average for each range) is from 13,327 to 14,217. Absolute values (y-axis percentages) are shown. The 3 rightmost y-values are actually negative values. The rightmost value (far right) is approximately 0.50% (average of treated position/control position percentages for that range).
We now must consider a problem arising from the fact that the output of the noise source varies with operating conditions. Under any set of constant external conditions, the random source will presumably generate randomly varying data according to some probability distribution, while under a different set of external conditions it may have a different distribution. If the environmental factors that affect the behavior of the circuit such as temperature, humidity, or the distribution of static charges near the device, change with time, so may the characteristics of the output distribution.

In the case of a circuit that had no sensitivity to external conditions or was in a perfectly constant environment it would be permissible to assume that all runs were drawn from exactly the same distribution and, in the absence of human intervention (the effect of thought), that there would be no anticipated correlations between a given control run and its corresponding treated run. Thus the question can be stated: Can we assume that the distributions generated by the random source, if data are gathered under differing environmental conditions and grouped according to some imposed criteria, are identical for both control and treated samples? Since we cannot measure accurately the influence of the human intervention without first having a clear understanding of the circuit's behavior in the absence of such intervention we must have adequate assurance that the control and treated samples come from the same distribution.

In Figure 17 the sorting criteria were applied to the control data and from this sort the pattern of Figure 17 arose. If the distributions from which control and treated samples are drawn are identical in each selected range then it would follow that a very similar pattern would emerge if the same sorting criteria were applied to the treated data and the corresponding control data's relationship to the treated data were similarly evaluated. This is true since, if the shapes of the distributions were varying under environmental pressures, they would distort the patterns found and the patterns would not be clearly similar. Table 10 shows the strong degree of congruity of the two patterns. "Control Sort Number" refers to the number of data in the range when the range is evaluated by control position values and "Treated Sort Number" refers to the number of data in the range when the range is evaluated by treated position values. "tp" and "cp" refer to treated position and control position data. "tp/cp%" refers to the percentage relationships of these data values.

<table>
<thead>
<tr>
<th>Range</th>
<th>Control Sort Number</th>
<th>Control tp/cp%</th>
<th>Treated Sort Number</th>
<th>Treated tp/cp%</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;13451</td>
<td>933</td>
<td>0.34</td>
<td>912</td>
<td>0.35</td>
</tr>
<tr>
<td>&gt;13450&amp;&lt;13551</td>
<td>682</td>
<td>0.27</td>
<td>751</td>
<td>0.26</td>
</tr>
<tr>
<td>&gt;13550&amp;&lt;13751</td>
<td>2634</td>
<td>0.18</td>
<td>2537</td>
<td>0.18</td>
</tr>
<tr>
<td>&gt;13750&amp;&lt;13851</td>
<td>1977</td>
<td>0.11</td>
<td>2030</td>
<td>0.11</td>
</tr>
<tr>
<td>&gt;13850&amp;&lt;13951</td>
<td>2252</td>
<td>0.02</td>
<td>2284</td>
<td>0.04</td>
</tr>
<tr>
<td>&gt;13950&amp;&lt;14051</td>
<td>2072</td>
<td>-0.10</td>
<td>2074</td>
<td>-0.10</td>
</tr>
<tr>
<td>&gt;14050&amp;&lt;14126</td>
<td>1231</td>
<td>-0.26</td>
<td>1139</td>
<td>-0.27</td>
</tr>
<tr>
<td>&gt;14125</td>
<td>1469</td>
<td>-0.48</td>
<td>1523</td>
<td>-0.45</td>
</tr>
<tr>
<td>Totals</td>
<td>13,250</td>
<td></td>
<td>13,250</td>
<td></td>
</tr>
</tbody>
</table>

In a total of 13,250 runs of the double loops program there were 13,228 runs in which there were no equal values for control position and treated position data. There were 7,734 hits and 5,494 misses in the 13,228 unequal data pairs. Calculated in this way the percentage of hits was 58.47 and the percentage of misses was 41.53. We used the sequence orderliness test to calculate the number
of sequences which were under or over expected values for the numbers of such sequences and expressed these figures in terms of percentages.

We not only wanted to document the fact of psychodynamic tension (the interaction of the spiritual force and an accompanying defense mechanism seeking to oppose and hide the action of this force) but we wanted to look for differences in the mode of action of these two forces if such differences existed. We knew that the numbers of sequences of hits and misses were not entirely independent, but the sequences values (the total number of sequences of each length) was not wholly constrained either. We did find what we had come to expect, namely, lesser numbers of sequences with small values and larger numbers of sequences with large values. This was true of both hits and misses. This indicates the "hot hand of the mind" both for the spiritual (holy) force and for the defense mechanism.

We also found differences between the two modes of action of the mind. For example, the sequences of misses ranged from sequences one miss long to sequences 10 misses long whereas the sequences of hits ranged from sequences one hit long to 29 hits long. This particular comparison is only indicative because of the disparate number of hits. The sequence orderliness test, however, takes this disparity into account in its evaluation. Figure 18 shows the pattern of "draw-down" of the smaller sequences and the "build-up" of the larger sequences. The pattern of the misses is not so regular. Table 11 (next page) shows the percentage comparisons of sequences of hits and misses with expected values (EV's).

Figure 18. From left to right the first 9 points graphed represent sequences 1, 2, 3, 4, 5, 6, 7, 8, and 9 hits long. Point 10 represents strings of hits more than 9 hits long (an average of 12.73 hits). This figure reflects the hits data of Table 11.
TABLE 11

<table>
<thead>
<tr>
<th>Sequence Length</th>
<th>Hits Data/EV%</th>
<th>Misses Data/EV%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-1.9</td>
<td>-7.1</td>
</tr>
<tr>
<td>2</td>
<td>-6.8</td>
<td>-4.7</td>
</tr>
<tr>
<td>3</td>
<td>-10.3</td>
<td>-6.8</td>
</tr>
<tr>
<td>4</td>
<td>-14.9</td>
<td>-1.2</td>
</tr>
<tr>
<td>5</td>
<td>-15.3</td>
<td>36.0</td>
</tr>
<tr>
<td>6</td>
<td>-5.6</td>
<td>72.3</td>
</tr>
<tr>
<td>7</td>
<td>-4.3</td>
<td>34.9</td>
</tr>
<tr>
<td>8</td>
<td>18.9</td>
<td>49.9</td>
</tr>
<tr>
<td>9</td>
<td>48.2</td>
<td>140.5</td>
</tr>
<tr>
<td>over 9</td>
<td>134.0</td>
<td>154.0</td>
</tr>
</tbody>
</table>

Other differences can be seen as well in the mode of operation of the two forces. Table 12 shows the percentages of hits and misses in the data in terms of the sequence lengths they were found in together with the average size of the hit or miss in the given sequence length. (By the size of the hit or miss is meant the amount of absolute difference between treated position and control position pair). The differences stand out clearly and show us that the two forces not only have different patterns of manipulating sequence length but also have different patterns of manipulating size of effect per hit or miss.

As Table 12 shows, only 79.3% of hits are contained in sequences less than 7 units long whereas 96.3% of misses are contained in sequences less than 7 units long. If we look at the means and standard deviations of the absolute values of the treated position less the control position values for both the hits and the misses we find that the hits form a distribution with a mean of 106.4 units and a standard deviation of 77.40 units whereas the misses form a distribution with a mean of 86.8 units and a standard deviation of 68.17 units. Such a comparison shows the striking difference between the two distributions. The mean of the distribution of hit values is approximately 22.6% larger than the mean of the distribution of miss values.

TABLE 12

<table>
<thead>
<tr>
<th>Sequence Length</th>
<th>%Hits</th>
<th>tp-cp</th>
<th>%Misses</th>
<th>tp-cp</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>17.1</td>
<td>104.7</td>
<td>31.8</td>
<td>82.8</td>
</tr>
<tr>
<td>2</td>
<td>19.0</td>
<td>95.4</td>
<td>27.0</td>
<td>94.7</td>
</tr>
<tr>
<td>3</td>
<td>16.0</td>
<td>95.3</td>
<td>16.5</td>
<td>94.1</td>
</tr>
<tr>
<td>4</td>
<td>11.9</td>
<td>100.3</td>
<td>9.7</td>
<td>96.5</td>
</tr>
<tr>
<td>5</td>
<td>8.6</td>
<td>105.5</td>
<td>6.9</td>
<td>98.6</td>
</tr>
<tr>
<td>6</td>
<td>6.7</td>
<td>106.3</td>
<td>4.4</td>
<td>98.3</td>
</tr>
<tr>
<td>Totals</td>
<td>79.3</td>
<td></td>
<td>96.3</td>
<td></td>
</tr>
</tbody>
</table>
Levels of associational linkage

One of the interesting things some of our various double loops tests have taught us is that there are levels of associational linkage existing with the same object in the same mind. In the double loops tests we know, for example, that the first loop takes part of the associational "hit" of the thought associationally linked to the program even though the stronger associational link is with the second loop. Given this circumstance, we can assume that in the double loops norm-referenced signature test the data from the first loop will not generate a distribution which will exactly correspond with the normal curve.

We also know from working with distributions formed by throwing dice and calling cards that the holy influence on the distributions results in a "flight-toward-center" of the distribution and that the defense mechanism influence results in a "flight-from-center" influence on the distribution. We, therefore, compared the data from the control position and the treated position with the normal curve to see what differences might exist.

In making this evaluation we took each "page" of 250 runs (53 pages) and calculated a mean and standard deviation for the control position and for the treated position data on that page. We then averaged these means and standard deviations and found the mean of both the control position data and the treated position data to be 13,845. We found the standard deviation of both the control position and treated position data to be 111. As we have noted in dealing with all the distributions we have studied, there is little or no indication from the mean and standard deviation figures of thought-affected distributions that there is anything going on.

We then calculated each page's data in terms of distance from the mean and compared the resulting figures with expected values derived from the normal curve. We found a much stronger holy influence in the control position data than in the treated position data as evidenced by the flight-toward-center increase of the most orderly value (the mean). We found a much stronger defense mechanism influence in the treated position data then in the control position data as evidenced in the flight-from-center thrust of data toward the tails. Notice, however, the back-and-forth struggle between the two forces; the smallest extreme tails of all are in the treated position data. As in all evaluations of the two forces we see shifts of pattern rather than shifts of strength as strength of associational linkage changes. Table 13 presents the figures. The progression of the table downward is from the left tail to the right tail of the distribution.

<table>
<thead>
<tr>
<th></th>
<th>Expected Values</th>
<th>Control Position</th>
<th>Treated Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>17</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>1868</td>
<td>1854</td>
<td>1906</td>
<td></td>
</tr>
<tr>
<td>1882</td>
<td>1871</td>
<td>1911</td>
<td></td>
</tr>
<tr>
<td>1912</td>
<td>1880</td>
<td>1907</td>
<td></td>
</tr>
<tr>
<td>1892</td>
<td>1940</td>
<td>1881</td>
<td></td>
</tr>
<tr>
<td>1912</td>
<td>1919</td>
<td>1792</td>
<td></td>
</tr>
<tr>
<td>1882</td>
<td>1867</td>
<td>1916</td>
<td></td>
</tr>
<tr>
<td>1868</td>
<td>1892</td>
<td>1919</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>10</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>13,250</td>
<td>13,250</td>
<td>13,251</td>
<td></td>
</tr>
</tbody>
</table>
Since the claim is made that the data show the effects of holy thought and postulate that the effect of holy thought is proportional to the strength of the associational linkage of such thought to the target system providing measurements it becomes a test of theory to measure the effects of thought at different levels of associational linkage.

Table 10 was produced by securing data produced with the researcher (whose thought is presumably linked to the circuit more strongly during the running of the second loop of the double loops program) sitting at the computer during the data gathering sessions. Although no conscious input was provided to the target system (the circuit) during this time, we presumed that the unconscious linkage would be greater if the researcher was present at the computer than if the researcher was not present at the computer recording data.

After the initial Table 10 data was gathered we repeated the data gathering process without the researcher being at the computer. Instead of runs being made one at a time with the data from each run recorded by the researcher, 250 runs were made at a time with the data from the 250 runs being recorded by the researcher. Since the longer runs took more than an hour to make the researcher started the program and then did whatever he pleased until (at least an hour-and-a-quarter later) he recorded the data from the 250 runs and started the program again.

The differences between the data representing the two attention levels were startling. Table 14 gives the detail of the less-attention-runs. Figure 19 graphically presents the two attention levels. The "top" line of the graph represents the higher attention level (the norm-referenced signature of the initial group of runs) and the "bottom" line of the graph represents the lower attention level (the norm-referenced signature of the final group of runs).

It can be seen from Table 14 that the number of runs with values in the tails of the distribution is less than in Table 10 while the number of runs with values toward the center of the distribution is greater than in Table 10. This is apparently primarily due to temperatures on the days the second group of runs was made. Hot days produced runs in the left tails; cool days produced runs in the right tails although other factors entered in as well.

**TABLE 14**

<table>
<thead>
<tr>
<th>Range</th>
<th>Control Sort Number</th>
<th>tp/cp%</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;13451</td>
<td>169</td>
<td>0.08</td>
</tr>
<tr>
<td>&gt;13450&amp;&lt;13551</td>
<td>444</td>
<td>0.05</td>
</tr>
<tr>
<td>&gt;13550&amp;&lt;13751</td>
<td>2793</td>
<td>0.03</td>
</tr>
<tr>
<td>&gt;13750&amp;&lt;13851</td>
<td>2554</td>
<td>0.01</td>
</tr>
<tr>
<td>&gt;13850&amp;&lt;13951</td>
<td>2785</td>
<td>-0.01</td>
</tr>
<tr>
<td>&gt;13950&amp;&lt;14051</td>
<td>2002</td>
<td>-0.03</td>
</tr>
<tr>
<td>&gt;14050&amp;&lt;14126</td>
<td>804</td>
<td>-0.05</td>
</tr>
<tr>
<td>&gt;14125</td>
<td>449</td>
<td>-0.10</td>
</tr>
</tbody>
</table>
Figure 19. The top line represents high attention runs (the Figure 17 runs). The bottom line represents an additional set of low attention runs. The significant feature is the decline in effect with less attention paid to the runs.
Additional measurements of associational linkage

We identify our circuits by the names or initials of the individuals who built them. The bulk of our early work was done with "Mike" and Mike consistently scored in the low 90's.

In 1988 "JRR" was built and we worked with it for about a week. We found that JRR immediately worked for us and very quickly was also scoring in the low 90's. Then we mailed JRR to a friend 2,000 miles away with a copy of SALT (our "standard associational linkage test") on a disk and asked her to check JRR. JRR, run without our even knowing when, scored in the low 80's.

In 1990 "Paul" and "Paul2" were built. Paul was mailed to us and used a few times before the checks we are about to describe. Paul2 was mailed (by the maker) to a location 2,000 miles away. We then evaluated the four circuits using our standard associational linkage test. Those who made the at-a-distance evaluations with both JRR and Paul2 had no knowledge of the nature of the computer programs they ran nor any knowledge of the meaning of the data produced. We felt that if our ideas held up, Mike should score the highest, JRR should come in second, Paul third, and Paul2 (the circuit we had never seen) should come in fourth if it registered at all. Accordingly, 30 SALT checks of each circuit were made (100 runs in each check).

In each running of SALT the individual making the runs typed in the name of the program to be run and, at their next convenient opportunity (and more than 15 minutes later or, in the case of Paul2, more than 35 minutes later) manually recorded the number of hits (pattern recognitions out of 100 double loops tries) and started the program again.

Table 15 shows the means and standard deviations of 30 runs of the program for each circuit. Each run ran the double loops program 100 times and provided the number of hits (pattern recognitions) achieved in the 100 runs. Thus the means and standard deviations shown for each circuit are means and standard deviations of 30 numbers. The rankings provided by Table 15 confirm the strength of associational linkage as assessed by the researchers.

<table>
<thead>
<tr>
<th>Circuit</th>
<th>Means</th>
<th>Standard Deviations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mike</td>
<td>91.10</td>
<td>3.320</td>
</tr>
<tr>
<td>JRR</td>
<td>75.23</td>
<td>4.821</td>
</tr>
<tr>
<td>Paul</td>
<td>63.93</td>
<td>4.711</td>
</tr>
<tr>
<td>Paul2</td>
<td>63.03</td>
<td>5.083</td>
</tr>
</tbody>
</table>

The great surprise was that the never-before-used circuit which provided data from 2,000 miles away was almost as strongly linked as the never-before-used circuit in the researcher's own computer. The fact of the researcher having handled the circuit and placed it in his computer appeared to have made very little difference in associational linkage. Apparently, usage of the circuit was the factor which increased associational linkage and not incidental handling. The difference in means was quite small. On the other hand, the variability of the measurements (the standard deviations) was considerably larger for the remote circuit than for the circuit immediately at hand.

Using the three circuits in his own computer our researcher made checks using the QuickBASIC 4.5 compiler. As noted, we had found that this compiler inhibited somewhat the formation
of the pattern produced by the program from which the SALT program was derived. The inhibition, as we measured it, was strongest for the most powerfully linked circuit with the inhibition declining as the associational linkage decreased. Table 16 shows the figures returned by the same program that produced Table 15 but compiled with version 4.5 instead of version 4.0 of the QuickBASIC compiler.

<table>
<thead>
<tr>
<th>Circuit</th>
<th>Means</th>
<th>Standard Deviations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mike</td>
<td>73.37</td>
<td>4.680</td>
</tr>
<tr>
<td>JRR</td>
<td>74.83</td>
<td>4.251</td>
</tr>
<tr>
<td>Paul</td>
<td>63.87</td>
<td>4.201</td>
</tr>
</tbody>
</table>

The remote circuit (Paul2) was also used to provide data using a variation of the SALT program. In the variation there was a single line removed, the line which read:

```
IF n1 <= 1 AND n2 >= 1 then n = n + 1
```

This change eliminated the check for the "flip" and accordingly reduced the expected values obtained (purely randomly and without the bias) to 25 instead of 50 out of the 100 trials.

Since the pattern (although it is more steady than most) can be expected to flip from time to time (we have no idea why) it should follow that the percentage of hits above expected value should be greater for the program which checks for flips than for the program which does not check for flips. Using the data from Table 17 we see that this was indeed true. The flip-checking program obtained hits 26.06% above expected value while the non-flip-checking program only achieved hits 17.48% above expected value.

<table>
<thead>
<tr>
<th>Circuit</th>
<th>Means</th>
<th>Standard Deviations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paul2</td>
<td>63.03</td>
<td>5.083</td>
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<tr>
<td>Paul2</td>
<td>29.37</td>
<td>4.468</td>
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</table>
Summary

The central features experimentally tested using the double loops technique were the direction and the fact of effect of the ordering force on random event generation as well as the characteristic of the double loops technique, namely, the difference in associational linkage of the consciousness of the researcher with the two loops of the double loops used in the test. Especially interesting were the facts that: (1) norms to which circuit operation were drawn were identical with norms found in evaluations of the VIUR test, (2) the characteristic of "psychodynamic balance" (a relationship between the ordering force and the defense mechanism wherein evidence of the ordering force is offset by bursts of defense mechanism activity) found in the VIUR test evaluations was also found in double loops evaluations, and (3) the "norm-referenced signature" found in tests with seeds was also found in the double loops evaluations. It should be noted that the fact that the condition of associational links with a circuit never seen by the researchers (and probably with any circuit of this kind in this situation) exists and can be clearly traced is a circumstance which exists only because, at this early state in testing, no other associational links have been formed. If others begin to test and if associational links are formed which are different from those we have used, the mental patterns will be muddled and future tests under these conditions will show only undecipherable effects. Finally, it is of interest to note that the conceptual structure necessary to set up and evaluate a test of this kind in this way is something well beyond the outlooks of science, psychology, and parapsychology today. The double loops technique, with all its virtues and its faults, was conceived and carried out by religious people seeking to explore their own belief system.
THE VIUR TEST: MASSIVE PSI, MASSIVE DEFENSES

Spindrift, Inc.

ABSTRACT: Gamblers and mathematicians have been studying the fall of dice and the calls of cards for centuries. Parapsychologists have been studying them for decades. Spindrift, Inc., an organization devoted to experimental research in the field of spiritual healing, has continued this study in the VIUR (Visual Image, Unconscious Response) test using conventional methodology joined to a non-standard method of mathematical evaluation which we developed. The analytical procedures represented a logical extension of the conceptual structure developed by the researchers for the study of the relationship between prayer and spiritual healing. In effect, new questions were asked, questions which suggested appropriate statistical analyses, analyses which revealed powerful evidence of psi. Some fundamental features of the VIUR test are presented in this paper.

INTRODUCTION

Let us suppose you hold in your hands a deck of cards, half of them red and half of them black. You place these cards in envelopes and sort them into two piles, one for the red cards and one for the black cards. You do this repeatedly until you have a large data base of concatenated piles of cards. One long pile represents all your calls (guesses) of red cards and the other long pile represents all your calls of black cards.

Now you examine both the number of hits in and the sequential order of both piles of cards. In both cases data adhere closely to expected values. Everything appears to be in order.

This appearance of adherence to expected values is an illusion. There is an above-expected-value amount of order in the two piles and there is strong evidence of psi hitting (correct calling of the cards) in the two piles.

In order to create the illusion that an ordering force and a perceptive power are not at work in the calling of the cards there must be an equal and opposite skewing originating in the unconscious mind. The fact that skewing from two modes of psi is concealed effectively, but not perfectly, leads inescapably to the conclusion that a defense mechanism is in operation, a defense mechanism acting to conceal the fact of psi. The primary purpose of this paper is to demonstrate this fact.

PSI ORDERING AND DOUBLE SKEWING

INTRODUCTION

In sorting the deck of cards into two piles information is lost. The lost information is the sequence of calls, the order in which you alternated between red calls and black calls and, correspondingly, the order of the hits and misses of these undifferentiated calls. The fact that the alternating order of the piles approximates expected value rests on an assumption, an assumption that the undifferentiated sequence of hits and misses of the total calls (the lost information) is approximately random (no defense mechanism). An additional assumption, the null hypothesis, is that no ordering force and no perceptive power (ESP) are at work.
If an ordering force were at work, an ordering force which related to (increased the order of) the binary sequences found in each of the two piles, this additional order could be offset by a defense mechanism which focused, not on the sequential order of the piles, but on the sequential order of the hits and misses of the undifferentiated calls. Such an offset would appear as a decrease in alternating order of the hits and misses of the undifferentiated sequence of calls (the hits and misses of the calls in the actual order in which they were made -- the hidden information if we don't record the order in which we sort the cards into two piles).

To see if such a telltale depression does occur all we need do is examine the alternating order of the hits and misses of the undifferentiated calls. If no psi is at work the order of these hits and misses will reflect the alternating order of the calls. If a defense mechanism is at work this order will be depressed.

If the order is depressed, then, when we separate the cards into two piles (sort our undifferentiated data in such a fashion that the two differentiated individual binary sequences are obtained), the order of the two individual binary sequences should reflect the depressed order of the undifferentiated sequence. If the order of the individual binary sequences comes out to expected value, then we know that this order was originally above expected value and that the depressed order of the undifferentiated sequence was equal and opposite to the increased order of the binary sequences.

**MATERIALS:** 12 opaque envelopes containing one photocopy each of a picture chosen by the data provider provided half the "deck." 12 opaque envelopes containing one photocopy each of another picture chosen by the data provider provided the balance of the deck. A notation on the back of each envelope indicated the identity of the picture inside.

**METHOD:** Data were provided by the two researchers responsible for the project and by seven other individuals known personally to the researchers. The data were self-recorded by the data providers. The method of analysis to be applied, however, was not known to anyone other than the two researchers. Each data provider's deck was shuffled by the data provider six or seven times. After each run the order of the calls (the guesses) and the falls (results of shuffling) were recorded.

**RESULTS**

Our data providers for the standard VIUR test produced 125,784 trials. 63,714 correct calls were made. To calculate the expected value for ordered pairs (pairs consisting of a hit and a miss rather than 2 hits or 2 misses) we used the formula \( \frac{n(n-1)}{2} \) where \( n \) represents the number of trials in each run (see Appendix A). In going through the calls in the sequential order in which they were made and comparing the calls to the falls we found that the hits and misses, evaluated sequentially in groups of 2, produced 31,491 ordered pairs.

We calculated the expected value to be 32,813.22 ordered pairs (12/23 of 62,892). Thus the number of ordered pairs in the undifferentiated sequence of hits and misses was depressed approximately 4.03% and the figures led to a Z-score of 10.55.

Our next step was to evaluate the "two piles," the two binary sequences (differentiated sequences) making up the original order (undifferentiated sequence) of the calls.

To produce the two binary sequences we went through the original calls sequentially and removed the sequence of calls of image 1. We did the same for image 2. We compared these calls to their respective falls and we had the differentiated binary sequences of hits and misses of image 1 and image 2 (the equivalent of the 2 piles).
In the undifferentiated calls there were 62,882 pairs to work with. Our 9 data providers turned their data in in 18 batches which we evaluated individually. Thus a number of pairs were lost since the calls were not always even in number between the two images. So it was that the data provided 62,882 pairs to work with in the differentiated calls.

Let us, for a moment, look at the alternating order of the falls of the images. We had made a number of "no calls" VIUR tests in addition to our "standard" VIUR tests. In the no calls tests we had 6 of our data providers shuffle the envelopes without calling them and record the order of the shuffled images. Thus we had falls from both the standard and no calls VIUR tests, a total of 213,360 trials. From these trials we had 106,680 pairs of which 55,690 were ordered (containing an occurrence of each image rather than 2 occurrences of the same image). The expected value for ordered pairs in these trials was (213,360/2)x(12/23) or 55,659.13. Thus data exceeded expected value by only 0.06% The correspondence was very close.

When we examined the 62,882 pairs found in our individual (differentiated) binary sequences (both piles) we found that 33,029 of these pairs were ordered. Expected value was 12/23 of 62,882 or 32,808. Actual data were only 0.67% above this figure. Thus the data do not reflect the bias of the undifferentiated sequence of hits and misses.

**DISCUSSION**: We concluded that equal and opposite skewing had occurred.

**DOUBLE SKewing: ACTION AND COUNTERACTION**

Defense mechanisms (at least the ones we know about) don't work perfectly. Action and counteraction leave their trace. The simple analysis we performed on the sequences found in the two piles and on the pattern formed by the two images in the undifferentiated falls (counting alternating pairs) showed close adherence to expected values. However, if we look further for order in the sequences we find it. We also find, as before, evidence of counteraction by the defense mechanism.

If we represent binary sequences (such as the pattern of hits and misses in the two piles and the occurrences of images in the undifferentiated falls) as sequences of 0's and 1's (a convention we will follow in this paper) we can observe that such sequences are made up of groups of 0's and 1's, groups ranging from single 0's and 1's to long strings of 0's and 1's.

In order to increase alternating order long groups of 0's and 1's must be broken up into smaller groups of 0's and 1's. This is because a 0/1 or 1/0 combination can only occur at the point where one group ends and another group begins. In order to get more stops and starts a larger number of smaller groups must be formed.

This activity of the ordering force (making big ones into little ones) is countered by an offsetting defense mechanism activity (making little ones into big ones). We can observe evidence of this back-and-forth activity by evaluating the lengths of groups of 0's and 1's in relation to expected values and we will do this a little later in this paper. We can also look at the makeup of groups of hits and misses 4 trials long (groups-of-four) in the two piles and at the makeup of groups-of-four in the undifferentiated falls.

- There are 16 possible orderings of binary groups-of-four. The "most ordered" groupings are: 0/1/0/1 and 1/0/1/0. The "most disordered" groupings are: 1/1/1/1 and 0/0/0/0. "Ordered" groupings are: 1/1/0/0, 0/0/1/1, 1/0/0/1, and 0/1/1/0. "Disordered" groupings are those combinations which include three 1's and a 0 or three 0's and a 1.
In "open deck" situations ordered groups (of four) would be expected to occur 12.5% of the time, ordered groups 25% of the time, disordered groups 50% of the time and disordered groups 12.5% of the time.

For runs of 24 trials expected values cannot be calculated in the usual (open deck) way. If we consider groups-of-four as combinations of pairs expected values can easily be developed. Where both a 0 and a 1 have an equal probability of occurrence 0/1 and 1/0 pairs can be expected to occur with a .5(12/23) probability and 1/1 and 0/0 pairs can be expected to occur with a .5(11/23) probability. From these figures expected values can be calculated.

Our earliest search for the pattern of action and counteraction was in calls of red and black cards in bridge decks (see Appendix B) and in the pattern of falling dice (see Appendix C). The results of these earlier tests were both suggestive and instructive but they did not yield the powerful and easily-arrived-at statistical evidence of the VIUR test.

In thinking about how the "push-pull" of forces we encountered in the bridge deck and dice data might apply to the VIUR data we began to suspect the existence of a phenomenon we called "pileup" and we tested for it. The strength of the phenomenon surprised us. Let's begin by getting a measurement of the interplay of the two forces (ordering force and defense mechanism) and then we'll discuss this "back-and-forth" phenomenon further.

If large groups (1/1/1/1 and 0/0/0/0) are being reduced in number there will be a "pushing" of groups from this most disordered category into the disordered category and so on up the line. There will also be a similar push coming from the most ordered side, pushing most ordered groups toward ordered groups and so on down the line. A pileup could occur. Given the sizes of the various groups it seemed logical to us that this pileup would occur in the ordered group and we looked for it there. Expected value for occurrences in this group was .2505.

We had 125,784 trials in our data. Thus, for the falls, we had 31,446 groups-of-four. Expected value was approximately 7877 occurrences. In our data we had 8,609 occurrences. This led to a Z-score of 9.52. A one-tailed test is appropriate.

We also went through the individual binary sequences of hits and misses of the calls (the two piles) and looked for this pattern. Here we had 31,433 groups-of-four to work with. For the calls expected value was approximately 7874. Data were 8455. This led to a Z-score of 7.56. Again a one-tailed test is appropriate.

The fact that the alternating order of the falls was affected by the ordering force leads us closer to PK (as distinguished from the ESP kind of psi which was manipulating the order of hits and misses). The unconscious mind was manipulating the shuffling process in ways unknown to us. As noted in Appendix C a similar process was affecting the way we threw dice (or was manipulating the dice themselves).

The ordering effect was more pronounced in the falls than in the hits and misses of the "two piles," the differentiated sequences of calls. This was because the individual binary sequences, although reflecting the order of the calls, had been modified, as noted earlier, by the depression of the undifferentiated sequence of hits and misses of the calls.

When we added the 87,576 trials of our no calls VIUR test to the 125,784 calls of our standard VIUR test we had data representing a total of 213,360 falls, 53,340 groups-of-four. We found that in this combined data there were 14,607 ordered groups-of-four. Expected value was 13,361.67. This led to a Z-score of 12.44 with a one-tailed test being appropriate.
PSI HITTING AND PSI MISSING

Let us assume that the perceptive power and the ordering force reach their "targets" through the same associational channel, that if one image is more easily perceived by the mind its hits and misses will also be more ordered by the mind. If this is true, pileup should be greater for psi missers than for psi hitters since psi missing (as we see it) is a condition in which the defense mechanism is acting more powerfully than the perceptive power. In the same way, psi hitting is a circumstance in which the perceptive power has a slight advantage. The assessment of just how much power to exert can be considered a very sophisticated judgment by the element of unconscious mind we refer to as a defense mechanism.

Figure 1 (next page) shows us the occurrences of groups-of-four for psi hitters and psi missers in the various classifications: most ordered (MO), ordered (O), disordered (D), and most disordered (MD). Pileup is indeed greater for psi missers.

PRIMARY AND SECONDARY IMAGES

(1) For both classes of people, psi hitters and psi missers, one image will be related to more than the other. The amount of difference will vary greatly but exact equality is probably very rare. (2) The more strongly an image is related to, the greater the amount of pileup will be. (3) This gives us a criterion for selecting the primary and secondary images.

Figure 2 (page 4-7) was created by taking our "two piles," determining which pile represented the primary image and which pile represented the secondary image, and then going through each pile by groups-of-four. Because of the nature of our selection process, pileup is greater for the primary image than for the secondary image.

The Sequence Orderliness Test

The sequence orderliness test looks at the number of sequences of various sizes in a specific number of trials. In essence, we look to see how the 0's and 1's "clump together." In different words, we look at the clusters of 0's and 1's. In order to make this kind of examination possible it was necessary to develop a formula (see Appendix D) for determining the expected numbers of sequences of various sizes in a specific number of trials. For example, in the falls of the pictures, we look to see how many times image 1 occurs "by itself" in the total number of falls, how many times two images occur in a row, and so on. By analogy, if a deck of cards was shuffled, we would be looking to see how many times a red card "stood alone" (a black card before and after it), how many times two red cards came up together (with a black card before and after the red pair) and so on.

The sequence orderliness test, like the groups-of-four test, reveals the phenomenon of pileup.

Expected values of sequences (the number of clusters of 0's or 1's of a given size) may be easily calculated (see next paragraph) if the probability of an occurrence is .5 (as in the falls of the pictures). However, when the probabilities of 0's or 1's occurring is not .5, the formula we developed may be used.
Figure 1. Percentages by which 6 psi hitters (solid line, approximately half of data) and 4 psi missers (broken line, approximately half of data) are over-or-under expected values in most ordered (MO), ordered (O), disordered (D), and most disordered (MD) groups-of-four.
Figure 2. Percentages by which primary (solid line) and secondary (broken line) images are over-or-under expected values for 9 individuals in most ordered (MO), ordered (O), disordered (D), and most disordered (MD) groups-of-four.
In a binary sequence containing equal numbers of elements the mean numbers of sequences of increasing length are expressed (for each element and in terms of proportions of the whole) by the series 0.5^0, 0.5^1, 0.5^2, ... Thus, in terms of expected values, one-half of the occurrences of a given element will be in clusters 1 unit long, one-fourth of the occurrences will be in clusters 2 units long, one-eighth of the occurrences will be in clusters 3 units long and so on. In terms of expected value, the mean sequence length is 2 units.

The Five Criteria for Selecting Primary and Secondary Images

Two of our criteria were taken from the analysis of calls data by groups-of-four. We looked to see which image had the largest percentage above expected value of most ordered groups-of-four and we looked to see which image had the largest percentage above expected value of ordered groups-of-four. For two more criteria, we looked to both the calls and the falls to see which image had the highest percentage above expected values of sequences 2 units long. Each of these indicators had an individual efficiency of between 65% and 80%. Our fifth and most efficient indicator only missed once in 18 trials. This indicator was taken from high order falls runs.

High Order Falls Runs

In the comparison between primary and secondary images we have seen that the stronger the ordering force is, the more long sequences are dismantled. We have also noted that a pile-up occurs of images 2 units long.

Each individual run consists of 24 trials. This means that in each run there are 6 sequential groups each of which are 4 trials long. If we go through our runs and pull out those runs which possess at least 2 ordered groups (0/1/0/1, 1/0/1/0, 1/1/0/1, 0/0/1/1, 1/0/0/1 or 0/1/1/0 patterns) we have very ordered runs. If we concatenate these runs and then evaluate the falls for sequences of 0's (one image) and the sequences of 1's (the other image) we have a means of discriminating between primary and secondary images. The primary image is judged to be the image whose data possess the greatest number of sequences 2 units long (it has the largest pileup in the two position).

An Assumption of the Sequence Orderliness Test

In 3 of our selection criteria we are depending on the sequence orderliness test which is not adjusted for the artifactual skewing of the data. Thus this component of the assessment rests on the assumption that the bias is equal for both images and that, in practice, a close expected value is adequate for determining a "less than" or "more than" relationship.

A Batch Approach to Data Evaluation

We evaluated our data in batches ranging from a low of 173 runs in a batch to a high of 420 runs in a batch. The question arose as to how to determine for each batch which image was the primary image given the variability of the data. This was the usual problem of signal versus noise. A number of characteristics could be considered as candidates for selecting the primary image and, if a multiple number of characteristics were used for selection, the characteristics could be mixed and matched to taste. We used a composite index of five criteria (the five criteria just described) and went by the majority vote. Our index appeared to work quite well. We evaluated 18 batches of data from 9 individuals and multiple batches from the same individual never disagreed with each other in terms of image selection.
PSI Hitting AND DOUBLE SKEWING

INTRODUCTION

We assert: (1) that the fact of psi is hidden from thought by defense mechanisms, (2) that the concealment (as with all defense mechanisms) is not perfect, and (3) that (in relative terms) power levels (the ordering force, the perceptive power, and the defense mechanism) are limited. We also assert: (4) that strategies are used (as in conventional defense mechanism activity) to conceal the action of the ordering force and the perceptive power by the defense mechanisms.

If only two pictures are involved, as in the standard VIUR test, then two strategies are possible for the defense mechanism. If one image (the primary image) is more strongly related to the mind than the other image (the secondary image), then more correct calls of the primary image are bound to be made than correct calls of the secondary image. The defense mechanism can: (1) create misses in a pattern which reduces calls of both the primary and secondary images to approximately expected values, or it can: (2) decrease the number of calls of the harder-to-call secondary image by the amount of the overcalls of the easier-to-call primary image. The second choice has the value of requiring less effort than the first choice. The second choice also has the liability of being self-defeating in situations where it would be noticed. However, we felt it would be possible that the defense mechanism would choose the second option in circumstances where one would not be likely to notice the manner of deception. In our evaluation of data we found that the defense mechanism employed both options.

Option 1: It seemed to us that if the mind related to differing pictures with differing degrees of intensity then it must follow, in all logic, that a defense mechanism was in operation. For, if differing relationships were involved, then more-strongly-related-to pictures would be called more often than other pictures. Yet, in actual fact, all calls tend to come out at about expected values. We presumed that the hits of each image were being reduced in number in proportion to the amount they would otherwise have been called above expected values.

Option 2: We found that the order of the falls of the images affected the mind’s ability to make correct calls of the images. In this unlikely-to-be-noticed area the defense mechanism used option 2.

METHOD AND MATERIALS were as described for the standard VIUR test (the same data were used as for the previously described analyses).

RESULTS

We felt it was possible that just as the physical eye readily noted physical movement or change, so the “mental eye” might, in a similar way, also readily notice a shift in pattern, change in the mental environment.

We noted in our data that the primary image was called 50.6% of the time, the secondary image 49.4% of the time. We then evaluated the correct calls for each image in terms of whether or not the correctly called fall of the picture was preceded by a fall of a different picture or of the same picture. We wondered if the mind was more sensitive to groupings of pictures in the sequential flow or whether the mind was more sensitive to changes in the sequential flow.

Of our 9 participants we found (what appeared to be) one “grouping mind” and eight “motion minds”. One individual (apparently) was most sensitive to groupings of pictures in the sequence of falls, the others were more sensitive to changes in the sequence of falls.
In Table 1 "p.p" refers to the fall of a primary image preceded by the fall of a primary image. The term "s.p" refers to the fall of a primary image preceded by the fall of a secondary image, and so on. A call, for example, classified as "s.p" means that a primary image was correctly called and that the fall of the correctly called image was preceded by the fall of a secondary image.

In Table 1 it will be noted that, in both classifications, the primary image was correctly called more frequently than the secondary image. This indicates that the primary image selected by ordering criteria was also the same primary image related to by the unconscious mind in terms of perceptive power.

<table>
<thead>
<tr>
<th>TABLE 1</th>
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<td></td>
<td>The Grouping Perception</td>
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<td>Expected Values</td>
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<td>----------------</td>
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<tr>
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<table>
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<tr>
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<td>Category</td>
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<td>Totals</td>
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</table>
The Perceptive Power and Defense Mechanism Focus

Table 1 indicates that the defense mechanism is using its focusing power. Obviously, images are correctly called more easily under the conditions (image change of fall) most favored by the unconscious mind of the individual. These correct image calls, under these favored conditions, are well above expected values. Presumably the mind would (without defensive action) be calling the alternate image combinations correctly under the less favored conditions approximately 50% of the time (at least). The defense mechanism, instead of reducing the number of correct calls equally across the board, is attacking more strategically and is reducing the more vulnerable calls disproportionately. In addition to this demonstration of intelligence, it is also balancing the whole activity so as to come out at approximately the expected values and thus maintain the quotidian illusion that nothing much is going on.

From the information in Table 1, Table 2 (next page) was constructed. Table 2 evaluates the frequency of correct calls under the conditions most favorable to the data provider (motion minds or grouping mind).

In examining the data for the "grouping mind" we found that this individual, alone among the 9 participants, was manifesting psi displacement. He was calling the previous fall of the image, as opposed to the current fall of the image, more accurately than he was calling the current fall. Psi hitting of the displaced image was sufficient to lead directly to a Z-score of 22.67 (10,612 displaced hits in 18,168 trials).

Table 3 (next page) presents the data underlying the Z-score. Current calls were 51.50% correctly called. The calls, however, correctly identified the preceding call 58.41% of the time. In the tables the phrase "Fall-1" (fall minus 1) is meant to identify the fall, or image, immediately preceding the image being called. Tables 3-7 are used to illustrate an evaluative approach used to further explore defense mechanism activity.

Simple Interaction (defending the obvious)

Displaced hits were being called 58.41% of the time and the displaced fall was equal to the current call 48.40% of the time. Thus, current calls would be correct, on average, 28.27% [(0.5841 x .4840) x 100] of the time for 48.40% of the calls. For the other 51.60% of the time the calls would be inaccurate 58.41% of the time. Thus, 51.60% of the calls would be accurate 41.59% (1-.5841) of the time. It followed that the calls should be correct for the current hits 49.73% of the time (see Table 4).

The expected value developed in Table 4 (page 4-13) was predicated on the idea that the current call reflected only the perception of the identity of the preceding fall and no perception of the current fall. Data showed that the strong perception of the preceding fall was mingled with a weak perception of the current fall (see Table 5).

Using the same procedure by which we developed Table 5 (page 4-13) we broke down the percentages in Column 4 of Table 5 into separate percentages for the 3 batches of data provided by Participant 2. This resulted in Table 6 (page 4-13).

It occurred to us that if the defense mechanism were seeking to avert the discovery of substantial psi hitting through displacement, then it might logically follow that the "grouping" categorization could be artifactual. The anomaly might disappear if the "falls minus one" position were considered as the "target" falls and image changes were, correspondingly, looked for in the fall preceding the actual target fall, the fall two places back from the assumed target fall in this case.
### TABLE 2
Calls of the Pictures

<table>
<thead>
<tr>
<th>Category</th>
<th>Expected Values</th>
<th>Datum</th>
<th>Datum less EV</th>
<th>z-score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groupings Mind</td>
<td>4,678.5</td>
<td>5.298</td>
<td>619.5</td>
<td>12.81</td>
</tr>
<tr>
<td>Motion Minds</td>
<td>27,178.5</td>
<td>28,036</td>
<td>857.5</td>
<td>7.36</td>
</tr>
</tbody>
</table>

### TABLE 3
The Standard VIUR Test - Participant 2

#### Data

<table>
<thead>
<tr>
<th>Number of Runs</th>
<th>Hits</th>
<th>Displaced Hits</th>
<th>Fall = Fall - 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>278</td>
<td>3433</td>
<td>4325</td>
<td>3226</td>
</tr>
<tr>
<td>239</td>
<td>2958</td>
<td>3028</td>
<td>2826</td>
</tr>
<tr>
<td>240</td>
<td>2966</td>
<td>3259</td>
<td>2742</td>
</tr>
<tr>
<td>Totals</td>
<td>9357</td>
<td>10,612</td>
<td>9794</td>
</tr>
</tbody>
</table>

#### Percentages

<table>
<thead>
<tr>
<th>Batch</th>
<th>Hits</th>
<th>Displaced Hits</th>
<th>Fall = Fall - 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>51.57</td>
<td>52.79</td>
<td>49.27</td>
</tr>
<tr>
<td>3</td>
<td>51.49</td>
<td>56.58</td>
<td>47.60</td>
</tr>
<tr>
<td>1</td>
<td>51.45</td>
<td>64.32</td>
<td>48.35</td>
</tr>
<tr>
<td>Totals</td>
<td>51.50</td>
<td>58.41</td>
<td>48.40</td>
</tr>
</tbody>
</table>
# TABLE 4
The Standard VIUR Test – From Table 3

<table>
<thead>
<tr>
<th>Number of Calls In Each Category</th>
<th>48.40% of total calls = 8793.31</th>
<th>51.60% of total calls = 9374.69</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Hits In Each Category</td>
<td>8793.31 x .5841 = 5136.17</td>
<td>9374.69 x .4159 = 3898.93</td>
</tr>
<tr>
<td>Expected Value For Current Hits</td>
<td>5136.17 + 3898.93 = 9035.10</td>
<td>Expected Hit Rate = 49.73%</td>
</tr>
</tbody>
</table>

# TABLE 5
The Standard VIUR Test – From Tables 3 and 4

<table>
<thead>
<tr>
<th>Position</th>
<th>Hits Data</th>
<th>Expected Values</th>
<th>Data/EV%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall - 1</td>
<td>10612</td>
<td>9084.00</td>
<td>16.82</td>
</tr>
<tr>
<td>Fall</td>
<td>9357</td>
<td>9035.10</td>
<td>3.56</td>
</tr>
</tbody>
</table>

# TABLE 6
The Standard VIUR Test – Data/Expected Value Percentages

<table>
<thead>
<tr>
<th>Batch</th>
<th>Hits</th>
<th>Displaced Hits</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>3.22</td>
<td>5.58</td>
</tr>
<tr>
<td>3</td>
<td>3.63</td>
<td>13.16</td>
</tr>
<tr>
<td>1</td>
<td>3.92</td>
<td>29.65</td>
</tr>
</tbody>
</table>
When we checked the data we found that this was indeed the case and the figures came into line. Primary image calls of the displaced target fall were 3.84% higher when the fall before the displaced target fall was different than the displaced target fall. The same thing was true of the secondary image but to the expected lesser extent. For the secondary image the percentage of hits above expected value was 2.20%. Table 7 presents the overall data picture with this adjustment. The illusion of a "groupings mind" has been dispelled; all data providers have been found to correctly call hits above expected values when the actual target fall has been preceded by the fall of a different image. The Z-score for this category of calls (considering actual targets) was 11.74.

<table>
<thead>
<tr>
<th>TABLE 7</th>
<th>All Calls</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The Change Perception</td>
</tr>
<tr>
<td>Category</td>
<td>Expected Values</td>
</tr>
<tr>
<td>p.p</td>
<td>16361.5</td>
</tr>
<tr>
<td>s.p</td>
<td>16361.5</td>
</tr>
<tr>
<td>s.s</td>
<td>16124.5</td>
</tr>
<tr>
<td>p.s</td>
<td>16124.5</td>
</tr>
<tr>
<td>Totals</td>
<td>64,972.0</td>
</tr>
</tbody>
</table>

z-score = 8.01

DISCUSSION: Correct calls of an image in a given category (say p.p) will reduce percentage-wise the correct calls of an image in another category (in this case s.p). Thus, if p.p is 10.83% above expected value, as it was for one participant, then s.p will be 10.83% below expected value. Since these relationships are interdependent we cannot say that one category is being increased or reduced independently of the other in a measurably known amount. We do know, for example, that s.p exceeds p.p and exceeds expected value. We do not know directly from the data if p.p is being independently acted on by a defense mechanism to reduce the number of calls of the primary image in this calling circumstance. However, since s.p is being called above expected value it is true that if p.p was being called at only expected value (or above) then the total number of calls of the primary image would exceed expected value and this does not occur. Thus we can infer that the hypothesized strategy of the defense mechanism does occur.

PSI SKEWING AND HUMAN INTENTION

INTRODUCTION

Given the surprising sensitivity of sequence orderliness test evaluations of high order falls sequences we asked some of our participants to make "no calls" VIUR test runs, runs in which the envelopes (and the images in them) were shuffled but not called. We reasoned that since the intention of the data provider was different for a no calls VIUR test than for a standard VIUR test a difference in the order of the falls might be found. We felt it might be possible to distinguish between the intent to observe and the intent not to observe as this intention related to the calls. In no calls runs the
perceptive power is not being investigated and the entire thrust of the defense mechanism could be turned against the ordering power as it related to the calls.

As it turns out, if the calling pattern of an individual is known so that a researcher is aware which of two images is the primary image, and if enough data are available, the researcher can tell from an examination of the data whether or not the individual who shuffled the images intended to call the pictures or not.

METHODS AND MATERIALS were as described in earlier evaluations. The existing standard VIUR test data base was supplemented with a data base of "no calls" runs.

RESULTS

Figures 3 and 4 (pages 4-16 and 4-17) were developed from data provided by 6 individuals who shuffled pictures and did call them and who also shuffled pictures and did not call them. Figure 3 presents the combined data (all 6 individuals) from the high order calls of the standard VIUR test wherein there was an intent to call the images. Figure 4 presents the combined data from the high order calls of the no calls VIUR test wherein there was no intent to call the images.

For each of the 6 individuals the reversal of relationship between the primary and secondary images in the pileup position of sequences 2 occurrences long appeared. When there was intent to call, the interaction between the ordering force and the defense mechanism was strongest for the primary image (most pileup in sequences 2 units long). When there was no intent to call, the interaction between the ordering force and the defense mechanism was strongest for the secondary image (most pileup in sequences 2 units long).

PSI HITTING AND ATTENTION LEVELS

INTRODUCTION: Some of our data providers made their runs without external distraction; others did not. From our work with electronically generated random events we were keenly aware of the role of attention, conscious or unconscious, in the measurable effect of thought on events. Therefore, we evaluated for this in our VIUR tests.

METHOD AND MATERIALS: One of our data providers had been watching television or videos on various subject while making her runs. After she had turned in 1232 runs we asked her to do further runs and pay more attention to them while she was doing them. Accordingly, her additional runs were done without external distraction of any sort and with photocopies of the images in the envelopes before her. (We permitted our data providers to keep copies of the images they used before them if they so chose.) 553 additional runs were made.

RESULTS: Table 8 (page 4-18) presents the results of our evaluation. The likelihood of the minimal attention and the maximal attention runs being from the same overall group of runs is small as is attested by the Z-score of 4.79. Calculations were as follows: \[ \frac{11.959-12.559}{\sqrt{(2.4686^2/1232)+(2.5558^2/553)}}. \]

DISCUSSION: The results of various tests of this sort which we have made suggest that both conscious and unconscious attention levels play a large part in directing thought toward the measurement vehicle which must be central in data gathering for any experimental test.
Figure 3. Percentages by which primary (solid line) and secondary (broken line) images are over-or-under expected values in 1030 high order falls runs by 6 individuals with intention to call.
Figure 4. Percentages by which primary (solid line) and secondary (broken line) images are over- or under expected values in 1521 high order fails runs by 6 individuals without intention to call.
TABLE 8
VIUR Test -- Runs of Participant 3

<table>
<thead>
<tr>
<th>Number of Runs</th>
<th>Concentration</th>
<th>Run Means</th>
<th>Run Standard Deviations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1232</td>
<td>minimal</td>
<td>11.959</td>
<td>2.4665</td>
</tr>
<tr>
<td>553</td>
<td>maximal</td>
<td>12.559</td>
<td>2.5558</td>
</tr>
</tbody>
</table>

z-score = 4.79

DEVELOPING THE PERCEPTIVE POWER

INTRODUCTION

Having become convinced that the perceptive power of the mind was an easy and natural activity, blocked only by a defense mechanism, we decided to use the information we had gained from our testing to set up circumstances in which psi hitting could be developed.

In terms of card calling (image calling) various tests had shown us that when more than two images are involved the deceptive power of the human mind has a larger field in which to play its games. In addition, our researchers had gained some practical experience in dealing with the action of the defense mechanism and its deceptive ways. Considering these circumstances we developed what we termed the "double calls" VIUR test.

The Double Calls VIUR Test

The double calls VIUR test was an effort to replace the guessing of the standard VIUR test with a more knowledgeable response. It was a successful effort to move unconscious perceptive power past the defense mechanism up to a level of conscious process. In the double calls VIUR test the researcher took the 24 envelopes in groups of two. Each group of two sequentially randomized envelopes consisted of an envelope with each picture. The researcher was permitted to hold the two envelopes in his hands, move them from one hand to another if desired, provided nothing was done which might physically reveal the contents. In this test feedback was immediate and the evanescent struggle of perceptive power and defense mechanism could be evaluated before the fleeting impressions were lost.

Mentation Strategy

It now becomes incumbent upon us to discuss the mentation strategy used by the researcher who provided data for the double calls VIUR test.

Papers published in parapsychological journals do not as a general rule use the term "prayer" to describe the measurable force loosely termed "psi." Neither do religious people generally describe the healing effects of prayer as "psi phenomena." In Spindrift’s own study of an identity supporting state of consciousness measurable in pattern referenced terms we note that the term "prayer," while extremely meaningful in some contexts, is both heavily value laden and open to differences of definition. On the other hand, the terms "meditation" and "contemplation" are relatively non-descriptive and do not recognize the identity-supporting (pattern-mending) and volitional/intentional (pattern indifferent)
distinctions basic to the conceptual thrust of our experimental work. We, therefore, most frequently use the term "holy thought" as a descriptive and specific term for the "mentation strategy" associated with our research.

If it is true that psi hitting is blocked by a defense mechanism (and our tests make the case that it is) this knowledge is of little practical help in developing or releasing the perceptive power of the mind. Psychology and parapsychology offer no help in "healing" or removing such barriers of thought.

Christianity, however, has traditionally placed great stress on the overcoming of self, a primarily mental action involving inner struggle with elements of one's own mind. This linkage of ideas on our part (spiritual development, defense mechanisms, and psi) is suggestive when we consider the strong manifestations of psi historically associated with many traditional religious figures.

Our own efforts to explore the perceptive power of the mind (psi hitting in the case of the VIUR test) has, for our researchers, utilized both holy thought (a consciousness of the qualities or attributes traditionally associated with God) to diminish the power of the defense mechanism and the feedback technique of the double calls VIUR test.

Of the 9 individuals represented in the Spindrift data base for the standard VIUR test, two were Spindrift researchers. Since it was believed (even before we began our testing) that the unconscious, or largely unconscious, process of calling the pictures correctly was blocked by a defense mechanism, it was wondered whether or not the same power of holy thought which enters into spiritual healing would be effective in reducing the power of the defense mechanism. Accordingly, each of the two researchers preceded each of their standard VIUR test runs with a brief period of holy thought devoted to this purpose. Whether or not this had any effect on the results is moot, but the researchers' runs do show differences from the other runs that were made. Table 9 presents the data for the two researchers. The extent of psi hitting resulted in a Z-score of 6.21. The researcher who provided data for the double calls VIUR test continued the practice of preceding each of his runs with a brief period of holy thought.

![Table 9: The Standard VIUR Test](image)

<table>
<thead>
<tr>
<th>Participant</th>
<th>Expected Values</th>
<th>Hits</th>
<th>Trials</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2856</td>
<td>3063</td>
<td>5712</td>
</tr>
<tr>
<td>2</td>
<td>9084</td>
<td>9357</td>
<td>18168</td>
</tr>
<tr>
<td>Totals</td>
<td>11940</td>
<td>12420</td>
<td>23380</td>
</tr>
</tbody>
</table>

Z-score = 6.21
MATERIALS: 12 spade aces and 12 heart aces taken from pinochle decks, 24 opaque envelopes.

METHODS

Each opaque envelope contained a single ace. Each group of two envelopes (in a series of 12 groups of two) consisted of an envelope containing a spade ace and an envelope containing a heart ace. In each group of two the envelopes were sequentially randomized.

The power of the double calls VIUR test lies in the fact that very few options are open to the defense mechanism. The defense mechanism can: (1) block out the identities of the two cards, (2) reverse the identities of the two cards, or (3) make one card look like the other. The defense mechanism does not have a number of images (and thus a number of deceptive options) to work with.

After the researcher decided which of the two envelopes contained the ace of spades the call was recorded, then the success or failure of the call was ascertained and recorded. Thus, through practice, experience, and mental wrestling the researcher could develop an awareness of how the perceptive power and defense mechanism interacted in the mostly unconscious struggle each call represented.

RESULTS

300 runs, 3600 calls, were made. The overall results led to a Z-score of 12.47 and are shown in Table 10.

<table>
<thead>
<tr>
<th>TABLE 10</th>
<th>Double Calls VIUR Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hits</td>
<td>2174</td>
</tr>
<tr>
<td>Trials</td>
<td>3600</td>
</tr>
<tr>
<td>Data/EV%</td>
<td>20.78</td>
</tr>
<tr>
<td>z-score</td>
<td>12.47</td>
</tr>
</tbody>
</table>

The standard VIUR test demonstrates the existence of unconscious perceptive power. In the double calls VIUR test the individual is asked to evaluate the processes of his or her own mind and seek to become aware of the evanescent flow of images as the individual envelopes are considered. The process is not new to the religious mind: all spiritual development requires self-examination, wrestling with one’s self, and the search for reality.

In addition to our defense mechanism strategy we had a compelling reason for going to the “double calls” or “comparative choice” technique used in the double calls VIUR test. Although visual images (pictures) were used as targets for conscious and unconscious perception, we did not believe that the mind’s perception of the images would necessarily be in pictorial terms. Just as the ear’s perception of the firing of a gun is distinctly different from the eye’s perception of the same event, so it seemed to us, the mind’s direct perception of the images in the VIUR test could well be distinctly different from the visual perception.

Basically, we thought that the unconscious mind might be distinguishing between the images in more than purely visual terms. If this was so, then the conscious mind might find it necessary, in developing the ability to correctly call the pictures, to learn to evaluate as the unconscious mind was doing, rather than attempting to impose a strictly visual interpretative framework on the calling process. We felt the “comparative choice technique” of the double calls test lent itself well to this approach.
A Developing Skill

Table 10 does not show the pattern of the developing skill of the researcher in calling the pictures. Table 11 presents the data in terms of the means and standard deviations of the first, second, and third groups of 100 runs. In each run the expected value of correct calls is 6. As can be seen, the number of pictures correctly called increased dramatically as the runs continued. The values of the standard deviations declined as the values of the means increased.

The Hot Hand of the Mind

We felt it was possible that there was not a perfectly even balance of forces between the perceptive ability of the mind and the defense mechanism. Rather a psychodynamic tension prevailed, a psychodynamic tension in which a string of hits (the hot hand of the mind) was compensated for by a string of misses.

This kind of compensating action (which turns smaller strings of hits and misses into larger ones) was, in most of our analyses, indistinguishable in measurement terms from the ordering force defense mechanism (which also turns little ones into big ones). However, in the double loops test we had an opportunity to evaluate for psychodynamic tension, the "hot hand of the mind."

The strong conscious exercise of the perceptive power came close to eliminating all trace of the ordering force. Ordered pairs in the double calls test were only 0.56% above expected value and ordered groups-of-four were only 3.89% above expected value. The lack of strong ordering influence should, we thought, make the sequence orderliness test evaluation (which is operating here in an "open deck" situation) quite representative of the action of the perceptive power and its defense mechanism counteraction and give us a good test of our "hot hand of the mind" hypothesis.

Table 12 (next page) gives strong support to the idea. The perceptive power is indeed creating longer than expected sequences of hits and the "pushback" of the defense mechanism is creating an even greater percentage of misses above expected levels.

Easy Calls and Hard Calls

The researcher, in making his calls, combined the learning process with holy thought and took as much time as he felt was needed for each call. Time, patience, and motivation were essential factors in developing the calling skill.

After 134 runs had been made, the researcher became aware that he could tell the difference between those calls when the defense mechanism was not interfering much and those calls when the defense mechanism was really "playing with his mind." Consequently, he began to classify his calls as "easy" and "hard," making the identification before the outcome of the call was known. The hard calls were found to exceed his standard VIUR test calls by a small amount (54.9% as compared to 51.5%). The easy calls were found to be slightly above eighty percent correct (80.8%). (Only 33.5% of the calls were classified as easy.)
<table>
<thead>
<tr>
<th>Sequence Length</th>
<th>Expected Values (Hits)</th>
<th>Data (Hits)</th>
<th>Data/EV% (Hits)</th>
<th>Expected Values (Misses)</th>
<th>Data (Misses)</th>
<th>Data/EV% (Misses)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>341.20</td>
<td>326</td>
<td>-4.46</td>
<td>519.89</td>
<td>507</td>
<td>-2.48</td>
</tr>
<tr>
<td>2</td>
<td>206.05</td>
<td>195</td>
<td>-5.36</td>
<td>205.93</td>
<td>187</td>
<td>-9.19</td>
</tr>
<tr>
<td>3</td>
<td>124.43</td>
<td>128</td>
<td>-2.67</td>
<td>81.57</td>
<td>91</td>
<td>11.56</td>
</tr>
<tr>
<td>4</td>
<td>75.14</td>
<td>80</td>
<td>6.46</td>
<td>32.31</td>
<td>37</td>
<td>14.51</td>
</tr>
<tr>
<td>over 4</td>
<td>114.56</td>
<td>115</td>
<td>0.38</td>
<td>21.20</td>
<td>23</td>
<td>6.49</td>
</tr>
</tbody>
</table>

**Patterns and Defense Mechanism Emotion**

From our work with electronically generated random events we were well aware that the unconscious mind is acutely conscious of the patterned nature of the events with which it is presented. Through use of our double loops technique we have traced some of the ways the unconscious mind plays with patterns of electronically generated data. Thus, when we set up the double calls test for our researcher we deliberately did not randomize all 12 pairs of envelopes. We randomized one pair of envelopes at a time, thus avoiding the structured pattern of 12 calls in a run. After 84 "runs" of this nature (1008 calls) we began randomizing 12 pairs of envelopes at a time to see if the researcher could notice any difference in the calling pattern.

Following this change the researcher reported that an immediate difference was felt. He found the first two calls in the structured runs very difficult to make while the third call was somewhat easier to make. The researcher felt that the defense mechanism was initially more than usually obstructive (the first two calls) and then eased off (the third call). Accordingly, we evaluated for this and found that the number of times the first two calls were both missed ran 30% above expected value. Given the small size of our data base we cannot attach statistical significance to this 30% figure but the fact of the researcher's identification of the phenomenon before evaluation was made was sufficient to cause us to attach provisional reality to the presumption of a "kickback" of this kind by the defense mechanism.

It was only after 48 runs that scoring performance began to noticeably rise. In the first 48 runs 51.22% of the total calls were hits. In the next three groups of 84 runs each, scoring rates were 58.43%, 60.52%, and 67.46% respectively. A developing psi hitting ability for this researcher under the conditions of this test seems indicated.

**DISCUSSION**

The kickback from the defense mechanism when the runs were structured in sequences of definite length indicates both an awareness of pattern and an emotional component of the operative will of the defense mechanism. The researcher felt that his advance up the learning curve was essentially a struggle against this opposing will.

Since the kickback did not appear when calling was not accompanied by conscious effort, call by call, to defeat the defense mechanism, the attribution of characteristics of awareness.
responsiveness, thought (of an emotional as well as a logical nature), and action to the defense mechanism seems justified. This outlook is supported by all the tests in the VIUR group.

On a cautionary note, and for those who wish to try the double calls VIUR test, let it be said that the researcher found the test a challenge in time-consuming patient effort.

**DISCUSSION**

Spindrift's researchers have been pursuing what can be termed consciousness-oriented research since 1975. Looking back over those years it can be concluded that their most important discovery is the existence of an ordering force inherent in human consciousness. Tests of psi, tests which are based on measurement of this organizing power, are dependable, repeatable, and may utilize either conscious or unconscious thought. In the case of the VIUR test they utilize unconscious thought and are thus repeatable by any individual.

Our tests have a strong conceptual background behind them, a background rooted in our study of the relationship between spiritual healing and the power of prayer. We felt that a strong experimental methodology had to rest on a strong conceptual structure and we worked to develop such a conceptual structure. Naturally, we worked from the religious background we were familiar with.

In our research we are dealing with a power which develops, sustains, and maintains identity. Any power which works in the best interests of identity is, by definition, loving, kind, healing, and so on, for love and goodness, the qualities of God, have always been conceived of in these terms.

Since identity is such a very complex thing, any power which is able to work efficiently in such a systems environment, manipulating that environment to an end which requires an immense number of intricate adjustments and thus also requiring awareness of an enormous database and the inter-relationships therein -- such a power is, by definition, wise as well as good. As can be seen, from the measurable effects of the patterning power of the mind it is possible to characterize such a patterning power in terms which have defined holiness down through the ages.

Virtually every spiritual healer is aware of the resistance of the human mind to spiritual healing, resistance to the pattern-sustaining, pattern-mending power of spiritualized consciousness, prayerful, holy thought. Whether or not the universe is a thing of consciousness in its entirety and the nature of the world around us determined by the interaction of opposing modes of thought is moot. It was, however, out of such an outlook that Spindrift's research began. And, as we turned from more complex systems to the simplest system we could think of, the binary sequence, we found this activity of ordering force and reaction, perceptive power and reaction, in simple and easily measurable forms. Consciousness and form, consciousness and pattern, were found to be related at the deepest levels of identity.
APPENDIX A

THE EQUATION FOR THE "CLOSED DECK BIAS"

In developing an equation that would provide expected values for "ordered pairs" (occurrences of both binary elements in groups-of-two) in trials of finite length where trials are of even numbers and both elements of the binary sequence of trials are equally represented we began by working out the expected values by hand for the cases of 2, 4, 6, and 8 trial lengths.

From these figures we noted that ordered pairs were represented 2, 4, 18, and 80 times while the total number of possibilities was 2, 6, 30 and 140 times. We expressed these values as a series of fractions as follows with ordered pairs as the numerators and total number of possibilities as the denominators:

$$\frac{1}{1}, \frac{2}{3}, \frac{3}{5}, \frac{4}{7}...$$

By examining this series we concluded that the formula for the "closed deck bias" was \((n/2)/(n-1)\) where "n" represented the number of trials in the run.

The mathematical mechanism which underlies the series can be explored more fully. In sequences \(n/2\) elements long (where \(n\) is an even number) and whose elements are binary occurrences equal in number the probability of occurrence of a second element unlike the first is \((n/2)/(n-1)\). The probability of following pair or pairs having a second element unlike the first depends on the composition of the preceding pair or pairs. However, the effect of the probability of pairs other than the initial pair to modify the \((n/2)/(n-1)\) value cancel out.

Let us illustrate this fact with a sequence 6 trials long. In the 6 trial case \((n/2)/(n-1)\) equals 3/5. The sequence is \((n/2)\), that is, 3 pairs, long and there are \((n/2)-1\) that is, 2 degrees, of freedom. (When the composition of 2 pairs is established the composition of the third pair is fixed.)

We begin by examining the case where all three pairs possess both binary elements. In the first element of the first pair either element may be chosen. A correct choice probability is 6/6. The probability of the second element being unlike the first is \((n/2)/(n-1)\).

If the second probability has been fulfilled the probability of either element being chosen as a third term is 4/4 and the probability of the fourth term is \(((n-2)/2)/(n-3)\). The final two terms are fixed.

In this selection sequence probabilities of selection for successive terms are as follows:

$$6/6, 3/5, 4/4, 2/3, 2/2, 1/1$$

The probability of this entire selection sequence of events is 3/5 times 2/3 or 2/5.

Let us consider now the two sequence probabilities which exist if the most likely probability for the initial pair (3/5) is not fulfilled. We will see that the sum of probabilities for the two alternate event sequences cancels the effect of the second pair probability (2/3) in the initial probability sequence. (This cancellation of term or terms occurs no matter how large \(n/2\) may be.)

The two alternative sequence probabilities are:

$$6/6, 2/5, 3/4, 1/3, 2/2, 1/1$$
$$6/6, 2/5, 1/4, 3/3, 2/2, 1/1$$
The probability of pairs containing both binary elements is $2/5$ times $3/4$ times $1/3$ plus $2/5$ times $1/4$ or $1/5$. When this value $(1/5)$ is added to the probability of the initial sequence occurrence $(2/5)$ the probability of numbers of pairs containing both binary elements is seen to be $3/5$.

Thus the effect of the probability of pairs following the first pair in the initial sequence is seen to be canceled. This is the mechanism by which the integrity of the series represented by $(n/2)/(n-1)$ is maintained.

Ideally, perhaps, we should have avoided the closed deck problem and done what Soal, the British mathematician, did in his efforts to replicate the Rhine's work in the 1930's, namely, randomize 100 decks of cards and then divide the pool of cards into 100 individual decks. However, we obtained data not only from the two researchers who worked on this project but from 7 other individuals we were able to persuade to help us. Such a nicety was not possible in our judgment. In addition, Soal used the standard ESP symbols whereas we did not. We would have needed many times the number of decks Soal used. More importantly, we were misled, early on, as to the size of the artifactual skewing of alternating order in runs of 24 trials.

Our avoidance of the conventional ESP symbols was deliberate. We felt, with experimental justification, that the mind related more strongly to depth of meaning than to simplicity of pattern.
APPENDIX B

ACTION AND COUNTERACTION IN THE CALLS OF A BRIDGE DECK

Initially we conceptualized the ordering force as a power that would tend to increase the height of the center bars of the distribution of correct calls and the opposing force, the defense mechanism, as a force which would push outward toward the tails of the distribution. We conceptualized the perceptive power in the traditional way, as a force that would right-shift the distribution. To test these outlooks we asked individuals on our network to sort bridge decks into two piles, one for each color. Then they were asked to count the correct red guesses and the correct black guesses to determine the number of hits. More than 40,000 runs were made; more than two million cards were called.

To evaluate the data we set up what we termed a "7-point profile" the elements of which should, under appropriate conditions and on the basis of our hypothesis, satisfy 16 inequalities.

Initially the data of the distribution were organized into seven groups, each group corresponding to a portion of the distribution. Group 1 consisted of the number of times 19 or fewer cards were correctly called. In like manner Group 7 consisted of the number of times 33 or more cards were correctly called. Group 2 consisted of the number of times 20 or 21 cards were correctly called. In like manner Group 6 consisted of the number of times 31 or 32 cards were correctly called. Group 3 consisted of the number of times 22, 23, 24 or 25 cards were correctly called. In like manner Group 5 consisted of the number of times 27, 28, 29, or 30 cards were correctly called. Group 4 consisted of the number of times 26 cards were correctly called. These groups were compared to each other and to groups chosen in the same way from the theoretical distribution defined by the term $C_{n,p}q^{n-p}$. The groups were chosen in this way to best bring out the pattern we predicted would appear.

When the elements of the distribution produced by the data from the individuals contributing to the study were divided by the expected values (this was done for the seven groups) we called the resulting percentages a seven-point profile. It is those percentages (the seven-point profile) which were used in our evaluation.

Sixteen inequalities which should characterize those groups were looked for. In order for those inequalities to always appear it is necessary to have a good amount of data and to average data in fairly equal amounts from a number of individuals. The inequalities assume that psi-hitting is more common than psi-missing in the population; this assumption underlies the need to fairly equally represent a cross-section of individuals in the data.

It was predicted that the "tails" of the distribution (Groups 1 and 7) would be larger than the theoretical equation-derived statistical prediction. This was predicted on the grounds of a counter-balancing or "defense mechanism" force pushing out from center (ordering force defense mechanism) coupled with the action of the perceptive power and its corresponding defense mechanism. It was predicted that the center (Group 4) would be larger than the theoretical statistical prediction. This was because of the balancing or ordering force pushing in toward center (also working to draw down the tails). Because of the draining of the area between tails and center by both groups of forces (forces pushing toward and away from center) it was predicted that Groups 3 and 5 would be less than the theoretical statistical prediction.

Because of the right shift of the distribution (predominance of psi-hitting over psi-missing) Group 7 should be larger than Group 1, Group 6 should be larger than Group 2, and Group 5 should be larger than Group 3.
More than three-fourths of the distribution is theoretically expected to be in Groups 3, 4, and 5. Groups 2 and 6 are more part of the tails than of the center. (The groups were chosen in this way.) This means that (because of the outward thrust) Group 1 should be larger than Group 2, Group 2 should be larger than Group 3, Group 7 should be larger than Group 6 and Group 6 should be larger than Group 5.

In addition, Group 4 (the center element of the distribution) should be more above expected values than any of the other groups except for, perhaps, the tails. Group 4 should be larger percentage-wise (above expected values) than Groups 2, 3, 5, and 6.

Over a large number of runs those inequalities should appear given representative contributions in the makeup of the distribution. When we evaluated the seven-point profile of runs submitted by the nine participants who contributed data using a maximum of 500 runs from each participant we found that the 3,500 runs involved satisfied 13 of the 16 inequalities. When we added 500 runs each from the 5 participants who contributed more than 500 runs we found that all 16 inequalities were satisfied by the resulting 6,000 runs.

Most of the 40,000 runs in this distribution came from three people and the grand total was not well balanced over a number of contributors. When imbalance enters in, the number of satisfied inequalities tends to reflect the characteristics of the individual contributors. In the case of this distribution the contributions were well enough balanced to continue to satisfy the 16 inequalities up to a total of 29,500 runs. On the basis of those runs the "right" card was called 0.23% above norm (slight psi-hitting). The seven-point profile was: 0.5, -0.6, -2.4, 4.1, -0.1, 0.0, 12.5. As substantial additional runs came in from just two people the number of inequalities satisfied sank to 14. Note that, in the seven-point profile, in addition to the center being above expected values, both tails are above expected values. Action and counteraction are in evidence.
APPENDIX C

ACTION AND COUNTERACTION IN THE FALL OF DICE

To generalize the concept of a maximum of binary order beyond the simplest form of alternation and to look for evidence of a defense mechanism we turned to our dice data. The dice data were collected by two researchers. 163,440 throws of dice were made. No dice fall evenly, including those made specifically for such purposes. We, therefore, adopted a system of evaluation which allowed for this: instead of throwing one die and recording the frequency with which a given number appeared we threw two dice and recorded only doubles. Whatever the tendency of a number to come up may be, the sum of the probabilities for all six numbers is unity and a throw of doubles should occur, on average, once in every six throws. We used a cylindrical container for the shaking and throwing of the dice. Data recording was manual. 72,000 throws were contributed by one researcher, the balance by the other. The expected value for doubles (one-sixth of the total throws of pairs of dice) was 27,240. Doubles came up 27,313 times. Thus the norm was approximated to less than 27/100ths of a percent.

Table 13 was produced by counting the number of times a double appeared in every 6 throws of the dice. Six passes through the data were made. Considering the data as a string of 163,440 bits (binary digits) where the digit 1 has an a priori probability of 1/6 and 0 an a priori probability of 5/6 the string of bits n₁, n₂, n₃, ..., n₁₆₃₄₄₀ was gone through tallying the number of 1's in n₁ through n₆, n₁₃ through n₂₀, and so on. For each subsequent pass through the data we offset the sequence of raw data by 1 trial (or offset the starting point of the first group of 6 by 1 trial) in order to create a new sequence of groups of 6 spanning the entire data base, and repeated this for offset-by-2, offset-by-3, by-4, and by-5 in order to cover the six possible ways that the data could be split into consecutive groups of 6 provided that the data were treated as a "loop" with no endpoints rather than as a linear chain.

<table>
<thead>
<tr>
<th>Group Values</th>
<th>Data</th>
<th>Data%</th>
<th>EV%</th>
<th>Data/EV%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>54,150</td>
<td>33.13</td>
<td>33.38</td>
<td>-0.75</td>
</tr>
<tr>
<td>1</td>
<td>56,407</td>
<td>40.63</td>
<td>40.19</td>
<td>1.10</td>
</tr>
<tr>
<td>2</td>
<td>32,689</td>
<td>20.00</td>
<td>20.16</td>
<td>-0.78</td>
</tr>
<tr>
<td>3</td>
<td>8,796</td>
<td>5.38</td>
<td>5.39</td>
<td>-0.21</td>
</tr>
<tr>
<td>4</td>
<td>1,290</td>
<td>0.79</td>
<td>0.81</td>
<td>-2.74</td>
</tr>
<tr>
<td>5</td>
<td>103</td>
<td>0.06</td>
<td>0.07</td>
<td>-3.24</td>
</tr>
<tr>
<td>6</td>
<td>5</td>
<td>0.00</td>
<td>0.00</td>
<td>-</td>
</tr>
<tr>
<td>Totals</td>
<td>163,440</td>
<td>99.99</td>
<td>100.00</td>
<td></td>
</tr>
</tbody>
</table>
On the one hand, this is a sensible way of averaging out the arbitrariness of a particular choice of where the group (group of 6) boundaries should fall; on the other hand, it artificially inflates the effective number of data points by a factor close to 6, because each group sequence is strongly correlated with its neighbors. The evaluation produced a distribution whose elements ranged from 0 to 6. Because of the multiple passes through the data the pattern stands out more clearly than it otherwise would.

The number of counts represented in Table 13 is equal to the total number of throws of dice (163,440). Column 1 presents these counts. Column 2 presents these counts as percentages of the whole. Column 3 presents the expected values for such counts and Column 4 presents the percentages by which the data are over-or-under expected values. The trend toward sequential order (an above-expected-value number of groups of 6 with a value of 1) can be seen. The calculation of expected values reflects the exact number of doubles in the data. (This means that the term "p" in the calculation of the binomial expansion is not 1/6 but is calculated from the exact number of doubles thrown.)

All of our data show that the effect of an observing human consciousness on randomly developing sequential pattern is to make the pattern more orderly in sequential terms. We wanted to know if the effect was proportionally equal on each possible combination of hits and misses (of doubles and non-doubles in this case).

In making our evaluation we used only three categories of doubles: 0 doubles in 6 throws, 1 double in 6 throws, and 2 doubles in 6 throws. This is because there were too few occurrences in the 3, 4, 5, and 6 doubles out of 6 throws categories to be reliable.

We reasoned that the percentage of times 0 doubles should be thrown in 6 trials provided us with a figure (33.38% of the time in this case) that represented a quantification of the amount of disorder allowed in the balance between ordering and disordering forces in this category (0 doubles thrown). We reasoned that the percentage of times 2 doubles should be thrown in 6 trials provided us with a figure (20.16% of the time in this case) that represented a quantification of the amount of disorder allowed in the balance between ordering and disordering forces in this category (2 doubles thrown).

In the case of 1 double in 6 trials the amount of disorder is represented by the percentage by which the expected number of occurrences is less than unity (maximum order, 1 double in every 6 throws). That's because this figure should ideally be 1 while the other figures for doubles thrown should ideally be 0. (In this case the quantification of disorder is -59.81%.) Since each of these three figures (33.38, -59.81, and 20.16) represent a quantification of disorder unaffected by observing consciousness it could be expected that these figures would be modified downward (in terms of absolute values) by an observing consciousness.

Table 14 (next page) presents the results of our check on the reduction of disorder (increase of order) on the probability distribution formed by the thrown dice.

In Table 14 we used the data from the 1 double in 6 trials category as a reference point. This was because it was the largest data category. According to the theoretical calculation, 40.19% of the data should have fallen in that category. Actually, 40.63% of the data did. This represented an increase in order from 40.19% to 40.63%. It also represented a decrease in disorder from -59.81% to -59.37% in terms of absolute values. In other words, the figure of 59.81 (which represents the "norm" for disorder) was modified downward to approximately .9925433% of its expected value. If we modify the other two expected values, or norms of disorder (33.38 and 20.16), by the same amount we arrive at the values in the "Calculated Data Values" column. As can be seen by comparison with actual data values the agreement is very good. Data indicate that increase of order is equal percentage-wise across
differing levels of disorder.

<table>
<thead>
<tr>
<th>TABLE 14</th>
</tr>
</thead>
<tbody>
<tr>
<td>(All Figures are Percentages)</td>
</tr>
<tr>
<td>Doubles Thrown</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
</tbody>
</table>

We have noticed that in the data from the VIUR test the number of most ordered groups increases (above expected values) as we go from groups of 2 trials to groups of 4 trials and from groups of 4 trials to groups of 6 trials and so on. However the increase is variable, apparently depending on strength of associational linkage and on defense mechanism activity. Disorder often sets in. There seems to be some kind of a mechanism here and we looked for it in the dice data. There we found evidence of counter-attack, the defense mechanism at work in a fashion other than the simple modification downward of all values equally.

Table 15 was formed by taking each group-of-six (in the dice data we evaluated by groups-of-six) and then looking at the value of the immediately following group-of-six (by value we mean the number of doubles in 6 throws of the dice). The ordering force is increasing the orderliness of the groups-of-six. It is also increasing the orderliness of the ways the groups-of-six are strung together and we should see evidence of this in the table. For the most part, we do. However, we also see evidence of an opposing force at work. The shaded areas of the table show the action of the opposing force.

As Table 15 shows, very large value groups-of-six tend to be followed by very large value groups-of-six and 0 value groups-of-six do not tend to be followed by large value groups-of-six. This tends toward disorder. Table 15 shows that the small-value groups-of-six (which are under the influence of the ordering force as evidenced by the fact that they are small) are also responding to the ordering force sequentially. We also see that the large-value groups-of-six (which are under the influence of the disordering force as evidenced by the fact that they are large) are also responding to the disordering force sequentially. It presents a scene where each side has its "soldiers" and is using them. Action and counteraction are in evidence.

In Table 15 the column headings represent the values of the reference groups-of-six. The row values represent the values of the immediately following group-of-six. In constructing the table we have omitted percentages which did not reflect at least 0.01% of the data.
<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>-0.22</td>
<td>-0.37</td>
<td>0.13</td>
<td>3.25</td>
<td>1.08</td>
<td>17.21</td>
</tr>
<tr>
<td>1</td>
<td>-0.50</td>
<td>0.81</td>
<td>-0.26</td>
<td>-1.34</td>
<td>-3.27</td>
<td>-21.15</td>
</tr>
<tr>
<td>2</td>
<td>1.09</td>
<td>-0.80</td>
<td>0.26</td>
<td>-1.95</td>
<td>2.32</td>
<td>6.79</td>
</tr>
<tr>
<td>3</td>
<td>1.30</td>
<td>-1.06</td>
<td>0.33</td>
<td>-3.46</td>
<td>12.35</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>-0.80</td>
<td>0.36</td>
<td>-0.78</td>
<td>8.03</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>-9.16</td>
<td>0.92</td>
<td>6.79</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
APPENDIX D

THE EQUATION OF SEQUENTIAL ORDER

The probability of (let us say) a hit being preceded by a miss (in a fair flip of a fair coin) is .5 only when perfect randomness is assured. It is often overlooked that perfect randomness, in this case, reduces to an assurance (in mathematical terms) of given numbers of sequences of varying length in the total number of trials. For example, if, in 100 flips, 50 hits occur in a row and 50 misses occur in a row, the probability of a hit being preceded by a miss is as small as it can become in a series of hits and misses. If, on the other hand, hits and misses alternate for 100 flips, the probability of a hit being preceded by a miss is as high as it can become. The .5 probability is completely related to sequence lengths. When one discovers (as the VIUR test shows) that the organizing power of thought is (in the case of binary sequences) productive of alternating order, tools for examining sequential order become essential.

Early in our research it was realized that the conventional formulas (p times p, q times q, p times q, and q times p) for determining the probability of occurrence of individual groups of two (0,0; 1,1; 0,1; 1,0) could be considered a simplified statement of the relationship of sequences of hits of varying lengths within the long sequence of hits and misses. Accordingly, the researcher responsible for the mathematical analysis developed a formula for determining the probability (expected values) of numbers of sequences of hits and misses of given lengths. This formula was termed the "equation of sequential order". The mathematical formulation was initially worked out on a hand calculator, then expressed by the researcher in terms of a computer program and, ultimately, expressed in terms of a mathematical formula.

The equation of sequential order (expected value = formula) recognizes that if an element "e" of a distribution is to occur alone the probability is pq. If two values of e are to occur together the probability is p^2q. If three values of e are to occur together the probability is p^3q and so on. For every element of such a discrete distribution (every value of e), a series exists of the type pq + p^2q + p^3q...p^nq. The limit of this series is p for every instance of e and the sum of the limits of the series for all e's (values found in the distribution) is unity.

For calculating the expected values of numbers of sequences of varying lengths the formula developed is as follows ("p" represents probability of hits, q=1-p, s = sequence length, and n = number of trials made).

\[
\left( \sum_{s=1}^{n} sp^s \right) \frac{np}{s}
\]
The computing version of the formula may be expressed as follows:

```
DEFINT I-K
DIM p(50)
n = 50
CLS
INPUT "input hits "; p
INPUT "input trials "; nn
p = p / nn
q = 1 - p
nn = nn * p
'expected values of unique sequence occurrences of hits
FOR i = 1 TO n: p(i) = q * p: NEXT i
'expected values of unique sequence occurrences of hits expressed as percentages
FOR i = 1 TO n: p(i) = p(i) / p: NEXT i
'sequence expected values represented as numbers of hits
FOR i = 1 TO n
  p(i) = p(i) * i
  sum = sum + p(i)
NEXT i
'expected values of sequence hits represented as expected values of percentages of hits
FOR i = 1 TO n
  p(i) = p(i) / sum
NEXT i
'(1) expected values of percentages of hits in sequences expressed in terms of actual trials and
'(2) expected values of numbers of sequences at actual trials level
FOR i = 1 TO n
  p(i) = p(i) * nn
  p(i) = p(i) / i
NEXT
END
```

If the long sequence of hits and misses is considered as a closed circle rather than as a sequence with definite beginning and definite end then the number of sequences of hits and the number of sequences of misses will be equal, just as the number of time markings on the face of a clock and the number of intervals between them are equal. It can be seen that no group of two with values of 0,1 or 1,0 may be formed within a sequence of 0's or 1's. Such groups of two can only be formed at the ends of sequences of hits or misses. Therefore, if more 0/1 and 1/0 groups of two are to appear than expected values would indicate the number of sequences of hits and misses must increase and the length of such sequences must accordingly decrease.

The relationship between sequence lengths and the conventional formulae determination of the number of groups of two with no hits (groups of two with a value of 0), one hit (groups of two with a value of one), or two hits (groups of two with a value of two) may be seen in that the following program will produce the same results as the pq formulations, whatever value p may carry. In the program, the p array carries the values for sequences of hits produced by the equation of sequential order for a given value of p and the pp array carries the values produced by the equation of sequential order for sequences of misses for the corresponding value of q. "n" represents the number of provided values to be considered.
'computation of groups of two value 0
value0 = value0 + pp(2) * .5
FOR i = 3 TO n STEP 2
    value0 = value0 + ((i - 1) / 2) * pp(i)
NEXT i
FOR i = 4 TO n STEP 2
    value0 = value0 + ((i - 2) / 2) * pp(i) + .5 * pp(i)
NEXT i
PRINT : PRINT value0
'computation of groups of two value 1
FOR i = 1 TO n: value1 = value1 + p(i): NEXT i
PRINT : PRINT value1
'computation of groups of two value 2
value2 = value2 + p(2) * .5
FOR i = 3 TO n STEP 2
    value2 = value2 + ((i - 1) / 2) * p(i)
NEXT i
FOR i = 4 TO n STEP 2
    value2 = value2 + ((i - 2) / 2) * p(i) + .5 * p(i)
NEXT i
PRINT : PRINT value2

If we look at the number of groupings in a data sequence with reference to the expected values provided by the equation of sequential order we call this analysis a "sequence orderliness test". The sequence orderliness test looks at the number of sequences of various sizes in a specific number of trials. The sequence orderliness test is particularly useful in that it can reveal characteristics of 0's and 1's apart from the relationship of the 0's and 1's. The sequence orderliness test provides expected values for the number of sequences of varying lengths which may be expected to occur in a given number of trials. If a series of trials is considered as a closed circle the number of sequences of 0's and 1's will be identical for both 0's and 1's. However, the numbers of sequences of varying lengths may vary for the 0's and the 1's. This ability to vary provides information about the effect of the ordering force on one picture or the other (the primary image and the secondary image), information which is somewhat independent of the sequential relationship between the two pictures.

Since the ordering force acts to increase alternating order, and since an increase in alternating order requires more "stand alone" 0's and 1's than expected values would indicate, we correspondingly find that the sequence orderliness test reveals that the ordering force is acting to provide above expected value sequences of 0's and 1's one unit long within the larger sequence of mingled 0's and 1's. It may be seen from the data that for both the calls and the falls sequences the ordering force is decreasing the number of long sequences of 0's and 1's and, the longer the sequences are, the more they are diminished in number percentage-wise.
VIUR TESTS: CONCEPTUAL PROBES, PROGRAMMED DEFENSES

Spindrift, Inc.

ABSTRACT: VIUR (Visual Image, Unconscious Response) tests use methodology which is essentially that of standard ESP card test procedures. VIUR tests however, although methodologically orthodox, are unique in the theoretical perspectives from which data are analyzed. An ordering force acting on the calls and falls of the images is postulated as well as an awareness of the images called. Also postulated is a defense mechanism acting to conceal the ordering and perceptive powers of the mind. Given the uniqueness of the structuring and evaluation of the tests and the power of the results, an effort is made throughout the paper to state clearly the postulations and logic which guided the successive steps leading to the results achieved and to conceptually link the VIUR tests to Spindrift's other research. The various VIUR tests described in this paper represent conceptual probes of the programmed defenses of the unconscious mind. By varying the structure of the probes, the nature of the defensive programming can be brought to light.

INTRODUCTION

It has been often said that gold is where you find it and this is equally true of new intellectual conceptualizations and discoveries. It has also been said by many, including Heisenberg, that a fertile field for discovery is in the intellectual terrain where unlike disciplines meet and mingle. This is true of the VIUR tests which combine parapsychological techniques and the conceptual perspectives of practicing spiritual healers (Christian Science practitioners).

Without an underlying fabric of conceptualization and logic the results described in this paper would appear as little more than statistically compelling and greatly curious anomalies and further study of them would be difficult. Thus, a decent respect for those who may care to carry further the approaches used requires that the conceptualizations and logic be clearly stated.

The fact of underlying conceptual structure and logical progression does not require that the results obtained vindicate the methods used to obtain them. The initial postulations are not thereby proved; only a limited heuristic value has been demonstrated.

Although the researchers responsible for the VIUR tests and most of Spindrift's work are Christian Science practitioners, Spindrift itself is not a denominational organization. The concepts used to guide Spindrift's research essentially reflect: (1) conceptualizations common to Christianity in general, (2) conceptualizations on which Christianity has not yet generally pronounced, and (3) translations of theological perspectives into conceptualizations capable of being experimentally tested, conceptualizations on which no form of Christianity has yet officially rendered a positive opinion.

The individuals who developed Spindrift's research and the VIUR test believed that order and holiness were connected. They believed that the healing power of Christianity (healing flowing from embodiment of the qualities or attributes of God) could be interpreted quantitatively in terms of pattern. More succinctly put, they believed that holy states of thought were pattern-developing and pattern-mending. Thus, they developed a mode of research which measured in reference to pattern, which measured in terms of quantitative responses to forms of prayer which were "qualitative" in nature.
Carrying this line of thought a bit further these individuals believed that the classic dilemma of Christianity (the origin of evil) and the problem with which Einstein wrestled and which parted him from his colleagues (the dilution of cause and effect linkages through probabilistic action at the quantum level) were but different statements of the same great riddle. Epicurus made the classic statement in qualitative terms; Robert Owen paraphrased the statement in quantitative terms. In Epicurus' translated words:

Is He willing to prevent evil, but not able?  
Then is He impotent.
Is He able but not willing?  
Then is He malevolent.
Is He both able and willing?  
Whence then is evil?

In Robert Owen's paraphrase:

Does Cause seek to govern all, yet is unable?  
Then is it not all-controlling.
Is Cause able, yet selective?  
Then is it not uniform of purpose.
Is Cause all-controlling and uniform of purpose?  
Whence then is disorder?

It is not possible, given the current state of development of Spindrift's research, to demonstrate a working link between goodness on the one hand and order on the other. It is possible, given the current state of development of Spindrift's research, to demonstrate that certain states of consciousness can be associatively linked to a target system and will bring that system closer to an ordered state. The conscious use of this process from a conceptual basis rooted in Christianity may be seen as the mechanism of spiritual healing.

In developing the VIUR tests it was assumed that this process operated on an unconscious level as well as a conscious level. From this assumption the development of the VIUR tests required the determination of the nature of the order to which the calling of the pictures was referenced as well as the determination of the nature of the blocking process inherent in consciousness, a blocking process with which every spiritual healer is familiar.

The VIUR tests could not work without unconsciousness knowledge of the identity of the pictures being shuffled or called. (Pictures are used in VIUR tests rather than the more conventional symbols of the traditional ESP test.) This raised the question of the perceptive power, something which is far more in evidence in biblical and Christian history than in the more modern journals of those scientists who, in the last century, have investigated this power. If the perceptive power is natural (but blocked by defense mechanisms) it might follow that religious states of mind are capable of modifying these mechanisms. If so, a mechanism for the connection between holy states of mind and the phenomenon of mental and spiritual perception is identifiable.

In working with other tests in the VIUR group (the standard VIUR test, the no calls VIUR test, the double calls VIUR test) we found that the defense mechanism used both high-energy approaches, mid-energy approaches, and low-energy approaches in concealing the fact of psi (the organizing power and the perceptive power) from the conscious mind.

The high-energy approach met the fact of psi head on. For example, a string of psi hits would be offset by a string of defense mechanism misses, misses which occurred in the appropriate amounts
VIUR Tests: Conceptual Probes, Programmed Defenses

whether or not the image was strongly related to (primary image) or weakly related to (secondary image).

The other approaches were more devious and used what we called the "patsy principle". They would, for example, offset a string of primary image hits with a string of secondary image misses if this could be done in an area where no one was likely to look. Briefly stated, it seemed apparent to us from our earlier work that the action of the defense mechanism was never perfect but almost always adequate. The exploratory conscious mind was little match for the concealing unconscious mind.

**THE 4X4 VIUR TEST: INTRODUCTION**

In setting up the 4x4 VIUR test we deliberately set up a test which gave scope both to the high-energy approach and to the patsy principle. In doing so, we relied on observations we had made in a preliminary study for the VIUR tests, a study in which we called the cards in half a pinochle deck (A-9 of the four suits). We felt that the defense mechanism was depressing the correct calls of cards which were weakly related to in order to offset the correct calls of cards which were strongly related to. Because 24 different cards were involved, this was something extremely unlikely to be picked up unless one was specifically looking for it.

We wanted a test which involved enough different images to keep the patsy principle operating but which involved as few cards as possible. This was to keep the amount of calling which had to be done to a minimum. In considering how best to set up such a test we fell back on an idea familiar to us, the fact that associations of images often carry more associational linkage to the perceiving mind than do those images independently. Thus, the 4x4 VIUR test was born.

**THE 4X4 VIUR TEST: METHODS AND MATERIALS**

In the 4x4 VIUR test we used the 16 possible combinations of 4 images and 4 colors. Each image was in black and white and sat in the center of a 3x5 sheet of paper. Around the black and white center was a single color background.

In producing each of the 16 "cards" to be called we took a black and white image and pasted it on to a 3x5 piece of colored paper. This resulting "paste up" was then photocopied in color. The photocopying produced 3x5 "cards" of uniform thickness and texture. Those cards were then put into envelopes and called. In each trial a color call and a picture call were made. A notation on the back of each envelope indicated the identity of the color/picture combination inside.

The calling procedure was preceded by shuffling the deck 6 or 7 times with the front of the envelopes face up. The deck was then cut and rejoined. After making the first call the researcher placed the envelope beside the shuffled deck. Each successively called envelope was placed on top of the previously called envelope. Calls were recorded on a data sheet by the researcher doing the calling as the calls were made. After the last call was recorded, the completed deck of called envelopes was turned over and the actual falls of the picture were also recorded by the researcher. In this test 16 envelopes were used and thus each run consisted of 16 trials. 1320 runs (21,120 trials) were made.

The colors used were red, black, blue, and green. The images included a scratchboard drawing of a mother and child, the number 4, a spade (as in a deck of cards), and the equation E=mc² surrounded by an oval (an image which, in a more stylized form, serves as Spindrift's logo).

An assumption behind the card-calling tests is that results can be influenced by: (1) the use of feedback as in the double calls VIUR test, (2) test structure, that is, stacking the test against the
defense mechanism and for the person as in the 2x2 VIUR test, and (3) through use of qualitative thought to reduce or "heal" the power of the defense mechanism. In the belief that all of these things contribute to results, including the power of holy thought, the researcher devoted time to prayer before each run was made.

In each trial (each call) four outcomes are possible: a miss, a correct color call, a correct picture call, or an exact match, that is, the correct identification of the exact color/picture combination. The heart of the 4x4 VIUR test is the examination of the distribution of the exact matches. We assumed that to the extent color and picture matches were offset, they would be offset by high energy strategies. We hoped, apparently correctly, that the exact matches would be offset by the patsy principle, a low energy strategy.

THE 4X4 VIUR TEST: RESULTS (PERCEPTIVE POWER)

Expected values tell us that in 21,120 calls (1320 runs of 16) 5,280 correct color calls and 5,280 correct picture calls are the norm. Data were 5,373 and 5,480 respectively. If one wishes to consider the data in terms of 42,240 calls with each correct call having a .25 probability of occurrence this leads to a z-score of 3.29. One could thus assume that psi hitting was probably occurring and one could also suppose that the mind of the researcher was more closely linked to the pictures than to the colors.

It was our hope that the unconscious mind of the researcher would relate strongly to some of the color/picture combinations among those we selected. If this happened -- and if the patsy principle was operating -- then such combinations would emerge as "high flyers." "Low flyers" would, as a consequence, also emerge. If such combinations fell out in a non-canceling way as far as colors and pictures were concerned then the balance of the colors or the pictures might be skewed and we used chi-square to check for this.

In 21,120 trials with each exact match having a one-sixteenth chance of occurring (p = .0625) the expected value of exact matches was 1320. The datum was 1413. This led to a z-score of 2.64. In terms of chi-square the balance of exact matches between the four pictures showed nothing; however, the balance of exact matches between the colors did. There were 4,690 red calls, 5,047 black calls, 6,413 blue calls, and 4,970 green calls. If we allocate the 1,413 exact hits proportionally among the colors and compare the resulting figures to the data of 265, 362, 464, and 322 respectively, chi-square is significant at the one percent level of confidence (chi-square = 12.52).

Our next step was to examine the exact matches more carefully. We had a datum (number of correct calls) for each of the 16 color/picture matches and we calculated a corresponding expected value for each datum by dividing the number of calls of each color/picture combination by 16. Here we found our first shred of evidence that the patsy principle was operating, the circumstance underlying the chi-square score. All of the exact match hits which included the color red were depressed. With but one exception, all of the other exact hit data were above expected values.

Our highest flyer was the blue mother and child combination. This picture and this color were correctly called as a combination 30.61% above expected value. The corresponding "patsy" appeared to be the combination of the color green and the numeral 4. This combination was correctly called 24.05% less than expected value. Data are given in Table 1.
TABLE 1

<table>
<thead>
<tr>
<th>Image</th>
<th>Calls</th>
<th>Matches</th>
<th>Data/EV% A</th>
<th>Data/EV% B</th>
</tr>
</thead>
<tbody>
<tr>
<td>red spade</td>
<td>1115</td>
<td>58</td>
<td>-16.77</td>
<td>-16.41</td>
</tr>
<tr>
<td>red logo</td>
<td>1269</td>
<td>69</td>
<td>-13.00</td>
<td>-15.66</td>
</tr>
<tr>
<td>red m&amp;c</td>
<td>1143</td>
<td>67</td>
<td>-6.21</td>
<td>-11.05</td>
</tr>
<tr>
<td>red 4</td>
<td>1163</td>
<td>71</td>
<td>-2.32</td>
<td>-2.63</td>
</tr>
<tr>
<td>black spade</td>
<td>1552</td>
<td>109</td>
<td>12.37</td>
<td>6.36</td>
</tr>
<tr>
<td>black logo</td>
<td>983</td>
<td>76</td>
<td>23.70</td>
<td>13.02</td>
</tr>
<tr>
<td>black m&amp;c</td>
<td>1276</td>
<td>90</td>
<td>12.85</td>
<td>4.15</td>
</tr>
<tr>
<td>black 4</td>
<td>1236</td>
<td>87</td>
<td>12.62</td>
<td>5.80</td>
</tr>
<tr>
<td>blue spade</td>
<td>1552</td>
<td>112</td>
<td>15.46</td>
<td>16.33</td>
</tr>
<tr>
<td>blue logo</td>
<td>1865</td>
<td>124</td>
<td>6.38</td>
<td>3.45</td>
</tr>
<tr>
<td>blue m&amp;c</td>
<td>2009</td>
<td>164</td>
<td>30.61</td>
<td>28.31</td>
</tr>
<tr>
<td>blue 4</td>
<td>987</td>
<td>64</td>
<td>3.75</td>
<td>3.75</td>
</tr>
<tr>
<td>green spade</td>
<td>1258</td>
<td>85</td>
<td>8.11</td>
<td>8.78</td>
</tr>
<tr>
<td>green logo</td>
<td>1506</td>
<td>98</td>
<td>4.12</td>
<td>1.12</td>
</tr>
<tr>
<td>green m&amp;c</td>
<td>1237</td>
<td>93</td>
<td>20.29</td>
<td>18.01</td>
</tr>
<tr>
<td>green 4</td>
<td>969</td>
<td>46</td>
<td>-24.05</td>
<td>-24.15</td>
</tr>
</tbody>
</table>

It can be argued with some logic that the exact match expected value should reflect the number of correct color calls and the number of correct picture calls that were made. If the unconscious mind was indeed responding to certain colors and to certain pictures, then this would influence the calculation of the expected value. It can be similarly argued that if certain color/picture combinations were being called more frequently than not then this fact would, in turn, distort the color match and picture match components of the exact match calculation. Thus, if allowance is to be made for color responses and picture responses, allowance should also be made for combined color/picture responses. Our own approach to this problem was to run the data through a program which, in a rough way, massaged the data in terms of the just-stated line of thought.

In essence, the program calculated the expected value of a particular color/picture combination from either the number of appropriate color calls or the number of appropriate picture calls. Then the program (see Appendix A) adjusted this value for the distorting effect which the number of correct calls of that color/picture combination might have on the color or picture hit rate. Using the program values obtained we multiplied the calculated hit rate of the calls of the particular color by the calculated hit rate of the calls of the particular picture. In each case the values will be close to .25 and the product will be close to .0625.

In Table 1 the column heading "Data/EV% A" refers to the expected values as calculated by dividing the number of calls by 16. The column heading "Data/EV% B" refers to the expected values as calculated using the computer program. The term "m&c" used in the row headings refers to the mother-child image.

It can be noted that in the "Data/EV% B" column there are three high-flyers and three low-flyers (values more than 15% above or below expected values). The remaining percentages range from a high of 13.02 to a low of -11.05. The high-flyers, in order of magnitude, are 28.31, 18.01, and 16.33. The low-flyers, in reverse order of magnitude, are -24.15, -16.41, and -15.66.
We began an evaluation of our raw data by arranging the data values (the percentages, the Data/EV%A column) in value order (from the highest to the lowest) and then calculating a regression line. We then made 40 simulations of the data, running the simulated falls against the actual calls. We arranged the 40 sets of percentages from the simulations in the same value order for each data set as our actual data and calculated 40 regression lines. Because of our manner of arranging the data, an acute negative slope angle of the regression line with the x-axis is assured.

Our prediction of high flyers and low flyers equates to a prediction that a regression line formed by data arranged in this way will have a steeper slope than data not acted on by the ordering force together with a defense mechanism following the "patry principle", that is, taking a low energy approach to defensive action. Our simulations produced data regression line angles with a mean of 0.4274 radians and a standard deviation of 0.06909 radians. Actual data produced an angle with a value of 1.2554 radians. Thus, although we have but a single sample from our set of actual data this sample is 11.98 standard deviations from the mean, a fact which is reassuring in terms of our prediction of the effect.

Before moving on to a discussion of the 4x4 VIUR test and the ordering force an additional data set from the 4x4 VIUR test is of interest because of its correspondence with data from other VIUR tests and preliminary studies.

If we take the 1320 runs of the 4x4 VIUR test and count the number of correct color hits in each run we can then separate those hits into low psi hitting (0 to 3 occurrences per run) and high psi hitting (4 to 16 occurrences per run). We can then note that the number of correct image calls in those same runs average 4.07 hits in the low color psi-hitting runs and average 4.20 in the high color psi-hitting runs. Thus it would appear that when psi hitting is low for the color calls it is also low for the picture calls and when it is high for the color calls it is also high for the picture calls.

THE 4X4 VIUR TEST: RESULTS (ORDERING FORCE)

If we consider the color and image correct calls as part of a sequence of 42,240 trials and take the number of hits in each run of 16 trials, then break the hits down into the occurrence categories 0-1, 2-3, 4, 5-7, 8-16, we can compare these occurrences to expected values. Percentages of data over and under expected values (without a closed deck adjustment) are: 10.82, -1.79, 3.69, -3.58, and 14.83. The tails effect (10.82% and 14.83% figures) is understated since the closed deck skewing artificially increases the expected tails values used for the evaluation. Psi hitting and defense mechanism activity are strongly indicated.

Our next evaluation was designed to test the presumed unitary nature of the defense mechanism. We wanted to know if the modification of the defense mechanism implied by psi hitting resulted in a corresponding modification of the ability to decrease the power of the ordering force. In other words: If there was more psi hitting was there more order?

In our evaluation we used the binomial expansion to provide expected values and compare the color and the image patterns of the 4x4 VIUR test. Given the fact that the pictures were more related to than the colors (greater psi hitting for the pictures was in evidence) there should be, we supposed, more evidence of order for the pictures than for the colors.

We went through the color calls and the picture calls in groups of 4 calls without the VIUR separation (see next paragraph) and did not find the pattern. Then we went through the color and picture calls with the VIUR separation and the predicted pattern was strongly in evidence. And, as we thought would happen, the evidence of order was stronger for the pictures than for the colors.
The procedure was to go through the calls sequence for each run and pull out the red calls, then to pull out the black calls and join them to the red calls, and so on. The corresponding falls were similarly joined in a matching falls sequence. The rationale was the presumption that the ordering force acted separately and individually on the separate and individual sequences of calls (hits and misses of each color or each image). This is what we call the VIUR separation, the manner in which we evaluate sequential calls.

We then went through the joined color sequences by groups of 4 and counted the correct calls. This was followed by going through the joined picture sequences by groups of 4 and counting the correct calls. Our prediction was that there would be a movement of hits (correct calls) away from "disorder" (0 hits or more than 1 hit per 4 calls) and toward "order" (one hit per 4 calls). We also supposed the effect would be proportionately stronger the larger the amount of disorder. (For example, a greater percentage reduction in the 4 misses category than in the 3 misses category and so on.) Table 2 shows that these assumptions were confirmed.

<table>
<thead>
<tr>
<th>Number of Hits</th>
<th>Colors Data</th>
<th>Colors Data/EV%</th>
<th>Images Data</th>
<th>Images Data/EV%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>6017</td>
<td>-7.813</td>
<td>5734</td>
<td>-9.720</td>
</tr>
<tr>
<td>1</td>
<td>9492</td>
<td>6.554</td>
<td>9689</td>
<td>8.845</td>
</tr>
<tr>
<td>2</td>
<td>4858</td>
<td>6.551</td>
<td>4866</td>
<td>4.650</td>
</tr>
<tr>
<td>3</td>
<td>722</td>
<td>-30.384</td>
<td>762</td>
<td>-30.237</td>
</tr>
<tr>
<td>4</td>
<td>31</td>
<td>-64.959</td>
<td>39</td>
<td>-59.260</td>
</tr>
</tbody>
</table>

Color p = 5373/21120
Image p = 5480/21120

The conclusion which followed from the assumptions and the chain of logic was that there is a certain "ground level" effect of human consciousness which acts on sequential events, a ground level which is exceeded only by "winning the war" with the defense mechanism.

In Table 2 the "Data/EV%" columns represent the percentages by which data were above or below expected values. Expected values were calculated using the binomial expansion with the probability values (p and p-1) provided by the actual data. In order to accentuate the pattern, multiple passes (four) were made through the data. By this is meant that considering the data as a string of n bits (binary digits) where the digit 1 (a hit) has an a priori probability of 1/4 and 0 (a miss) an a priori probability of 3/4 the string of bits n₀, n₁, n₂, ... nₙ was gone through tallying the number of 1's in n₀ through nₙ and so on. For each subsequent pass through the data we offset the sequence of raw data by 1 trial (or offset the starting point of the first group of 4 by 1 trial) in order to create a new sequence of groups of 4 spanning the entire data base, and repeated this for offset-by-2, and offset-by-3 in order to cover the 4 possible ways that the data could be split into consecutive groups of 4 provided that the data were treated as a "loop" with no endpoints rather than as a linear chain.

On the one hand, this is a sensible way of averaging out the arbitrariness of a particular choice of where the group (group of 4) boundaries should fall; on the other hand, it artificially inflates the effective number of data points by a factor close to 4, because each group sequence is strongly correlated with its neighbors. The evaluation produced a distribution whose elements ranged from 0
to 4. Because of the multiple passes through the data the pattern stands out more clearly than it otherwise would.

Table 3 presents the figures using just one pass through the data. This makes calculation of statistical significance possible in terms of number of single hits per every 4 trials. The data lead to a z-score of 7.37.

<table>
<thead>
<tr>
<th>Number of Hits</th>
<th>Colors Data</th>
<th>Images Data</th>
<th>All Data</th>
<th>Expected Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1501</td>
<td>1423</td>
<td>2924</td>
<td>3219.34</td>
</tr>
<tr>
<td>1</td>
<td>2369</td>
<td>2458</td>
<td>4827</td>
<td>4452.74</td>
</tr>
<tr>
<td>2</td>
<td>1233</td>
<td>1189</td>
<td>2422</td>
<td>2309.50</td>
</tr>
<tr>
<td>3</td>
<td>170</td>
<td>196</td>
<td>366</td>
<td>532.39</td>
</tr>
<tr>
<td>4</td>
<td>7</td>
<td>14</td>
<td>21</td>
<td>46.02</td>
</tr>
<tr>
<td>Totals</td>
<td>5280</td>
<td>5280</td>
<td>10560</td>
<td>10599.99</td>
</tr>
</tbody>
</table>

THE 2X2 VIUR TEST: INTRODUCTION

As Christian Science practitioners, our researchers were familiar with Mary Baker Eddy's statement in *Science and Health with Key to the Scriptures* (her textbook on spiritual healing) "Disease arises, like other mental conditions, from association." Associations are not only a major component of the mind of the individual, as psychology attests, but associational links also, for the spiritual healer, exist in the general atmosphere of thought. Mrs. Eddy, again in her textbook, wrote:

"Though individuals have passed away, their mental environment remains to be discerned, described, and transmitted. Though bodies are leagues apart and their associations forgotten, their associations float in the general atmosphere of human mind...The strong impressions produced on mortal mind by friendship or by any intense feeling are lasting, and mind-readers can perceive and reproduce these impressions."

The nature of thought and of mental perception cannot be understood without an understanding of associational linkages, how they are formed, what holds them, and how they disappear. The fact that associational linkages can be learned, acquired, and developed, that they are formed by use and are lost through disuse, that they have strength according to the degree of emotion, or will, which sustains them, means that they must be considered in every experimental test which measures thought. The 2x2 VIUR test, like the 4x4 VIUR test, depends on associational linkages for its success.

THE 2X2 VIUR TEST: METHODS AND MATERIALS

In the 2x2 VIUR test we used the 4 possible combinations of 2 images and 2 colors. As with the 4x4 VIUR test, each image was in black and white and sat in the center of a 3x5 sheet of paper. Around the black and white center was a single color background. The images were prepared as for the 4x4 VIUR test. The envelope "deck" was prepared, shuffled, and called in the same way. In this test 48 envelopes were used and thus each run consisted of 48 trials. 100 runs (4800 trials) were made.
From the 4x4 VIUR test we had learned that this researcher was more color responsive, in terms of mental perception, to black and blue than to red and green. The black and red relationship had also been explored earlier by having this researcher shuffle 12 black and 12 red photocopied 3x5 pieces of colored paper (in 24 opaque envelopes, a no calls VIUR test) and then analyzing the data for the color relationship using the sequence orderliness test. The black preference was confirmed although not as strongly (on the basis of 150 runs, 3600 trials) as the 4x4 VIUR test just described might indicate.

In addition to selecting two strongly-related-to colors in the 2x2 VIUR test we also selected a color/image combination (the color blue with the mother and child image) which the mind of this researcher had related to more strongly than the 16 other combinations in the 4x4 test.

We had included the arabic numeral "4" in the earlier 4x4 VIUR test in order to see if a symbol learned in childhood and used almost daily as a part of modern life might, in spite of its minimal information content, be strongly related to. As can be seen from reference to Table 1, it was not.

As a counterpoise to the mother-and-child image the researcher selected a portion of a photo of a 16th century sculpture attributed to Ligier Richier. The sculpture is unpleasant to behold, a stylized version of a human skeleton with left arm up-raised.

The mother-and-child picture, although not unpleasant, is also not especially attractive. It is a somewhat stylized scratchboard drawing. The babe and the head and shoulders of the mother are shown. Presumably it is information content, not attractive art, which is being related to.

THE 2X2 VIUR TEST: RESULTS (PERCEPTIVE POWER)

In the 4800 trials of the 2x2 VIUR test the correct images were called 9.00% above expected values. Colors were called 5.04% above expected values. The black stylized skeleton combination was called 22.86% above expected values. The black mother and child combination was called 22.62% above expected values. The blue mother and child combination was called 19.76% above expected values and the blue stylized skeleton combination was called 16.62% above expected values.

All in all, out of 4800 trials there were 1444 correct exact matches. Expected value was 1200 which leads to a z-score of 16.27.

THE 2X2 VIUR TEST: RESULTS (ORDERING FORCE)

Given the small data base we were reluctant to form conclusions about the effect of the ordering force. However, given the magnitude of the effect of the perceptive power, we could not resist checking the data. The ordering force shows up as strongest for the exact matches. Most ordered 1-in-4 combinations (a single hit in every 4 trials) are 2.93% above expected value. The ordering force shows up weakly for the color and image matches. Most ordered 1-in-2 combinations (a single hit in every 2 trials) appear 0.83% above expected value.

THE 4X4 AND 2X2 VIUR TESTS: DISCUSSION

An anomaly, by definition, requires a pre-existing belief system, a conceptual construct by which the aberration is identified. By common consent within the scientific community the current scientific paradigm is an orthodoxy with which all anomalies will eventually be reconciled.

A miracle, by definition, requires a pre-existing belief system, a worldview in which a Creator
is capable of intervention in the operation of His creation. By common consent within the Christian community this fundamental paradigm is an orthodoxy with which all conflicting belief systems will eventually be reconciled.

Aberrations in the conventionally understood scheme of things, whether defined as anomalies or as miracles, are not the object of much attention in the scientific or Christian worlds today. Miracles have become a matter of history, sometimes even dubious history, to the Christian. And, to the scientist, the explanatory power of the scientific worldview has become so powerful as to make anomalies relatively unimportant.

The parapsychological community, as an extension of the scientific community, studies anomalies, not miracles. Some parapsychologists "study anomalies" proudly, thus underscoring their loyalty to the current scientific paradigm. Thus they seek to keep their scientific standing secure. Others, moved by the fact that the scientific method is wedded to no paradigm, seek to explore the powers of the mind as realities which, when understood, will determine their own paradigm. Thus they seek to keep the integrity of the scientific method alive by separating the phenomena they study from pre-categorization by mindset.

To the extent a Christian moves toward the concept of a God whose actions in the world are impartial and universal, to that extent the Christian moves toward full acceptance of the scientific method. To the extent that the parapsychologist moves toward the concept of the integrity of the mental phenomena he studies, to that extent the parapsychologist moves toward full acceptance of the scientific method as process, not paradigm. Thus a juncture approaches where spiritually developed states of mind may be quantitatively studied without loss of integrity to either the conceptual structure which develops the mode of consciousness to be observed (Christianity) or the conceptual structure which underlies the observation of the mode of consciousness so developed (science). It is in this area of mutual interest and common ground that Spindrift has chosen to work.

In the 4x4 and 2x2 VIUR tests we have made conceptual probes of programmed defenses. And, in our researcher's attempts to modify the defense mechanism which blocks the perceptive power we have developed a conceptual probe of a different character than the structural situations and mathematical analyses we have devised to expose the defense mechanism. We have begun the modification of the defense mechanism itself.

### 4x4 VIUR TESTS: FURTHER ANALYSIS

Our runs of the 4x4 VIUR test, already described, were done by a researcher capable of strong psi hitting. Evaluation of these runs by examination of the regression line of the data produced a strong response. The question then arose: Did this response characterize a strong psi hitter or was it a feature of the test, a characteristic which reflected the action of the unconscious mind of anyone doing the test? Two other individuals have also contributed data for the test and a beginning has been made in answering this question.

In the case of our researcher 1320 runs (21,120 trials) were made. A second data provider contributed 600 runs (9600 trials); a third data provider contributed 610 runs (9760 trials).

One of our purposes in developing the 4x4 VIUR test was to investigate the possibility that the defense mechanism would, with sufficient targets, use a "low energy" approach, a "patsy principle", and offset easily made hits, hits of strongly-related-to targets, with easily made misses, misses of weakly-related-to targets.
Given **enough targets** this kind of strategy is understandable because the number of trials necessary to make even an above average number of hits on a single target statistically significant presents a daunting challenge to a researcher. And, because associational links vary in nature and intensity from individual to individual, combining data from a number of data providers is not readily workable. Thus, the defense mechanism can afford a low energy approach.

After one of our researchers, in his 4x4 runs, found a strong link between the color blue and a mother and child image, we wondered if there might be enough of a cultural element in this associational pattern to make combining of data a possible strategy for this particular color/image combination. One of the other two data providers included this combination in her color/image choices and the combination came through a winner.

Selecting this color/image combination out of total available data and comparing correct calls to expected values shows that we now have enough data (see Table 4) to produce a Z-score of 3.52 from this color/image combination.

<table>
<thead>
<tr>
<th>Target = Blue Mother and Child</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Calls</td>
</tr>
<tr>
<td>30,720</td>
</tr>
</tbody>
</table>

The challenge for us was to find a way to evaluate the proposition that the data were being "played with" by the defense mechanism in the manner we suspected. Chi-square was not sufficiently sensitive at our data levels and thus we resorted to evaluating the acute angles the regression lines our data made with the x-axis when arranged in descending order and plotted.

The rationale behind this approach was that the highs produced by the perceptive power and the lows produced by the defense mechanism would cause a tilt to this line that was out of the usual range. In this way, we reasoned, the skewing would betray the defense mechanism activity. This tilt could then be compared, in each case, to a distribution formed by computer simulations.

In each case (for each of the 3 data providers), the simulations reflected the number of total calls and the makeup of the calls (number of calls of each color/image combination) of the individual data group. For each individual situation (the three data groups) 40 simulations were made and means and standard deviations calculated. Table 5 provides the hit rates for the 3 data providers.

<table>
<thead>
<tr>
<th>Participant</th>
<th>Calls</th>
<th>Hits</th>
<th>Expected Values</th>
<th>Data/EV%</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>9,760</td>
<td>578</td>
<td>610</td>
<td>-5.25</td>
</tr>
<tr>
<td>B</td>
<td>9,600</td>
<td>585</td>
<td>600</td>
<td>-2.50</td>
</tr>
<tr>
<td>C</td>
<td>21,120</td>
<td>1413</td>
<td>1320</td>
<td>7.05</td>
</tr>
</tbody>
</table>

In making the simulations and in making comparisions of data with the figures provided by the simulations, we worked (as noted earlier) with the percentages that hits (correct calls) of each of the color/image combinations were above or below expected values.
From this calculation we found that regression line angles for two of the participants were where one would expect to find them in terms of distance from the mean. For one data provider the regression angle lay 0.27 standard deviations from the mean; for the other data provider the regression angle lay 0.45 standard deviations from the mean. Hit rates for these data providers were not statistically significant.

For the researcher, however, his hit rate led to a Z-score of 2.64 and his regression line angle lay 11.98 standard deviations from the mean. Thus the 4x4 test seems to serve three uses: (1) it provides support for the patsy principle as a theoretical concept, (2) it serves to identify strong associational linkages, and (3) it provides a means of identifying potential psi hitters (the regression line angle) which is more sensitive than the traditional calculation of the Z-score in this particular test setting. Of course, if some mix of strong and weak targets was not present in the target selection, the test would fail of its purpose.

THE TRIPLE TRY VIUR TEST: INTRODUCTION

Psi is often believed to be a weak force which shows itself only at moments of psychodynamic intensity. Spindrift believes it to be a massive force, massively defended against by the mind. We also believe that the mode of consciousness (holy thought) which underlies spiritual healing can be used to tip the psychodynamic balance, produce in a teapot and in a small way, the tempests of human experience, produce in miniature in the laboratory the conditions of psi with powerful measurable results.

The "triple try" VIUR test is a simple variation of a standard ESP card-calling test. Results of the test are conceptualized and described loosely and informally much as we would conceptualize and describe larger scale human behavior. We see the defense mechanism response to the power of a psi modality as will acting somewhat aberrationally under pressure, something almost all of us have seen in ourselves or others at one time or another. In this context our experiment is seen to measure the consequences of a tiny aberration of the mind in a small tightly defined and clearly seen area, a minor madness in a small test tube.

There are, perhaps, as many explanations of experience as there are people to explain it. Yet, human minds are sufficiently alike that commonalities of outlook appear. Thus, schools of thought, religions, political movements, and so on all arise. Each have their own interpretative force.

Science chooses to interpret experience in terms of matter in motion. Its language of choice is the equation. Science has used the repeatable test primarily to observe matter and its interactions. Thus, such things as time, values, and consciousness have been forced to lie largely outside the explanatory system of science. Yet, such things are at the heart of the lives of every one of us.

Psi is a product of consciousness. The laboratory observation of psi is, therefore, an analysis of human experience, an analysis of those things largely ignored by modern science. Spindrift's research, like all psi research, is the application of the scientific method to human life as it is lived, to the life of the mind and the observable effect of the life of the mind on the patterns of the world.

In the test described we use the mode of consciousness which underlies spiritual healing -- applied in the form of prayer -- to enhance the perceptive power of the mind. In doing so we put pressure on the defense mechanism whose task it is to conceal this perceptive power.

Note that in the approach described in the preceding paragraph we are describing our experimental approach in terms derived from the outlook of practicing spiritual healers with some
interpretative assistance to the outlook from depth psychology. We are interpreting psychodynamic
structure in terms of a given conceptual approach with a view to making predictions which can then
be tested experimentally.

In applying the concept of predictability to the human mind we, at Spindrift, depart from the idea
that human experience is forever at the mercy of the ebb and flow of shifting emotions and diverse wills.
We postulate that the emotional, willful side of human nature is accompanied by a spiritual, or holy,
side, that a value-linked mode of consciousness exists, a mode of consciousness which is pattern-
developing, pattern-mending, and which is necessarily opposed to that side of human nature which is
pattern-indifferent and therefore pattern-destructive.

Since regularity of pattern makes predictability possible, repeatable tests of mental power are,
in this view, possible. Thus, there is full repeatability in a great deal of Spindrift's experimental work.
This repeatability arises, in part, from the fact that we have used very simple systems as measurement
vehicles for our tests, such things as germinating seeds and the carbon dioxide production of yeast
cells. In such tests we are not dealing with complex and active minds on the receiving end of our
mental inputs to experimental conditions.

In dealing with human beings, including dealing with (as in this test) a very simple defense
mechanism acting in relation to a very simple pattern, predictability becomes statistical in nature. Just
as the actions of elementary particles can be accurately described in the aggregate while the action
of individual particles cannot be, just so with human beings, or defense mechanisms, under stress.
Patterns emerge, but individuals are never fully predictable. This is not to say that consciousness is
undefinable at some basic level. It is only to say that our access to information is limited.

THE TRIPLE TRY VIUR TEST: METHODS AND MATERIALS

In the triple try VIUR test the researcher worked with a "deck" of 48 opaque envelopes. 24
envelopes contained a photocopy of one image, the other 24 envelopes contained a photocopy of
another image. The envelopes were shuffled at least 6 times for each run and the researcher attempted
to guess the contents of the envelopes. This was a standard card-calling approach. There was,
however, one non-standard element in the calling of the images.

The deck was shuffled with the front of the envelopes face up. The identities of the images were
noted on the backs of the envelopes. After making the first call the researcher placed the envelope
beside the shuffled deck. Each successively called envelope was placed on top of the previously called
envelope. Results were recorded on a data sheet. Then (this is the non-standard part and it's something
we did for evaluative purposes) the researcher took the top envelope and placed it next to the pile of
called envelopes. The next-to-the-top envelope was then placed on top of the top envelope and so on.

Stated differently, the order of the envelopes was reversed so that the images could be
sequentially called a second time. This was done. Then the procedure was followed again. Thus, the
falls of the images were called three times and each set of calls was recorded by the researcher doing
the calling. After the last call was recorded, the completed deck of called envelopes was turned over
and the actual falls of the pictures were recorded. Thus, feedback was obtained after the three sets of
calls were completed. When a group of runs was analyzed the recorded data were entered into a
computer data base and were computer evaluated.

The two images used by the researcher combined a black-and-white picture with a color. Image
1 was a somewhat stylized scratchboard drawing of a mother-and-child. The babe and the head and
shoulders of the mother were shown. This picture was surrounded by color, a powder blue. Total image
size was 3" by 5".

Image 2 was a portion of a photo of a 16th century sculpture attributed to Ligier Richier. The sculpture is a stylized version of a human skeleton with left arm upraised. This black-and-white picture was surrounded by the color black. Total image size was also 3" by 5". Images were photocopied, in color, so that thickness, texture, and so on, would be the same for both.

The mentation strategy

Over Spindrift's past several years of work with VIUR tests the researcher who produced data for the triple try VIUR test has been using the healing approaches with which he is familiar to attempt to modify the action of the defense mechanism in his own mind, the defense mechanism which works to conceal the perceptive power of the mind from conscious thought. Some modest progress has been made. This, in itself, puts pressure on the defense mechanism. However, defense mechanism responses to such pressures are predictable. The defense mechanism, in responding, is only doing what it was designed to do. Thus a more elaborate approach, the triple try approach, was designed. Through this approach we endeavored to put additional pressure on the defense mechanism, pressure which the defense mechanism was, hopefully, not designed to handle.

The triple try strategy

The goal of the researcher in the triple try test was to successfully call "triplets", that is, to successfully make three correct calls in the same sequential position in each of the 48 trials. For example, each time the researcher came to the first call, the second call, and so on, the goal was to make each first call, each second call, and so on in all three passes a correct call. In theory, this is only stating the goal of making each call a correct call in different terms. In practice, there is some difference.

In doing VIUR tests our researchers have observed that some calls are "easy" and some are "hard." They ascribe this to the ebb and flow of the psychodynamic balance between the perceptive power and the defense mechanism. If three easy calls line up, the correct calling of a triplet has a high probability of being correct in this view. If two easy calls occur and one is hard, additional time can be given to the hard call, more effort can be put into "getting it right." All out effort on every call is not possible, both time wise and in terms of expenditure of effort by the researcher. However, it is possible in selected circumstances.

Our analyses of VIUR data have shown us that the defense mechanism does not apply a steady pressure against the perceptive power. The balance of power ebbs and flows to some degree and the defense mechanism uses various deceptive strategies depending on the circumstances of the test. In the usual sequential flow of hits and misses we have observed that "hot streaks" of hits are counterbalanced by hot streaks of misses and we can, through mathematical analysis of the length of sequences of hits and misses, demonstrate this fact. However, what does the defense mechanism do when confronted with the triple try approach? The pressure is on, some response has to be forthcoming. Yet, when logical approaches and familiar paths are nowhere in sight the structured will of human nature will do the illogical. And, in a test situation, this will show up in the data. The illogical will happen -- and it did.

THE TRIPLE TRY VIUR TEST: RESULTS

For this test the researcher made 55 triple try runs, that is, 55 runs with three sets of calls and one set of falls. Thus 7,920 trials (3x48x55) were made. 4,634 correct calls (58.51%) were made.
Expected value was exceeded by 17.02% and a Z-score of 15.15 was indicated. Table 6 presents the data.

TABLE 6

<table>
<thead>
<tr>
<th>Images</th>
<th>Hits</th>
<th>Trials</th>
<th>Hits/Trials%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Image 1</td>
<td>2512</td>
<td>4350</td>
<td>57.75</td>
</tr>
<tr>
<td>Image 2</td>
<td>2122</td>
<td>3570</td>
<td>59.44</td>
</tr>
<tr>
<td>Totals</td>
<td>4634</td>
<td>7920</td>
<td>58.51</td>
</tr>
</tbody>
</table>

If we look at earlier and later runs within this group, some evidence of progress in the researcher's ability can be seen. Table 7 presents the data.

TABLE 7

<table>
<thead>
<tr>
<th>Runs</th>
<th>Hits</th>
<th>Trials</th>
<th>Hits/Trials%</th>
</tr>
</thead>
<tbody>
<tr>
<td>First 30</td>
<td>2464</td>
<td>4320</td>
<td>57.04</td>
</tr>
<tr>
<td>Last 25</td>
<td>2170</td>
<td>3600</td>
<td>60.28</td>
</tr>
<tr>
<td>Totals</td>
<td>4634</td>
<td>7920</td>
<td>58.51</td>
</tr>
</tbody>
</table>

Looking at triplets

We can classify our triplets as we usually classify sequential calls, that is, in terms of the alternating order they possess. If we consider calls of image 1 as 1's and calls of image 2 as 2's then ordered triplets possess 1,2,1 and 2,1,2 as sequential patterns. Disordered triplets possess the sequential patterns of 1,1,1 and 2,2,2. The object of the test is to produce as many disordered triplets as possible with triplets possessing the pattern 1,1,1 matching an image 1 fall and triplets possessing the pattern 2,2,2 matching an image 2 fall. Mixed triplets (the 4 remaining possibilities) we have classified as "double left" (1,1,2 and 2,2,1 patterns) and "double right" (1,2,2 and 2,1,1 patterns). Table 8 shows us the relative occurrences of disordered, mixed, and ordered triplets in the data.

TABLE 8

<table>
<thead>
<tr>
<th>Triplets</th>
<th>Occurrences</th>
<th>Expected Values</th>
<th>Occurrences/Expected Values%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disordered</td>
<td>1671</td>
<td>679.18</td>
<td>146.03</td>
</tr>
<tr>
<td>Mixed</td>
<td>710</td>
<td>1307.22</td>
<td>-45.69</td>
</tr>
<tr>
<td>Ordered</td>
<td>259</td>
<td>653.61</td>
<td>-60.37</td>
</tr>
<tr>
<td>Totals</td>
<td>2640</td>
<td>2640.01</td>
<td>--</td>
</tr>
</tbody>
</table>

Table 9 shows us the hit rates (number of correct calls) for the disordered, mixed, and ordered triplets. Hit rates, in terms of number of hits per number of trials are noticeably higher for the disordered triplets.
TABLE 9

<table>
<thead>
<tr>
<th>Triplets</th>
<th>Trials</th>
<th>Trials Hits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disordered</td>
<td>5013</td>
<td>3201</td>
</tr>
<tr>
<td>Mixed</td>
<td>2130</td>
<td>1044</td>
</tr>
<tr>
<td>Ordered</td>
<td>777</td>
<td>389</td>
</tr>
<tr>
<td>Totals</td>
<td>7920</td>
<td>4634</td>
</tr>
</tbody>
</table>

Table 10 shows us the hit rates (number of correct calls) for the disordered, mixed, and ordered triplets. In Table 10, however, hit rates are in terms of number of times a triplet matches its corresponding fall (2 out of 3 of the triplet calls are correct). Again, the hit rate is noticeably higher for the disordered triplets.

TABLE 10

<table>
<thead>
<tr>
<th>Triplets</th>
<th>Occurrences</th>
<th>Triplet Hits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disordered</td>
<td>1671</td>
<td>1067</td>
</tr>
<tr>
<td>Mixed</td>
<td>710</td>
<td>334</td>
</tr>
<tr>
<td>Ordered</td>
<td>259</td>
<td>130</td>
</tr>
<tr>
<td>Totals</td>
<td>2640</td>
<td>1531</td>
</tr>
</tbody>
</table>

Our past work with VIUR tests has shown us that, for each data provider, there is a primary image and a secondary image. The mind relates to one image better than the other and this shows up in the data in various ways. In this test, image 2 is correctly called more frequently than image 1 as Table 6 has shown us. Table 11 shows us that in the case of the disordered triplets the 2,2,2 sequence matches its fall more frequently than the 1,1,1 sequence matches its fall. In the case of the ordered triplets the 2,1,2 sequence matches its fall more frequently than the 1,2,1 sequence matches its fall.

TABLE 11

<table>
<thead>
<tr>
<th>Triplets</th>
<th>Occurrences</th>
<th>%Occurrences</th>
<th>Triplet Hits</th>
<th>%Triplet Hits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Disordered Triplets</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>111</td>
<td>963</td>
<td>57.63</td>
<td>600</td>
<td>62.31</td>
</tr>
<tr>
<td>222</td>
<td>708</td>
<td>42.37</td>
<td>467</td>
<td>65.96</td>
</tr>
<tr>
<td>Totals</td>
<td>1671</td>
<td>100.00</td>
<td>1067</td>
<td>63.85</td>
</tr>
</tbody>
</table>

| **Ordered Triplets** |       |              |              |               |
| 121      | 130         | 50.19        | 62           | 47.69         |
| 212      | 129         | 49.81        | 68           | 52.71         |
| Totals   | 259         | 100.00       | 130          | 50.19         |
Now we come to the part of the test which seems aberrational to us. It is logical that extra effort would elevate the disordered triplet correct calls above the mean of all correct calls (63.85%). It is, perhaps, even logical that in the ordered triplets (where the ordering force is strongest) the average hit rate is close to expected value (50.19%). And, it is logical that the mixed triplets should be depressed (a 47.04% hit rate as Table 10 shows us). After all, the defense mechanism has to depress the hit percentage somewhere in order to do its job! What is not logical is the data configuration shown in Table 12.

<table>
<thead>
<tr>
<th>Triplets</th>
<th>Occurrences</th>
<th>%Occurrences</th>
<th>Triplet Hits</th>
<th>%Triplet Hits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Double Left Triplets</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>112</td>
<td>153</td>
<td>51.69</td>
<td>46</td>
<td>30.07</td>
</tr>
<tr>
<td>221</td>
<td>143</td>
<td>48.31</td>
<td>44</td>
<td>30.77</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>296</strong></td>
<td><strong>100.00</strong></td>
<td><strong>90</strong></td>
<td><strong>30.41</strong></td>
</tr>
<tr>
<td><strong>Double Right Triplets</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>211</td>
<td>209</td>
<td>50.48</td>
<td>125</td>
<td>59.81</td>
</tr>
<tr>
<td>122</td>
<td>205</td>
<td>49.52</td>
<td>119</td>
<td>58.05</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>414</strong></td>
<td><strong>100.00</strong></td>
<td><strong>244</strong></td>
<td><strong>58.94</strong></td>
</tr>
<tr>
<td><strong>Grand Totals</strong></td>
<td><strong>710</strong></td>
<td><strong>--</strong></td>
<td><strong>334</strong></td>
<td><strong>47.04</strong></td>
</tr>
</tbody>
</table>

Table 12 shows us that the hit rate for the double right triplets is approximately the average hit rate for all the runs (58.94% as compared to 58.51%). On the other hand, the hit rate for the double left triplets is only 30.41%. Whether the double left triplets are 1,1,2 patterned or 2,2,1 patterned the hit rates are virtually the same (30.07% and 30.77%). In humanistic terms, the defense mechanism had a big load of excess hits in the disordered triplets to hide and just picked a category to shove them in. It threw its weight against the double lefts and depressed their hit ratio to a bizarre low. Granted this is an anthropomorphized interpretation, but then, we’re dealing with a part of the mind of a human being.

In terms of getting rid of the load, this is not aberrational. What can be considered aberrational is the apparently random use of categories of calls for possible hiding places. There is nothing about a double left triplet to make it any better choice than a double right triplet. We can only assume there was a stronger associational tie, however slight, on the part of the defense mechanism to the double left than to the double right.

Like a gunman randomly shooting people, the aim of the gun, or the defense mechanism, may be determined by minor, even slight and consciously unrecognized, predilections. What appears aberrational is unconsciously determined. Nevertheless, to the logical conscious mind, the choice is meaningless, an act of desperation. Pressures must be relieved and the will is discharged. Whether the choice of the object of that will makes sense or not, or if there is no sense possible under the circumstances, the will is nevertheless discharged and the manner may be considered illogical, even aberrational.
Table 13 shows us the distorting effect all this mental action and interaction has on the triplet hits in relation to occurrences of the disordered, double left, double right, and ordered categories of triplets. Even considering the propensity of the chi-squared test to weight highly deviant data highly, the chi-square figure (as shown in Table 13) is clearly large enough to indicate the strength of the distortion of data. Like the earlier Z-score, it is well off the tables.

**TABLE 13**

<table>
<thead>
<tr>
<th>Triplets</th>
<th>Occurrences</th>
<th>Triplet Hits</th>
<th>Expected Values</th>
<th>Data/ Expected Values%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disordered</td>
<td>1671</td>
<td>1067</td>
<td>969.05</td>
<td>10.11</td>
</tr>
<tr>
<td>Double Left</td>
<td>296</td>
<td>90</td>
<td>171.66</td>
<td>-47.57</td>
</tr>
<tr>
<td>Double Right</td>
<td>414</td>
<td>244</td>
<td>240.09</td>
<td>1.63</td>
</tr>
<tr>
<td>Ordered</td>
<td>259</td>
<td>130</td>
<td>150.20</td>
<td>-13.45</td>
</tr>
<tr>
<td>Totals</td>
<td>2640</td>
<td>1531</td>
<td>1531.00</td>
<td>--</td>
</tr>
</tbody>
</table>

chi-square = 51.2649
(3 d.f. confidence level of 0.001 requires chi-square of 16.27)

THE TRIPLE TRY VIUR TEST: DISCUSSION

A highly subjective "human life" approach has been taken to the interpretation of data. Description follows conceptualization and the conceptualizations involved are those which sufficiently appeal to the researchers to make them vocationally spiritual healers and only avocationally researchers. It should, perhaps, be noted that the researchers recognize that modification of the defense mechanism is possible through will as well as through spiritual power. However approached, the view that psi research in the laboratory must follow the patterns of life outside the laboratory has been given support.

THE DOUBLE CALLS VIUR TEST #1: INTRODUCTION

We have reasoned (with some experimental backing) that holy thought and volitional thought are differently referenced. Differences in the relationship of these two modes of thought to a system are fundamental and must be considered when taking measurements. Holy thought is not only referenced to the norms of a system, it is so referenced in great precision and in great detail. As a system moves toward its norms under the influence of holy thought an enormous number of norms are simultaneously affected. In the case of conscious or unconscious volitional thought, mental action is guided by a focus of the emotion, or will, impelling the thought. This action is not normally referenced. Moreover, when this action appears in the form of a defense mechanism, it does not respond to pattern-referenced action in immense and minute detail; it focuses on the "important," or salient, feature to be concealed.

In volitional terms the unconscious mind possesses remarkable powers which we are just beginning to understand. However, this volitional mind is neither omniscient nor even deeply intelligent in any far-reaching sense. If its actions to conceal the extent of both spiritual and non-spiritual mental power were completely effective, the defense mechanisms (as we have known them in the past) would never have been discerned and depth psychology, the VIUR (Visual Image, Unconscious Response) tests, and Spindrift's research would not exist.
The concept of unconscious mind is both a sophisticated and troubling interpretation of reality, sophisticated because the idea of a mind which thinks but is unaware of what it thinks flies in the face of the conscious mind's appraisal of its own thought processes, troubling because it implies that in the many-storied mansion of the mind the light is on only in a tiny attic room.

Historians note that the concept of the unconscious is discernable in its earliest forms in the literature of the opening years of the nineteenth century. In America, in the final third of that century, in the period following the Civil War when virtually every home had lost a loved one or who had relatives who had, the phenomenon of spiritualism arose and it became possible for the first time to link the concept of unconscious mind with one of those cultural manifestations of psi which assume different forms among different peoples and at different periods of history.

In a sermon delivered in Boston late in the century Mrs. Eddy made this linkage in these words: "From my earliest investigations of the mental phenomenon named mediumship, I knew it was misinterpreted, and I said it....I saw how the mind's ideals were evolved and made tangible; and it matters not whether that ideal is a flower or a cancer, if the belief is strong enough to manifest it....The belief that produces the result may be wholly unknown to the individual, because it is lying back in the unconscious thought, a latent cause producing the effect we see." (Christian Healing, Eddy, 1886, page 6)

The idea that matter is an objective and subjective state of consciousness is not new; the philosophical roots of such an outlook are lost in antiquity. The idea that matter is continually molded by thought, and not vice versa, that saint and shaman are more deeply aware of reality than those who guard the belief systems of modern science, that is something else again.

It is not the purpose of Spindrift's research to evaluate directly religious or philosophical questions, including the mind/matter relationship. It is the purpose of Spindrift's research to, among other things, call into question, in the twentieth century, a scientific paradigm could arise which is at odds with so much of history and daily experience, and why psi phenomena (of the volitional sort) arise only when the unconscious mind reaches peaks of intensity or in other some way betrays itself.

The VIUR tests were, in conceptual terms, designed from the standpoint that defense mechanisms act to not only hide the nature of the individual from himself, but also act to hide from every individual the nature of the world around him, act to conceal the extent to which consciousness enters into and dominates man and his universe. The VIUR tests throw light on this proposition, extend the concept of the defense mechanism, and explain, in part, why parapsychologists have fared so poorly in their tests of mental power. Other tests that Spindrift have done further extend the concept. Tests which parapsychologists have done have sometimes illustrated the phenomenon of mental defense but the observation has not usually been generalized nor made the object of continuing research.

Before our tests could be done certain elements of conceptual structure had to be put in place. The concept of the unconscious mind was fundamental, thought which knows but which conceals from itself the fact that it knows. The concept of deliberate deception by this mind is fundamental, the deception by which a calculated volume of misinformation reaches that part of the mind which unconsciously evaluates information, misinformation which offsets the stream of correct information which reaches that same unconscious information-evaluating portion of the mind.

It can be argued that strong psi phenomena are produced by individuals whose belief structures differ markedly from the norm. It can be further argued that such individuals usually exist in pre-scientific cultures or, alternatively, are indifferent to the scientific conceptual structure of their culture. Thus, it is perhaps no accident that the strong psi producers of the late nineteenth and early twentieth centuries have disappeared today for, as a rigidly materialistic paradigm grows stronger, the culture
it becomes less and less able to produce individuals with strongly different belief systems. It also becomes less likely that individuals able to (1) turn such differing belief systems into consistent conceptual structure, and (2) individuals able to translate such conceptual structure into measurement terms, will appear.

Parapsychological inquiry has historically concentrated on the search for psi phenomena and not on the evaluation of systems of belief. However, as systems of belief capable of producing psi die out, psi phenomena will die out with them. Thus it seems obvious that parapsychology should have a strong sociological dimension, a capability for evaluating the conceptual systems or pre-conceptual systems underlying psi activity. Sociological change within the parapsychological community is necessary to bring about. Sociological change in the scientific culture of our times is necessary to permit the emergence of more powerful psi activity. Sociological change is the easiest road to resolution of the present impasse in laboratory testing of psi.

It requires intellectual labor to codify amorphous systems of belief into consistent conceptual systems. It requires additional intellectual labor to translate such conceptual systems into equivalent concepts amenable to scientific testing and appropriate mathematical analysis. Yet, there is no other road by which psi modalities can be demonstrated to be amenable to the experimental test. We submit that the parapsychological community should be active in these areas today.

As full-time practitioners of spiritual healing the researchers who developed Spindrift's research were persuaded of the efficacy of the healing method they used. They also realized that, in order to survive in a scientific age, spiritual healing, like conventional medical practice, had to separate the intrinsic effect of the therapeutic agent (in one case the drug, in the other case a quality of thought or mode of consciousness) from the placebo effect. The method they developed (pattern-related measurements) to achieve this goal has a profound bearing in both theoretical and measurement terms on the phenomenon known in parapsychology as "experimenter effect."

The existence of experimenter effect in tests of mental power means that tests which are independent of researchers and observers cannot be designed. Thus, in terms of a volitional/intentional standpoint, tests with repeatable outcomes cannot, in principle, be designed and the validity of consciousness-oriented research comes into question. However, tests whose outcomes depend on the orientation (direction of belief) of the belief systems of those associated with the tests are subject to this difficulty only because of the volitional/intentional nature of will, emotion, faith, suggestion and so forth.

In Spindrift's research the volitional/intentional characteristics of the human mind are seen as those elements of thought which not only produce experimenter effect, but which also produce faith healing or the placebo effect, elements of thought which can, using an identity referenced or pattern related model, be separated from the mode of consciousness which produces true spiritual healing (as opposed to the action of belief/faith on the human system). Thus, repeatable tests of measurable effects of modes of consciousness can be easily constructed using the proper theoretical model. The pattern related mode of consciousness is predictable in its effects and this action of thought can be experimentally distinguished from volitional/intentional elements of thought.

"As the twig is bent, so the tree is inclined." Organic systems in the process of rapid development can be said to be "thought sensitive." By this is meant that small forces affecting their development produce measurable results greater than those which can be easily obtained when the system is mature and more resistant to change. For this reason (as well as the relative simplicity of system structure which enables seeds to approximate simple norms in their earliest stages of germination) Spindrift's researchers chose germinating seeds as a measurement vehicle. An additional plus was that virtually the only out-of-pocket expense, other than the time invested, was the cost of a
few bags of seeds. Naturally, people capable of providing the required mental input for the tests must be available, but, Spindrift's researchers were then, as now, vocationally spiritual healers and avocationally Spindrift's researchers.

Our initial conceptualizations included the postulations that measurable effect is in proportion to quality of thought (degree of holiness of consciousness), quantity of thought (amount of consciousness associated with linked to the target system) and the strength of the associational link between the healing consciousness and the target system (person, place, or thing being thought of). If one wishes to use a mechanical analogy, say a fluid flowing through an open valve or faucet, we would think of the quality of thought as the strength of the active agent in the fluid, the quantity of thought as the duration of the flow of fluid, and the strength of the associational link as the size of the faucet opening.

In a developing system (such as a seed) the norms of the system are in constant change as are the needs of the system. Thus, for example, a seed at one stage of development may require additional water. Then, if conditions of temperature and humidity change, the seed may contain more water than it requires and seek to expel the excess moisture. The interaction of a seed with its surroundings is ever-varied, highly complex, and powerfully affected by thought. Very simple tests can illustrate these facts. (See Appendix B for four examples.)

Much of Spindrift's research was developed from theory and probably it had to be because the considerable amount of unseen activity going on, in the probability distributions of the VIUR tests, for example, is carefully hidden from observation by modes of mental action. The amount of mind/matter interaction which goes on when pictures are shuffled or sorted would never have been suspected without prior theoretical positions firmly in place, theoretical positions capable of guiding both experimental work and mathematical analysis. The same circumstance of need of prior theory underlies many of the methodologies of Spindrift's research. It will always be true that, as Einstein said to the young Heisenberg, "the theory tells us what we can observe." Thus it is that more than the usual reductionist approaches of conventional science are necessary to reveal the inadequacy of the existing materialistic scientific paradigm.

Whenever we take something apart, something is lost, and that something is information, information about pattern. Theoretical model-builders lament the loss of information inherent in this approach in their own arcane language and note that simplifying state descriptions does horrible things to the tangent vectors which are associated with the original system dynamics. And, eventually, parts cannot be further broken down. Instead, the pieces just change form and they do this according to patterns which are called "conservation laws" or "symmetries." Pattern is the bottom line of the world's mechanical system, the most stable element of our material world. Yet, for all of that, the reductionist method of examining the world which works best for science largely ignores the question of the information base necessary for pattern.

Spindrift's research is pattern oriented, not part oriented. Spindrift's research measures changes in reference to pattern, changes due to the influence of thought. Pattern lies at the heart of our research and pattern requires an information base.

One of our researchers remembers reading an account, as a child, of a woman healed of albinism through prayer. As prayer for her continued her hair became black, her eyes blue. Our researcher recalls wondering: why black, why blue? Where did the information base exist?

For those who wish to credit Peter's healing of the man "lame from his mother's womb" who, the book of Acts tells us, went into the temple after his healing "walking and leaping and praising God" the question of where the information base existed becomes even more intriguing for this man had
never learned to walk.

The information base which is used by the unconscious mind to manipulate the cards of the deck is a much more minimal information base than for a person (or for a seed), for every part of the identities are gone in a moment, each card lost to memory and existing (for the conscious mind) only as a physical record to be examined (provided one has been made). The identities are inconsequential to begin with, unimportant bits of information whose order seems a trivial occasion for the clash of mental forces. Nevertheless, the forces do clash and the mosaic can be read.

In the case of the fall of dice, the plunge of the dice from the cup to the table is affected by thought according to an information base existing somewhere. In addition, an awareness of the characteristics of the dice and the pattern of their fall is required and the ability to alter that pattern. And with each additional fall the numbers which appear must be added to the information base.

In the case of calling the cards, much the same thing is true except that physical manipulation is not going on. Instead, the primary image (the picture most related to the mind) is being called more easily than the other image and while this is going on the ordering force is also at work manipulating the calls. In each case, order is being enhanced and a large amount of information of which the conscious mind is unaware is involved in the process.

In one case (with the calls of the cards) the manipulative process takes place wholly in the mind; in the other cases (with the falls of the cards and the throwing of the dice) it takes place wholly in the material world. In each case enormous amounts of information are involved and the same purpose -- increased order, better states of form or function -- is fulfilled. This pattern of movement toward a relational identity defined by an information base seems to us to be akin to that of spiritual healing, the shift of the form and function of a disordered organism toward the "norms" of a healthy state, the kind of process which is defined by E = kr and which is seen in our seed tests as movements toward norms of optimal form and function for the germinating seeds.

Outside the religious world, psi-conducive or psi-using communities operate in volitional/intentional, or goal directed, psychodynamic terms. Within the religious world but outside the Christian religious community many different communally held psi-conducive systems of religious belief exist. Within such systems volitional/intentional powers and various embodiments of volitional/intentional powers prevail and are usually identified with, utilized, or submitted to by various psychodynamic means. Alternatively, such belief systems postulate definitions of consciousness which expand and remodel in various ways the existing volitional/intentional conceptual structures of mental action much as our physical definition of man anthropomorphizes our concept of God. Such systems of religious belief or quasi-religious belief flow either consciously or unconsciously from a depth psychological definition of mind, just as the gods and goddesses which populated the minds of the ancients flowed from an anatomical definition of mankind.

Although an identity-referenced model of consciousness is available within Christianity it is still true that goal directed models of thought are widely held, at least as judged by the nature of many Christian prayers, prayers which involve visualizations of intended good, prayers which bargain with God as two volitional/intentional individuals bargain with each other, and so on. Yet, at the core of Christian experience there is a more profound approach to mental action, an approach embodied in the words of Christ Jesus in his time of betrayal and anguish at Gethsemane, those words which reach to the heart of prayer, namely, "Thy will be done."

Will is the driving force of the psychodynamic configuration of the mind implied in the volitional/intentional model. The surrender of such will implies the denial or rejection by the individual
of the use of such a psychodynamic power. Equally importantly, it implies the ability to deny such power, the ability to go against the fundamental dynamic of the volitional/intentional model. Such ability is believed to derive from holiness, from the embodiment in consciousness of the attributes of God, the qualities of holiness defined in such fundamental landmarks of Christianity as the Ten Commandments and the Sermon on the Mount. Note that we are not talking about the denial of will as a negative act but about the replacement of will with a qualitative consciousness.

Let us now consider spiritualized, quality-imbuued consciousness in relationship to will in some of the forms this will assumes in the defense mechanism of the VIUR test. In doing so we pass from the complex and ever-changing patterns which characterize organic systems to the simplest pattern -- in terms of mingled order and disorder -- we could think of, the random binary sequence.

Note that in shifting from the complex patterns of organic systems as they respond to holy thought to the simple pattern of a random binary sequence we also shift many of the theoretical assumptions of our inquiry.

Our case for paranormal effect as opposed to mundane error (with organic systems and volitional selection of linkage of holy thought with target systems) rests on the fact that measurable effect could be produced on demand in a selected system.

Our case for paranormal effect as opposed to mundane error (in many of the VIUR tests) rests on an assumption that unconscious thought is somehow responsible for what appears to be a mathematically unusual state of affairs in the sequential order of random binary sequences.

Earlier we referred to the fact that in the nineteenth century it became possible to replace spiritualistic (and other) explanations of psi with a psychodynamic explanation rooted in the concept of unconscious thought. The fact that such an outlook was imbedded in a theological system (Christian Science) at that early moment had its ironies, given the twentieth century's attempts to reduce all Christian history and the power of prayer to the same status of psychodynamic action.

In the "double calls" VIUR test, we further explore the assumption that unconscious psychodynamic action (of both holy and volitional nature) actually does underlie the phenomena of the VIUR tests.

Our posited psychodynamic model asserts that both the spiritual (pattern enhancing) and volitional (defense mechanism) modes of conscious are aware not only of the identities of the images in the envelopes but possess as well detailed knowledge of the relationship of calls and falls in time and space. Our psychodynamic model also asserts that because of the psychodynamic action of unconscious volitional thought, this awareness is concealed from the conscious mind. In the case of the double calls VIUR test an additional assumption is the targetability of a specific portion of the mind for purposes of "healing." (See Appendix C for tests of targetability.)

THE DOUBLE CALLS VIUR TEST #1: METHODS AND MATERIALS

This double calls VIUR test used 24 envelopes and two images (aces from pinochle decks). Each opaque envelope contained a single ace. Each group of two envelopes (in a series of 12 groups of two) consisted of an envelope containing a spade ace and an envelope containing a heart ace. In each group of two the envelopes were sequentially randomized.

In the double calls VIUR test one of our researchers took the 24 envelopes in groups of two with each group of two sequentially randomized envelopes consisting of an envelope with each picture. The
researcher was permitted to hold the two envelopes in his hands, move them from one hand to another if desired, provided nothing was done which might physically reveal the contents. In this test, feedback was immediate.

THE DOUBLE CALLS VIUR TEST #1: RESULTS

3600 trials were made and 2174 hits were scored leading to a Z-score of 12.47. Hits were 20.78% above expected values. Our strategy for achieving this result rested on:

- using images the researcher related to,
- providing immediate feedback for each call, and
- encouraging the researcher to use holy thought to modify the action of the defense mechanism (approaching the circumstances as a challenge in spiritual healing).

We found in the double calls VIUR test that the strong conscious exercise of the perceptive power did not eliminate all trace of the ordering force. Ordered groups-of-2 were only 0.56% above the expected value and ordered groups-of-4 were only 3.89% above the expected value. We felt, however, that the lack of strong ordering influence and the presence of strong perceptive power should make the sequence orderliness evaluation quite representative of the action of the perceptive power and give us a good test of our "hot hand of the mind" hypothesis (our belief that there was "psychodynamic tension" between the perceptive power and the defense mechanism, a "going back-and-forth" with streaks of hits and misses).

Table 14 gives strong verification of the hypothesis. The expected values of Table 14 indicate the number of sequences of hits and misses of various lengths which should appear in the total number of trials. From the data we can conclude that the perceptive power is indeed creating longer than expected sequences of hits and the "pushback" of the defense mechanism is creating an even greater percentage of misses above expected levels. (Note that in a double calls test we are dealing with an "open deck" situation and the sequence orderliness test provides accurate expected values.)

<table>
<thead>
<tr>
<th>Sequence Length</th>
<th>Expected Values (Hits)</th>
<th>Data (Hits)</th>
<th>Data/EV% (Hits)</th>
<th>Expected Values (Misses)</th>
<th>Data (Misses)</th>
<th>Data/EV% (Misses)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>341.20</td>
<td>326</td>
<td>-.46</td>
<td>519.89</td>
<td>507</td>
<td>-2.48</td>
</tr>
<tr>
<td>2</td>
<td>206.05</td>
<td>195</td>
<td>-5.36</td>
<td>205.93</td>
<td>187</td>
<td>-9.19</td>
</tr>
<tr>
<td>3</td>
<td>124.43</td>
<td>128</td>
<td>2.87</td>
<td>81.57</td>
<td>91</td>
<td>11.56</td>
</tr>
<tr>
<td>4</td>
<td>75.14</td>
<td>80</td>
<td>6.46</td>
<td>32.31</td>
<td>37</td>
<td>14.51</td>
</tr>
<tr>
<td>over 4</td>
<td>114.56</td>
<td>115</td>
<td>.38</td>
<td>21.20</td>
<td>23</td>
<td>8.49</td>
</tr>
</tbody>
</table>

THE DOUBLE CALLS VIUR TEST #1: DISCUSSION

The perceptive power would, if it were left to itself, produce a high rate of correct calls. However, when a number of correct calls have been made, the defense mechanism steps in and counterattacks with a burst of energy. This burst of energy interrupts the succession of correct calls the perceptive power has been producing and interjects into the sequential flow of trials a succession
VIUR Tests: Conceptual Probes, Programmed Defenses

of misses. This "psychodynamic tension" produces a reduced number of short sequences of hits and misses and an enlarged number of longer sequences of hits and misses.

In the standard and no calls VIUR tests, when the perceptive power is not strong, the ordering force offsets this result of psychodynamic tension to some degree. In the double calls VIUR test, where the perceptive power is strong, the push toward longer strings by the psychodynamic tension is more clearly seen.

This analysis strengthens both the evaluative approach and the posited psychodynamic model used in the VIUR tests. It also increases the uncalculated level of confidence which we may ascribe to the underlying assumption we have used, namely, that a value based (qualitative) mentation strategy (holly prayer) can be used to modify an unconscious, volitional, psychodynamic action. (Additional information about this test, our first double calls VIUR test, may be found in our paper The VIUR Test: Massive Psi, Massive Defenses.)

A COLOR/IMAGE VIUR TEST: INTRODUCTION

All experimental tests of psi illustrate the fact that the laboratory study of psi differs from the laboratory work of all other sciences in that it combines both the measurement of purely material systems (a feature common to all laboratory work) with the power of a human consciousness to affect those systems. Thus, in almost all psi research, an individual capable of producing psi must be present to provide the needed mental input for the test.

This unique feature of psi research links such research irretrievably with life itself, with the culture, sociology, background of ideas, and conceptual structure which produce the psi-producing individual. It involves the nature and nurture which shape a person and, most importantly, it involves the belief systems which make psi either possible or impossible for an individual.

Thus it is that any research community which studies psi must possess either: (1) an educational/developmental system which enables them to produce the phenomena they study or (2) an evaluative system capable of identifying individuals capable of psi together with a knowledge of those social and cultural factors which make psi possible (so they know where to look). Lacking either the ability to produce psi or the ability to seek and find psi as needed, a psi studying community must, at the very least, be in dialogue with communities which have these capabilities. Without such essentials the serious study of psi is merely an exercise in frustration and futility.

Spindrift's research uses for its laboratory work practicing spiritual healers and, from time to time, such others as have been willing to work with Spindrift and who were available at the time needed.

Spindrift's research differs from the conventional study of psi both in its emphasis on spiritual healing and in the fact that its research rests on a somewhat developed theoretical foundation. To our knowledge our research is the only research going on in the world today which evaluates the power of thought in terms of its relationship to information bases. Some explanation is in order.

From the big bang on, from the first occurrence of temporally and spatially extended phenomena, order appeared in the world. This order eventuated in galaxies and in planets, and, here on earth, in organic life and, finally, in human consciousness. And, throughout the history of scientific endeavor, an all-too-little-noticed circumstance is that order in any form requires an information base.

Those scientists who champion the anthropic principle have pointed out that those laws of the universe which underlie the order of the universe have, from the beginning, been incredibly finely tuned
to permit the development of life and consciousness in the world. Other scientists have pointed out that the science of today has no explanatory mechanism which allows for the existence of the enormous size and diversity of the information bases which underlie the order of our world.

Consider a single cell, the fundamental unit of organic life. The characteristics of pattern which identify the necessary norms of state and function for that cell constitute an extremely large, extremely fine tuned, and extremely unique template for that cell.

It is a characteristic of spiritual healing that the mode of consciousness which produces such healing moves a system toward its norms of state and function. Thus, such a mode of consciousness possesses both an awareness of those norms (ESP in traditional parapsychological terms) and the ability to move the system toward those norms (PK in traditional parapsychological terms).

A Christian Science practitioner cultivating and applying, through prayer, the holy state of consciousness which, in the Christian tradition, is associated with spiritual healing, would not be assessing his mentation in terms of ESP, PK, or any similar conceptual structures, especially since such thought forms are undifferentiated from the volitional,intentional modes of consciousness which are pattern indifferent rather than pattern mending or pattern developing.

Why get into mentation strategies? Why not just report the facts in the strict scientific tradition and then leave the development of theory to progress in the usual inductive way from the experimental findings?

Frankly, even the asking of such a question reveals a blind spot in the outlook which produced such interrogative musing. Mainline science can present facts "objectively," yet the very fact that those facts can be understood, that is, ordered in the mind of the reader, requires a universally assumed conceptual system in place which enables those facts to be ordered and thus "understood" in the mind of the reader. The minute a fact appears which does not fit the conceptual system the fact is classified as "anomalous" and is suspect. If a different conceptual system were in place a different set of facts would be "understood" and a different set of observations would be "anomalous" and suspect.

Unless theoretical positions are intertwined with experimental observations in reports of laboratory research into psi, the de facto conceptual position is understood to be operative and the phenomena reported are, by definition, "anomalous." Thus, psi research reported only "factually" is, again by definition, the study of anomalies. The immediate and continuing result of such reporting of laboratory work is that the reported research is: (1) immediately suspect (anomalistic), (2) part of no predictive matrix of theory (a death blow to experimental work), and (3) unrelated to the psychodynamic state of the psi producer involved in the experiment (a less than full report of experimental conditions).

It is recognized, of course, that experimental research is fruitfully carried on only when it defends no pre-existing conceptual position. It is also recognized that experimental results can be useful and interesting without being an obvious part of a seminal outlook. And it goes almost without saying that no one expects every report of psi research to be accompanied with a psychodynamic profile of the individual providing the mental input for the experiment. Nevertheless, until psi research, like mainline science, possesses a taken-for-granted conceptual foundation, mentation strategies and conceptual outlooks must be mingled with experimental results as needed to make sense of the experimental results.

Because a mode of consciousness exists which moves systems toward their patterns, a mode of consciousness which is aware of the information base which constitutes those patterns, a mode of consciousness we call "holy thought," and because Spindrift studies this mode of consciousness, Spindrift's research is pattern oriented and information base related.
A COLOR/IMAGE VIUR TEST: METHODS AND MATERIALS

The researcher responsible for the data from the double calls VIUR test #1, the primary 4x4 VIUR test, and the 2x2 VIUR test, produced this data as well.

Image 1 was a scratchboard drawing of a mother and child, a drawing which showed the head and shoulders of the mother and the babe in her arms. The image was photocopied in black and white, surrounded by the color blue, and color copies were then made to place in the envelopes. Image 2 was a black and white photograph of a portion of a sculptured skeleton. The image was surrounded by the color black and photocopies were made to place in the envelopes.

In the following discussion we will use the data to illustrate the primary and secondary image selection process. We will also use the data to illustrate the coincidence of selection of primary and secondary images by both ordering and perceptive criteria.

We deliberately did not evaluate the data for primary and secondary image selection using our standard selection procedure until after the researcher had selected the primary and secondary images as they existed in his own set of data and had done this from the standpoint of the perceptive power.

A COLOR/IMAGE VIUR TEST: RESULTS

200 runs of 48 trials each were made. 5567 hits were obtained which led to a scoring percentage of 57.99 and a Z-score of 15.66.

In the first of the three sets of runs 35 runs were made, 1,680 trials (calls and falls) produced. In the second set of runs 30 runs (of falls) were made, 4,320 trials (calls) were produced. The larger number of trials produced is due to the fact that each set of falls was called three times. This was true as well for the third set of runs. In the third set of runs 25 runs (of falls) were made and 3,600 trials (calls) were produced.

In the two "triple try" sets of data the order of the envelopes was reversed after the first set of calls so that the images could be sequentially called a second time. This was done. Then the procedure was followed again. Thus, the falls of the images were called three times and each set of calls was recorded. After the last call was recorded, the completed deck of called envelopes was turned over and the actual falls of the pictures were recorded. (These runs provided the data used in our "triple try" VIUR test.)

Figure 1 (next page) shows the percentages by which the means and standard deviations of each set of runs were above expected values. Note that the variability of the runs increases with the scoring percentage. Of at least equal interest to the researcher was the number of calls of each of the two images that were made.

Up until these runs (that is, in previous VIUR tests) the researcher had no consistent initial perception of the image to be called when he picked up each envelope. Sometimes yes, sometimes no. However, by the time he made these runs he had an initial perception with each image. Of course, the perception was not always correct, but it was there. (In terms of our theoretical structure the defense mechanism has the ability to make Image 1 look like Image 2 to the conscious mind and vice versa. The essence of its activity is to deceive the conscious mind.)
VIUR Tests: Conceptual Probes, Programmed Defenses

Since this was the case the number of calls of a given image reflected the number of times the perception of that image was presented to the researcher. This, in turn, reflected the number of times the defense mechanism chose to substitute "copies" of each of the two images to the conscious mind of the researcher. In the first group of runs evaluated image 1 was presented to the researcher 54.58% of the time. In the second group of runs evaluated image 1 was also presented to the researcher 54.58% of the time. (A dead heat.) In the third group of runs evaluated image 1 was presented to the researcher 55.22% of the time.

It was the suspicion of the researcher that the defense mechanism was most frequently "copying" the easiest image to copy. Thus, by this reasoning, image 1 was the secondary image and image 2 the primary image. His suspicion was reinforced by the fact that image 2 was more easily called than image 1 as indicated by the hit rates. Image 2 was correctly called 58.85% of the time, image 1 was correctly called 57.28% of the time.

It was at this point that 12 runs of a double calls VIUR test were made by the researcher using the same images. These runs were runs of 24 trials each. Thus, 288 trials were produced. Hits were scored 61.81% of the time. (These were the initial runs of double calls VIUR test #2.)

The interesting feature of these double calls runs is that the researcher was able to separate the trials into two categories: "easy calls" and "hard calls." This is something which he did for a portion of his runs in the earlier double calls VIUR test he had made (double calls VIUR test #1) but there was a difference here. In his earlier test easy calls were calls in which it was "easy" to make a call and hard calls were calls in which it was "hard" to make a call. In this double calls test the easy calls were the calls in which each envelope initially presented itself to the mind as containing image 2. Hard calls were calls in which each envelope initially presented itself to the mind as containing image 1.

Very occasionally, the envelopes presented themselves to the mind as containing two images (a different image for each envelope). These occasions were apparently lapses in which the defense mechanism was caught off guard and not doing its work. These very few instances were classified as among the easy calls.

The usual easy calls (two instances of image 2 presented to the conscious mind) were considered easy calls because it was fairly easy to "get a resolution," that is, to mentally compare the contents of the two envelopes until a different image presented itself for each envelope. Hard calls (two instances of image 1 presented to the conscious mind) were considered hard calls since it was difficult to "get a resolution," that is, to mentally compare the contents of the two envelopes until a different image presented itself for each envelope.

From these circumstances the researcher concluded that it was more difficult to project a false picture of image 2 to the conscious mind than it was to project a false picture of image 1 to the conscious mind. Presumably this was because image 1 was not as strongly associationally linked to the mind as image 2, not as clearly seen. This led to the conclusion that image 2 was the primary image.

Thus far all the fingerposts were pointing to image 2 as the primary image for this researcher and with this pair of images. When we turned to the 288 trials (the initial runs of double calls VIUR test #2) the researcher's assessment was dramatically confirmed by the data.

In terms of presentations to the conscious mind, the image 1 pair was initially presented 59.72% of the time. The hit rate coming out of this initial presentation combination was 53.49%. The hit rate coming out of the alternative combination, the image 2 pair initially presented, was 74.14%.
All of the evidence pointed to image 2 as the primary image.

Our next step was to turn to our conventional order-based primary and secondary image selection criteria. We had 9,600 calls and 4,320 falls to work with. From this data we made our assessment, an assessment which selected image 2 as the primary image. A walkthrough of the calculations is given in Appendix D.

A COLOR/IMAGE VIUR TEST: DISCUSSION

However imperfect our selection criteria may be, it seems clear that there exists in most cases a primary and a secondary image. This means that the mind of the individual relates with different degrees of intensity to the different images. One image "grabs you" more than the other. Through nature and nurture, through inherent responses and through learned associations, we develop different degrees of response to differing pictorial symbols. The resulting differing degrees of associational linkage provide pathways over which both the perceptive power and the ordering force travel. The characteristic traces left by these forces provide means by which the primary and secondary images may be distinguished.

DISCUSSION

Unraveling the Mechanism of Deception: A Beginning

With one exception (double calls VIUR test #1) the tests presented in this paper are presented in the order they were done. Double calls VIUR test #1 preceded the others and the other tests followed in the order given. Before making a second double calls VIUR test we had three things we wished to accomplish in addition to the results already described.

The first goal was to find color/image combinations the researcher might relate to more strongly than the images he had used in double calls VIUR test #1. The 4x4 VIUR test showed the power of the blue/mother and child combination and the 2x2 VIUR test showed the black/sculptured skeleton combination to also draw a strong response from the researcher.

A second objective had to do with the calling pattern of this researcher. In his standard VIUR test this researcher manifested strong displacement, correctly calling the identity of the image preceeding the target image much more strongly than he called the target image. (See our paper The VIUR Test: Massive Psi, Massive Defenses for full detail.)

We felt this displacement was an activity of the defense mechanism and was something which could be addressed by the researcher in his "mentation strategy" (his prayers or "holy thought"). This was an issue he addressed throughout all of the tests described in this paper, the tests he provided data for following his standard VIUR test.

The triple try VIUR test gave us our first opportunity to see how this researcher was doing in his efforts to reduce his displacement. Figure 2 presents the results of his standard VIUR test and the three groups of the triple try VIUR test. It can be seen that the researcher's correct calls increased during the course of the triple try VIUR test and that his backwards displacement decreased and virtually disappeared in the third data group.
Figure 2. Hit rates of a single researcher across four groups of runs, the standard VIUR test (STD), and Group 1 (G1), Group 2 (G2), and Group 3 (G3) of the color/image VIUR test are shown. The solid line represents the hit rate on target calls and the broken line represents the hit rate on displaced images (the image preceding the target image).
Our third objective had to do with what we termed the "mechanism of deception." We didn't want to begin double calls VIUR test #2 until the researcher had a perception of what was in each envelope before each call. Whether or not the two perceptions were correct or not was another matter. We felt that if the perceptions -- right or wrong -- were there, the mechanism of deception could be unraveled. Our researcher felt he had come to this point during the course of the triple try VIUR test and thus we were positioned for our next double calls VIUR test. This test is described in our paper An Ancient Philosophy, A Modern Test.

The Larger Picture

Now we ask you to go back with us "dear reader" -- even the phrase is reminiscent of the nineteenth century -- and it is to the nineteenth century that we will go in thought for a moment, back to the dawn of psychical research, back to the time of such travelling showmen as the Davenport brothers, back to the materialization mediums and other reputedly strong producers of paranormal phenomena.

Today that kind of culture is gone, together with the people who made it possible. A different kind of culture has gradually erased it. The new culture is both scientific and materialistic and, with much hubris, has declared that a materialistic outlook is a necessary precondition of science.

We, at Spindrift, contend that it is cultural change which has gradually destroyed psi phenomena, just as it has destroyed much religious experience, from the belief in the marvels of Christian history to the religiously paranormal manifestations of earlier times. Our contention is based on our researchers' own experience as proponents of spiritual healing (Christian Science practitioners), on the parallels of the public attitude toward psi research with our own experience, and on our own 17 years of research into psi phenomena.

In great measure early psychical research was gifted subject oriented, individual experience oriented. In part, this was due to the fact that the techniques of scientific investigation were in little use outside the hard sciences. In greater measure, perhaps, it was due to the fact that gifted subjects did apparently exist. Today, they apparently do not exist.

The scientific mainstream today generally believes that careful investigation has shown that such gifted individuals never did exist. We contend that the same cultural change which developed this viewpoint also did much to destroy the cultural conditions which made such individuals possible. Differently put, as the techniques for experimentally studying psi began to appear, the mindsets which accompanied them made psi begin to disappear.

We, at Spindrift, are representatives of what is, by parapsychological definition, a psi-using subculture. We bring to psi research a theoretical model which suggests that measurements be made in relation to pattern as well as in relation to volition or intention. We also bring to psi research the essentially religious dimension of a road that can be walked, an inner road capable of modifying the defense mechanisms which conceal psi from conscious observation and bar psi from common usage and experience.
APPENDIX A: ADJUSTMENT PROGRAM

INPUT "Exact Matches, Hits, Calls "; exactmatches, hits, NumberCalls
p = hits / NumberCalls
expectedvalue = hits / 4
Recursive:
increment = expectedvalue - exactmatches
hits = hits + increment
placeholder = exactmatches
exactmatches = expectedvalue
expectedvalue = hits / 4
IF CINT(expectedvalue) = CINT(placeholder) THEN pp = hits / NumberCalls: GOTO Finish
GOTO Recursive
Finish:
PRINT : PRINT "starting p = "; p
PRINT : PRINT "calculated p = "; pp
END
APPENDIX B: TESTS WITH GERMINATING SEEDS

Example 1

We took a plastic children’s wading pool, put an inch or two of water in the bottom, placed a rack above the water line, and then placed a dozen plastic sieves on the racks. We scattered soybeans which had been soaked overnight on the sieves, scattered them loosely so that “packing” (which affects moisture retention) was not a problem. A rigid plastic sheet was used as a lid for the circular container (wading pool). This increased the humidity in the container. Weights of the soybeans (to tenths of a gram) were taken daily. Qualitative prayer was provided daily for half of the baskets of beans (six of them).

In Run 1, at the end of the ninth day, the rigid plastic sheet used as a cover was removed for a day and then replaced. Figure 3 (page 5-36) presents the results. The x-axis represents successive 24-hour measurements. The vertical bars (y-axis measurements) represent percentages of treated weight increase or decrease in relation to control weights.

In Run 2, at the end of the eighth day, the rigid plastic sheet used as a cover was removed and not replaced. Weather conditions were different and the initial spurt of growth was not as great (note change in scale of graph). After the change of environmental conditions the same diminishing negative treated/control relationship seen in Run 1 (Figure 3) appeared (Figure 4, page 5-37).

The interesting feature of the test is that the treated seeds were retaining more moisture (or, alternatively, putting on more weight) during the initial conditions of the runs. Then, when conditions abruptly changed, the treated seeds released more water (or, alternatively, put on less weight) than control seeds (or both).

With such simple tests we cannot investigate what the actual relationship of the seeds with their environment may be. We can only vary environmental conditions and observe responses. More varied environmental manipulations may be introduced as in the next test which we offer as an example.

Example 2

This test was structured so as to include varied soaking times for the soybeans. However, the initial differences in germinating capabilities produced by variations in soaking time only briefly remain a dominant factor due to the adaptability of the seeds to environmental conditions.

We put 200 soybeans in each of 24 plastic mesh bags. Eight of the bags with the beans were soaked 3 hours, eight 6 hours, and eight 9 hours.

Soaking was scheduled so that all bags and beans would come out of the water at the same time. Then they were placed on racks in four covered plastic 20-gallon garbage cans. As with the wading pools, there was unheated water in the bottom of the cans to provide humidity.

After 12 hours the beans were dipped and returned to the cans. After another 12 hours they were removed from the cans and weighed.

After this preliminary 24-hour period in the cans to let the sprouts get started, the cycles used in our testing were begun. The beans were taken from the cans. Half were treated and then all were returned to the cans and let dry in the cans for 12 hours, and then taken out and weighed. They were dipped in water, placed in the cans for an hour, then removed and weighed, then returned and let dry
in the cans until 12 hours from the last watering. This cycle was repeated as long as the beans were viable.

Figure 5 (page 5-38) presents the pattern for each cycle for the 9-hour soaked beans. Figure 6 (page 5-39) presents the pattern for the 6-hour beans and Figure 7 (page 5-40) presents the pattern for the 3-hour beans. Weight losses and gains are in percents of initial weights. Only three cycles (with two sets of measurements in each -- After Drying and After Dipping) were taken, because the beans did not appear in good enough condition to reliably continue after the third cycle.

We know the figures of weight gain and weight loss are being influenced by the growth cycle of the beans, drying conditions, and measurement variables. We know that the figures of weight gain and weight loss of the treated beans are also being influenced by cumulative effect of treatment (qualitative prayer), variations of strength of treatment, and variations of measurable effect due to varying r (resistance) levels (varying degrees of stress on the beans).

However, the general pattern which has emerged is this: (1) In the drying period weight loss will be the greatest or weight gain the least in the treated seeds for the seeds that initially soaked the longer period (soaked up the most water), and (2) in the growing period weight loss will be the least or weight gain the greatest in the treated seeds for the seeds that initially soaked the least (soaked up the least water).

Example 3

In our next test we put 800 grams of soybeans in each of 24 plastic mesh bags. Eight of the bags were soaked in water and an additive was chosen for the soaking water for the other bags. The additive was one of the enzyme preparations used for removing stains when washing clothes (Axion).

For eight of the bags 1 tablespoon to each 2 cups of water was used; for the other eight bags 1 tablespoon to each cup of water was used. In each group four bags were controls and four bags were experimental (to be treated). After the soaking was begun the beans in the experimental groups were treated. After soaking, all the beans were weighed. After weighing, the beans were put in the plastic cans for 12 hours and weighed again. There were no visible signs of damage from the additive.

After 24 hours in the cans the figures showed the usual effects of treatment on drying soybeans at this soaking level. (The treated seeds have given up less water than the control seeds because the drying period was 24 hours instead of 12.) The beans in clear water had control water absorption of 84.14% of initial weight. The beans with the least additive showed control water absorption of 79.15%, and the beans with the most additive showed control water absorption of 75.83%. (Or, alternatively, less weight gain in terms of actual growth weight.)

In terms of control/treated differences, Figure 8 (page 5-41) presents the pattern. The pattern tells us that the greater the additive (the less the water absorption) the less moisture is released by the treated beans in relation to control.
Figure 3. With the x-axis representing successive daily measurements and the y-axis representing percentages of treated soybean weights over or under control soybean weights the combined effects of qualitative thought and alteration of humidity levels on germinating soybeans is shown. (Run 1)
Figure 4. With the x-axis representing successive daily measurements and the y-axis representing percentages of treated soybean weights over or under control soybean weights the combined effects of qualitative thought and alteration of humidity levels on germinating soybeans is shown. (Run 2)
Figure 5. The response patterns of soybeans initially soaked 9 hours to 3 cycles of alternate drying and dipping in water are presented. The hatched gray columns represent control seeds, the solid black columns represent treated seeds. The first 2 bars of each of the 3 cycles represent "after drying" and the second 2 bars of each of the 3 cycles represent "after dipping."
Figure 6. The response patterns of soybeans initially soaked 6 hours to 3 cycles of alternate drying and dipping in water are presented. The hatched gray columns represent control seeds, the solid black columns represent treated seeds. The first 2 bars of each of the 3 cycles represent "after drying" and the second 2 bars of each of the 3 cycles represent "after dipping."
Figure 7. The response patterns of soybeans initially soaked 3 hours to 3 cycles of alternate drying and dipping in water are presented. The hatched gray columns represent control seeds, the solid black columns represent treated seeds. The first 2 bars of each of the 3 cycles represent "after drying" and the second 2 bars of each of the 3 cycles represent "after dipping."
Figure 8. Differences in response to qualitative thought of treated soybeans (solid line) and control soybeans (broken line) at different additive levels (Axion) in soaking water.
Example 4

In a follow-up test we tried another additive from the shelf above the washing machine: ammonia of the household type available at the supermarket. The bottle was not descriptive of strength of contents. The ammonia increased the absorptive power of the beans or, perhaps more accurately, made the water easier to absorb.

100 grams of soybeans were placed in each of 24 plastic mesh bags. Eight were soaked in clear water, 8 in a solution of 1 cup ammonia to 16 cups water, and 8 in a solution of 1 cup ammonia to 8 cups water.

After soaking for 8 hours (during which time the beans in half of the bags in each group were treated), the beans were placed in the garbage cans to drain for an hour and then weighed.

Control weight gains were 109.73, 125.95, and 124.65 in the clear water, light-additive, and heavy-additive categories respectively. Measurable effect in each group, as in the previous checks of this kind, was slightly negative in each case. Figures were -1.14%, -0.41%, and -0.70% (This means that the treated seeds had slightly less weight gain than the control seeds.)

Twelve hours later the beans in each bag (kept in the garbage cans) were weighed and, after another 12 hours, weighed again. In the initial drying period the treated beans all released more solution than the control beans. The treated ammonia-soaked beans were obviously getting rid of more solution than the treated water-soaked ones, and the treated beans less exposed to the ammonia were doing this more effectively than the more heavily-exposed treated beans.

The second weighing period indicated a positive measurable effect in the light-ammonia beans showing that the treated beans in this category were putting on more weight (or retaining more moisture) than the control beans. Figure 9 presents the data pattern.
Figure 9. Differences in response to qualitative thought of treated soybeans as compared to control soybeans (percentages over or under control). Three different additive levels (ammonia) are represented and two different drying times (hours after soaking): 12 hours (broken line) and 24 hours (solid line).
APPENDIX C: TESTS OF ASSOCIATIONAL LINKAGE

Conscious thought can be directed toward specific "targets", specific individuals in the practice of spiritual healing and specific measurement vehicles (trays of seeds or pots of yeast or whatever) in experimental situations. Early in our research we conducted tests to see just how specific we could be. In one such test we mixed a nutrient (rice extract agar) with tap water and poured it (heated and dissolved) into petri dishes and set them aside for a couple of weeks. At the end of this time they had spots growing on them. We selected dishes in which the spots were absolutely round for the most part (except where they ran into the side of the dish) and the majority of them were grayish-dark olive in color. On holding them up to the light it was seen that these spots had the characteristic of growing in concentric rings. Because of this growth pattern they seemed ideal for our purpose.

We placed a white thread down the center of a spot and treated the living material on one side of the string over a period of time. There were no visible results. We repeated this procedure with lots of spots but they all grew normally, growing larger in a perfect circle and adding additional concentric rings.

The next step was more difficult. This involved damaging a spot not enough to kill it, but enough to ensure that treatment would make a measurable difference. (E is proportional to r, that is, E = kr. In this equation "E" represents measurable effect, "k" is the appropriate constant, and "r" is, for the purposes of this test, equated with stress.) Not having the slightest idea how to damage a spot enough to stress it severely and yet not kill it, and knowing it would take much good fortune and perhaps many trials to get within the right range, we went ahead.

We rinsed some spots with salt water, some with vinegar, and some with rubbing alcohol. The solution that worked was Isopropyl rubbing alcohol, 70% by volume. The spot we used had been alcohol rinsed at a time when it had developed two full rings and parts of a third ring on each side of the center thread. After the rinsing there was no further growth on the untreated side. But, three months later, with qualitative thought given to the treated side every day, the third ring had been completely filled out, a fourth ring had been added, and a fifth ring was forming. The test could not be continued further because the agar had dried out.

After successfully linking thought with part of a living system we later (about a decade later) successfully linked thought with part of a computer program and this was the basis of what we called our "double loops" technique. (See our paper Descent Into Imagery: Micro Randomness.)

Associational links are unaffected by spatial separation of people or things. Another test we did, early on, illustrated this. In this test we asked a milker in a dairy herd about 100 miles from the researcher to call us when the next instance of mastitis appeared in the herd. The occasion of treatment (qualitative thought) was a positive mastitis test taken at 5:00 P.M. Treatment was given at 11:30 P.M. and a second test taken at 5:00 A.M. The only identification known to the researcher was the fact that the cow was identified as Number 459 and more familiarly known as "Hershey."

Since the four quarters of the udder act as separate milk-producing units, tests are taken from each quarter. Treatment was quite successful. If drugs had been used, six hand-milking would have been required while the drug worked its way through the system and the milk from these milkings (about 130 pounds of milk in this case) would have had to be thrown away. In Table 15 "S.C.C." represents "Somatic Cell Count" and "L.M.P." represents "Loss of Milk Production."
Although the practitioner can direct holy thought to the measurement vehicle (the patient) the place where the result may appear cannot be so directed. Another test we did illustrates this fact. In this test we connected a 25-watt soldering iron to an Apple II+ computer in such a way as to give heat (be turned on) only if a random flow of electronic impulses was deviation in a given direction by a given amount. The random source depended on an electronic circuit for its generation of randomness. Each trial took about 15 minutes. During this 15 minute interval the circuit produced 114 normally distributed random numbers.

We mounted our soldering iron on a stand, mixed a package of yeast in one-fourth cup of lukewarm water (as in making bread) and lowered the soldering iron into it. The soldering iron was connected to a computer controlled switch. The mean from which variation was figured was set at the mid-point of the normal curve formed by the 114 random numbers produced by the circuit and the apparatus was turned on. This caused the iron to be on approximately one-half of the time.

The yeast solution got hot and foamed as each test ran its approximately fifteen-minute course (the yeast was being treated during this period). The soldering iron was on or off according to the random number which appeared on the monitor. Ten tests were done in this fashion and in none of them was the random flow noticeably affected.

In the tenth test, as the researcher was listening to the yeast sizzle in its contact with the soldering iron as he was treating it, the ugliness of the mental image became extreme and, by his evaluation, the qualitative level of his treatment exceeded his earlier efforts.

When the test ended, contrary to earlier tests the yeast solution had not foamed up. The soldering iron was checked and it was hot, much too hot to touch, as usual.

We checked the yeast solution and it was not hot; it was just the same lukewarm temperature as when first mixed. This phenomenon was checked by the two people available at the time. Checking the monitor showed the mean was the highest of the ten tests and so was the number of on’s (66 on’s, 48 off’s). It was clear the random flow had not been positively affected in terms of blessing the yeast.

It was of interest that holy thought did not affect the presumably most easily affectable element in the yeast’s environment in its purpose of alleviating the condition of the yeast.

Yet another test of specificity of treatment involved a field trial. This test involved treatment for black nightshade, a weed usually treated with a pre-emergence herbicide. In this case the plants were well-developed and infesting a soybean field.

Black nightshade is difficult to research in the usual way in which plants are studied. Its infestation is spotty so it may not be in a test plot to start with. And, if it is, it may not germinate in a given year.
In this case the individual cooperating with our researchers (who lived, at the time, on the border between Walworth and Jefferson counties in southern Wisconsin) reported that that year (1983) only a handful of farmers in these two counties did not have black nightshade in their soybeans, and it was beginning to infest the corn.

The vigor of soybeans is highly individual and varies from year to year. This vigor is an organic strength that can be measured, according to plant researchers, and has nothing to do with the harvest value of the plant but does have a bearing on the plant’s ability to resist infestations of nightshade.

In this test the group of soybeans to be treated was initially mentally defined (no physical markers on the ground). The practitioner working with us mentally marked off a small area of the field (an area well known to her) and treatment was given by this individual to the plants in this area.

The next day every black nightshade plant in that small area was withered, and the nightshade in the surrounding areas was thriving.

The practitioner then marked off an acre with feed buckets and counted the black nightshade plants in that acre. 1817 were found.

From the crop map it was determined that there were approximately 140,000 soybean plants in that acre (30 inch rows). The ratio of nightshade plants to soybean plants was not large but black nightshade has black berries which stain the beans in harvest. Even a small amount of nightshade will cause a considerable amount of dockage. In addition, the plants jam the harvesting equipment.

The acre marked off with feed buckets was treated as the small plot had been treated the previous day. After treatment the nightshade plants were examined. 1,000 were examined individually and all were shriveled. The remaining 817 were not individually inspected.

Nightshade does not seed until fall but the roots of some of the plants, placed in a watermanure formula, sprouted about 3 weeks later so the plants were still viable.

The rest of the 50-acre field was then treated and the nightshade died out. Inasmuch as nightshade will occasionally die out after development, this fact is not in itself significant. The immediacy of response, the time sequence of events, and the specificity of relationship between observed effect and the area treated are the immediate points of interest in this test. Of theoretical interest is the fact that the norms to which qualitative thought drew the interrelated organic systems were determined by a consciousness of good which was not related to the individual identities of all of the plants.

Additional tests of specificity of target may be found in our paper Prayer and Healing: Tests With Germinating Seeds.
APPENDIX D: SELECTION OF PRIMARY IMAGE

The selection system used is explained in detail in our paper The VIUR Test: Massive Pst, Massive Defenses. This detail will not be repeated here and only a walkthrough of the analysis will be given.

If our hit rate had approximated the expected value of 50% we could have used the formula \((n/2)/(n-1)\) which tells us that (with \(n\) equalling the length of the runs, 48 in this case) 51.06% of pairs of falls should be "ordered" (1/2 or 2/1 combinations, that is, alternating images occurring in pairs). In terms of hits and misses, this circumstance should then be reflected in 0/1 and 1/0 combinations. Such combinations should each appear approximately 24.47% of the time.

Given the strong hit rate we cannot work from the formula but must use the data values for ordered and disordered pairs, working from these to develop expected values for most ordered and ordered groups-of-four. This weakens the strength of the two indicators which depend on these expected values but, without a generalization of the formula, the pragmatic approach is necessary.

In terms of units 4 trials long we had 1316 image 1 units and 1082 image 2 units to work with. 151 of the image 1 units were "most ordered" and 131 of the image 2 units were "most ordered." "Most ordered" groups-of-four have 0/1/0/1 or 1/0/1/0 sequential order (1 = hit and 0 = miss). 296 of the image 1 units were "ordered" and 267 of the image 2 units were "ordered." "Ordered" groups-of-four have the following sequential orders: 0/1/1/0, 1/0/0/1, 0/0/1/1, or 1/1/0/0.

Image 1 most ordered units had an expected value of 146.10 and image 2 most ordered units had an expected value of 130.35. Ordered image 1 units had an expected value of 315.91 and ordered image 2 units an expected value of 253.35. Thus, in relation to expected values there were less most ordered image 2 units than image 1 units and there were more ordered image 2 units than image 1 units. Up to this point the voting was tied.

In terms of numbers of sequences two hits long there were 321 such image 1 sequences and 285 such image 2 sequences. When the number of total trials of each image and the number of total hits of each image were evaluated by the sequence orderliness formula and compared to the data it was found that image 1 sequences two units long were 7.41% below expected value and image 2 sequences two units long were 9.80% above expected value. Thus, the voting at this point was two-to-one for image 2 as the primary image.

We turned then from the calls to the falls. Here, because the expected values for sequences two units long are always equal (each image has the same chance of occurring) the number of occurrences of sequences two units long is a direct indicator for our selection process. We found that in an evaluation of all the runs there were 249 image 1 sequences 2 occurrences long and 295 image 2 sequences 2 occurrences long. Thus, the voting became three-to-one for image 2 as the primary indicator.

Our next step was to turn to our most efficient indicator, Indicator 5. This indicator repeats the calculations of Indicator 4 on "high order" runs of falls. High order runs are runs which (in runs 24 trials long) possess at least two ordered groups (0,1,0,1; 1,0,1,0; 1,1,0,0; 0,0,1,1; 1,0,0,1; or 0,1,1,0 patterns). The procedure used is to identify such runs, string them together in one long sequence, and then evaluate them with the sequence orderliness test. This means that in every 24 trials one-third of the groups of four must be ordered. In the case of these runs of 48 trials we looked for 4 ordered groups in each run.
We had 90 runs to evaluate (4,320 trials) and we found 36 high order runs (1,728 trials). We found that in an evaluation of these runs there were 119 image 1 sequences 2 occurrences long and 136 image 2 sequences 2 occurrences long. Thus, the final vote was four-to-one for image 2 as the primary indicator.

The selection of image 2 as the primary image by an ordering criterion matched the selection of image 2 as the primary image by a perceptive criterion.

How efficient is this indicator? From our data base for the standard VIUR test we had 18 data groups ranging from 4,152 to 10,080 trials. These data groups represented the contributions of 9 individuals and multiple batches from the same individual's runs never disagreed with each other in terms of image selection Table 16 gives the detail of the breakdown of image selection.

**TABLE 16**

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Total Calls 18 18 18 18 18 18
AN ANCIENT PHILOSOPHY, A MODERN TEST

Spindrift, Inc.

ABSTRACT: Every experimental configuration and every system of evaluating data reflects the outlook of the observer. Since every observer structures experiments and evaluates data in accordance with the nature of his own mind, scientific objectivity is a myth. The creed of science at any given time is nothing more than the consensus reached by minds of common outlooks, a consensus sustained by continuing to structure tests and evaluate data only from those viewpoints considered orthodox at any given time. The test described in this paper was developed from a conceptual structure very far removed from the materialistic paradigm of contemporary science. The results are more than anomalous. They are wholly impossible in terms of today's scientific outlook. While recognizing that various theoretical structures may be erected to accommodate and explain the data, and while encouraging such theoretical speculation, some background on the thinking of those who developed and conducted the tests described in this paper has been provided. This background is necessarily brief and is descriptive of a road being traveled rather than of elaborately developed and finely tuned conceptual positions. The test itself is a methodologically simple variation on traditional ESP card-calling tests. The researchers, however, are Christian Science practitioners and the conceptual approach and resulting mentation strategy is non-traditional.

THE HISTORICAL BACKGROUND VERY VERY BRIEFLY

Conceptual Positions: the psychodynamic model

In 1933 J.B. and Louisa Rhine opened the Parapsychological Laboratory at Duke University. Although they operated without a formal model of the nature of psi, the de facto model of thought drawn by parapsychology from psychology was in place. In the preface to one of his books¹ J.B. Rhine wrote:

The psychological (emphasis is Rhines) nature of psi has been more fully revealed than ever before. The fact was earlier suspected and is now amply confirmed that psi is not consciously experienced as such; that it has no identifying sign by which it can be known introspectively...Psi has no conscious modality...It has to work unconsciously; it works without any typical form or awareness.

In terms of the phenomenon of "psi missing" much effort was expended by early workers, particularly in research by Gertrude Schmeidler, toward explaining the phenomenon in terms of unconscious negativism, a subjective desire to not demonstrate evidence of psi. About these efforts Rhine wrote²:

...this explanation...came to look increasingly inadequate...there was a great deal of evidence in which it simply did not make sense....it now seems that most psi-missing is a kind of psi illusion. The subject consistently follows some wrong system or device in his attempts to make high scores.

Conceptual Positions: a religious model

Mary Baker Eddy, who launched the Christian Science movement in 1875 with her book Science and Health with Key to the Scriptures, had, well before the depth psychologists, built the concept of unconscious thought into her system. Additionally, and importantly, she distinguished between two modes of consciousness, writing, for example, of the operational use of her methods as follows³ (in this context her use of the word "science" refers to Christian Science):

Science enables one to read the human mind, but not as a clairvoyant. It enables one to heal through Mind, but not as a mesmerist.

The postulation of a healing and perceptive power acting apart from the volitional/intentional portion of the mind, a bi-dimensional model of consciousness, lies at the root of the Christian outlook, and was a cornerstone of her conceptual system. In addition, she developed concepts of the resistance of the human mind (volitional/intentional) to the identity-sustaining and identity-developing modes of thought ("holy" thought in Spindrift's terminology). These concepts extended far beyond the simplistic list of modalities termed "defense mechanisms" developed by Sigmund Freud, his daughter Anna, and many others.

Today, to be easily understood, Spindrift often uses the term "defense mechanism" to describe this resisting and concealing action of the human mind. We consider "psi missing" to be such a "defense mechanism."

Methodological Difficulties Associated with the Psychodynamic Model

Given the conceptual model of psi used in parapsychological research, the essence of such research is to measure the effects of unconscious process. After promising beginnings the enterprise began to founder, having struck the hard rocks of the methodological difficulties of such research. Of these difficulties Rhine and a colleague wrote as follows⁴:


The uncertain performance of subjects in psi tests is still the major difficulty in parapsychology. Some subjects who come to the test situation and at first show no evidence of psi capacity under the conditions of the test may later prove successful under other conditions. Others may begin at a high level of scoring and as the testing continues under the same external conditions may lose their ability to give extrachance results. Such an outcome has almost always occurred when a given subject has been investigated long and continuously. High scoring subjects have always lost their ability to score above chance.... Unfortunately, the kind of testing that has characterized nearly all the outstanding subjects in the history of parapsychology has resulted in the undoing of the successful performer. It seems now that the testing itself as at present conducted is lethal to the psi function, or perhaps we had better say to the capacity to demonstrate it.

Sociological Difficulties Associated with the Religious Model

Having defined thought as bi-dimensional in nature and having postulated as well that the holiness which underlay the religiously psi side of consciousness could be developed in a Christian context, Mary Eddy had no methodological difficulties in demonstrating her outlook. In terms commensurate with the best scientific standards of today she wrote:

In Christian Science mere opinion is valueless. Proof is essential to a due estimate of this subject.

Just as the Rhines endeavored to bring the volitional/intentional (goal directed) side of consciousness under the scrutiny of the scientific method, so we, at Spindrift, have endeavored to bring the spiritual, or holy, (pattern referenced or pattern mending) side of consciousness under the scrutiny of the scientific method. We have not encountered the methodological difficulties with which parapsychologists have had to wrestle but we have had to endure the powerful theological opposition of the churches. In this opposition Catholic, Protestant, and Christian Science church groups have shared, although only Mrs. Eddy's church, the Christian Scientists, have thus far officially condemned Spindrift's work, declaring that the scientific method is heretical insofar as it applies to the measurement of thought.

The Religious Model and Secular Methodology

In this paper we describe the successful application of the procedures of the bi-dimensional model established by Eddy to the methodology introduced by Rhine and fundamental to early parapsychological efforts to measure the perceptive power of the mind (ESP). The success of this effort breaks new scientific ground but opens the door to a number of sociological problems.

Spindrift's View on What Comes Next

Spindrift believes that the mainline scientific community's acceptance of the demonstrable use of psi modalities will be achieved through the development of working conceptual models and the demonstrated ability of a number of individuals to effectively use those models. Based on our own experience over a number of years with the organized skeptical community, the parapsychological community, the mainline scientific community, and the religious communities, we do not believe that repeated demonstrations of psi abilities by selected individuals is helpful.

Today's climate of overt hostility and covert bias does not lend itself to either showmanship or confrontation. The times of the traveling psi showmen of the late nineteenth century are gone, perhaps forever. The culture which bred them is gone and the culture which would receive them without threat to fundamental mindsets and paradigms is also gone.

The intent of the foregoing paragraph is to underscore the fact that this paper describes the modus operandi of a successful effort to bring one of the psi modalities long studied by parapsychologists under some measure of conscious control. It does not presage showmanlike repetition by any of Spindrift's researchers; it does encourage replication by others.

Even more bluntly put, and in more general terms: Spindrift has, over 18 years of research, blazed a trail. We do not expect to spend any portion of the next 18 years rewalking any portion of that trail. The major obstacle to psi research today as well as to healing by prayer is, in our eyes, sociological rather than methodological and, as such, is outside the purview of a research organization.

METHODS AND MATERIALS

The VIUR (Visual Image, Unconscious Response) test described in this paper is, like all VIUR tests, essentially little more than a conventional ESP card test in terms of methodology. The conceptual background and mathematical analysis which Spindrift brings to the evaluation of the data from VIUR tests does, however, differ considerably from the modes of conceptual approach and mathematical evaluation historically associated with such tests.

The Double Calls VIUR Test

In this "double calls" VIUR test the researcher worked with a "deck" of 48 opaque envelopes. 24 envelopes contained a photocopy of one image, the other 24 envelopes contain a photocopy of another image. The identities of the images were noted on the backs of the envelopes.

The two images used by the researcher combined a black-and-white picture with a color. Image 1 was a somewhat stylized scratchboard drawing of a mother-and-child. The babe and the head and shoulders of the mother were shown. This picture was surrounded by color, a powder blue. Total image size was 3" by 5".

Image 2 was a portion of a photo of a 16th century sculpture attributed to Ligier Richier. The sculpture is a stylized version of a human skeleton with left arm up-raised. This black-and-white picture was surrounded by the color black. Total image size was also 3" by 5". Images were photocopied, in color, so that thickness, texture, and so on, would be the same for both.

In this test the researcher took the 48 envelopes in groups of two with each group of two sequentially randomized envelopes consisting of an envelope with each picture. The researcher was permitted to hold the two envelopes in his hands, move them from one hand to another if desired, provided nothing was done which might physically reveal the contents. After the researcher decided which of the two envelopes contained image 1 the success or failure of the call was ascertained and recorded. In this test feedback was immediate.

It can be noted that we have "stacked the methodological deck" in this particular VIUR test. By this is meant that we have chosen images which we know from past testing are easily related to by the researcher providing the data and we have, as well, chosen a type of test which gives the researcher the opportunity to compare two images and make a selection. In terms of our belief in the presence of a defense mechanism which must either blot out the images from thought or present one image as
another in order to accomplish its purpose, we have devised a test which requires that the defense mechanism must do this simultaneously with two different images. In addition, the immediate feedback provision means that the data provider can immediately relate his call to the nature of the mental interaction which went on in making the call. All of this is supportive to the researcher’s efforts to correctly call the identities of the images above expected values but it is not the whole picture.

We have conceived this test as an exercise in the modification of an aspect of volitional thought (the defense mechanism responsible for concealing the perceptive power of the mind from conscious thought) by “holy thought” (the identity referenced or pattern mending part of consciousness). Thus this test is, by definition, an exercise in spiritual healing. We have used an “off the shelf” spiritual healer (a Christian Science practitioner) and an “off the shelf” methodology (the traditional parapsychological card calling approach).

Our aim in this test was not high scores. We realized that the perceptive power would never come through completely clearly or completely reliably until the defense mechanism blocking the process was completely eliminated. What we hoped to achieve was some degree of weakening of the defense mechanism, a weakening sufficient to permit consistent reliable calling of the images above expected values, a calling sufficient to be statistically significant. In this we succeeded.

**INTERPRETATION OF THE DATA**

In this paper we will view the data at three levels of meaning.

**Level One**

The first level is the usual “scoreboard” level, the presentation of the usual “anomalous” results found in virtually every paper purporting to present evidence of psi activity. In this first level presentation we give evidence of ESP, evidence gained under experimental conditions.

Most of us accept the conceptualization termed “ESP” as a means of reconciling otherwise anomalous data with the otherwise more-or-less accepted reality of everyday life and its accompanying, underlying, and materialistic paradigm of contemporary science. This reduction of tension between paradigm and data is bought at a price. That price is the perception of a flaw in the internal coherence and explanatory power of the scientific paradigm. This presumption leads us into the world of parapsychology, a world with little credibility and less funding in terms of mainline science. Yet, all we have done is attempt to: (1) reduce the tension between certain conflicting aspects of a world not yet fully explained, (2) using an explanatory system developed in theological terms and without reference to the possible meaning of experimental data.

**Level Two**

Most papers dealing with evidence of the class of phenomena described in this paper adduce that “ESP” has been demonstrated at a given level of probability and postulate the conceptualization of a perceptive power of the mind as a logical inductive step reached in the approved manner of the scientific method (our interpretive Level One). This paper goes two steps beyond. In the first such additional step (our interpretive Level Two) we attempt to correlate the objective scoreboard of “objective” data with the subjective experience of the researcher producing the data.

For those wishing to live in a world where the railroad tracks never come together, where the objective world of matter in motion is the only reality and our only experience of this world is a mental construction of no ultimate meaning -- and this is the thrust of the scientific paradigm of today -- then
the modest heresy of simple testing of ESP is as far as you will wish to go. Our own rationale for going further arises from the fact that in gathering our data we did not go the route of "finding somebody with psi" and then inductively generalizing a characteristic of the mind. We conceptualized a perceptive power of the mind as part of a larger conceptual system, a conceptual system with which, as spiritual healers (Christian Science practitioners), we work daily. From this outlook we postulated both a perceptive power of the mind (ESP) and a defense mechanism acting to conceal this perceptive power from conscious thought.

As we move beyond the "scoreboard" we interpret the data in terms of the researcher's subjective awareness of the interplay between the perceptive power and the defense mechanism in his own mind. In other words, we impose an interpretive mechanism on the squiggly lines of the graph of the data, the squiggly lines which underlie the percentage of hits and the accompanying Z-score found in the scoreboard or first level of meaning.

Note that this second level of meaning has not been arrived at inductively, that is, in terms of generalizations drawn from data. The only validation we have for the subjective experience recounted by the researcher as he "called the cards" is the correlation between his experience and the data patterns. This is not as heretical an approach as might at first appear, since the only evidence we have for psi is the conventional reliance on the correspondence between an act of will (intent) and an objectively measurable data pattern (evidence of ESP or PK).

Our justification for our extension of the "correspondence" approach is that we were not "testing an ESP ability" as such. We were, in fact, testing a method of "learning to produce ESP". Using a combination of procedures developed in previous testing and the technique of spiritual healing as we were familiar with it, we put together a method, outlined a path to be walked, and then, as any teacher in school would do, we evaluated the learning process through the eyes of the student as well as through the objective results of standardized methods of testing.

Level Three

Spiritual healing is a part of the process used to obtain the results seen in the scoreboard and develop the modest beginning made in the "mastering ESP" procedure. Thus, we examine the data in the light of a third level of meaning, the conceptual structure or modus operandi, very lightly touched on, which underlies this element of the "mastering ESP" procedure. This third level of meaning moves even farther up the scale of abstraction and we will discuss it later in this paper. Those who view meaning as an epiphenomenon of material mechanism can stop at that point if they so choose. Those who wish to consider the possibility that meaning molds material mechanism may wish to consider the rather oblique relationship between this ancient philosophical viewpoint and this modern test.

In the next section, Results: The Scoreboard, (Level One of meaning) we shall look at the objective evidence of psi gathered in this test. Then, having just considered The Historical Background Very Very Briefly we shall consider The Conceptual Background Even More Briefly and then move on to another look at the results: Results: the Color and the Play-by-Play (Level Two of meaning). This will be followed by a Discussion (Level Three of meaning) and The Future Outlook Very Very Tentatively.

Now, on to the first look, the objective look, the first level of data interpretation.

RESULTS: THE SCOREBOARD

In this double calls VIUR test the researcher made 180 runs (4320 trials). 2815 of his calls
(65.16%) were hits. This led to a Z-score of 20.92.

Before making a call the researcher classified each call as "easy" or "hard". 2201 calls (50.95%) were classified as hard and 2119 calls (49.05%) were classified as easy. (More about the selection criteria later in the "subjective" look at our results.) We went through the hard calls by groups of 24 (91 complete groups) and we went through the easy calls by groups of 24 (88 complete groups). The samplings of hard calls had a mean of 14.57 and a standard deviation of 2.887. The samplings of easy calls had a mean of 16.76 and a standard deviation of 3.026. Thus we found that this purely subjective separation of the calls into two distributions (easy calls and hard calls) produced a separation which had a high probability of being non-random as attested by a Z-score of 4.95.

THE CONCEPTUAL BACKGROUND EVEN MORE BRIEFLY

The Myth of Mechanism

The experimental method is the sacrament of the scientific system of belief. It lies at the heart of the scientific enterprise. The creed of contemporary science is its explanatory system, the detailed description of the mechanism by which the world came into being, operates, and dies.

The mechanistic creed of science is wholly at odds with the religious view of life. To the Christian it makes a difference how life is lived, whether a man be good or evil, whether or not he follows his Savior and seeks his God. To the Christian, health and holiness, holiness and happiness, are related. In terms of the scientific creed, such things are meaningless.

The high water mark of the scientific creed was the clockwork universe of the nineteenth century, the universe of Newtonian physics. That view of reality is now seen to be a subset of a more comprehensive view. The mechanistic laws of the clockwork world are known to be only limiting cases of a universe which rests on probabilistic laws.

In the light of Spindrift’s research the probabilistic view of reality is but a subset of a more comprehensive outlook. Just as the appearance of clockwork action (mechanism) was seen to be maintained by the statistical validity of norms of probabilistic action, so the statistical validity of norms of probabilistic action are seen to be maintained by modes of mental action. Thus, material mechanism becomes myth, a myth maintained because consciousness wills it so to be. But -- and very importantly -- consciousness is bi-dimensional, and the myth of mechanism is not the final determinant of the destiny of man. Because mechanism is myth, changes in consciousness alter the nature and characteristics of the myth. We view these changes in terms of the relative power of the spiritual (and patterning) and pattern-indifferent (volitional/intentional or will-empowered) aspects of thought.

Science and Christianity

Science, as conventionally practiced, springs from the value placed on measurements, from the conviction that measurements, properly taken, can reveal the pattern of the universe, the laws which underlie all things. It is clear that measurements, properly taken, can reveal pattern. It is less clear that pattern can reveal law.

Christianity springs from the conviction that God has revealed himself through His son, through

\[ a_{\text{hard}} = \frac{2.887}{(91)^{1/2}}; \quad a_{\text{easy}} = \frac{3.026}{(88)^{1/2}} \]

\[ a_{\text{hard-easy}} = \left[ (a_{\text{hard}})^2 + (a_{\text{easy}})^2 \right]^{1/2}; \quad z = (14.57 - 16.76) / a_{\text{hard-easy}} \]
the Bible, and through inspiration in every age. In this view, revelation, properly identified and interpreted, not measurements, properly taken, reveals the laws which underlie all things.

Spindrift’s research is based on the perception that the values of Christianity are linked to the patterns of the material world. Thus, Spindrift’s research values measurements and measures values, or the effects of values. Through measurements taken in reference to pattern, Spindrift’s research monitors the relationship between the qualities which define Christianity and the patterns of the material world.

Holy Thought and Pattern

Because the qualities, the value-oriented characteristics of consciousness, define the nature of pattern it may be said that the material world rests on a pre-geometry of consciousness. This pre-geometry is bi-dimensional, conceived as a good/order and evil/disorder dichotomy.

The postulated good/order and evil/disorder pre-geometry is represented in measurable terms in individual human consciousness as a patterning power. Since the volitional/intentional power is pattern-indifferent, it violates pattern with its every exercise and is pattern opposed. It is the surrender of this will which permits the free exercise of the ordering and directing power of spiritualized consciousness.

Until quantum mechanics arose it was assumed that pattern embodied mechanistic law. In the mechanistic view of the world, action B followed action A with utter precision and immutable certainty. This apparent feature of the universe was pronounced "law." This "law" became, in quantum mechanical terms, "extremely high probability." In terms of Spindrift's research, "extremely high probability" has become an associationally structured objective and subjective interplay of the bi-dimensional pre-geometry of apparent physical reality.

In Spindrift's research this proposition is tested by increasing, through prayer, the amount of holy thought associationally linked to a system. Measurements are made in reference to pattern before and after such associational linkage. As the holy/volitional balance of the system is shifted in the direction of greater spiritual content, the system is seen to become more ordered, more perfectly patterned.

Thinking About Thinking: A Sinister Side

From the animism of prehistoric man to the mechanism of Newtonian physics was a long conceptual journey. It was a journey with a beginning but without an end for the causal sequences of nineteenth century physics soon faded into the probabilistic "norms" of twentieth century quantum mechanics. This, too, was but a passing stage of conceptual development for our research shows that these probabilistic norms may now be thought of as transmuting yet again into a fabric of associationally linked modes of belief.

To move from cause and effect sequences to a network of associational links, from the eternal and immutable material entities of Newton to the objective and subjective states of consciousness of Mary Baker Eddy, is a journey few will take easily. Nevertheless, the view provisionally supported by our research has three great advantages: (1) the older concepts can be viewed as subsets of the new, (2) the new idea has the advantage of explaining phenomena which the old view was forced to unrealistically classify as non-existent or anomalous, and (3) the new view, once accepted, opens the doors to vast new areas of experimental inquiry.

If the purpose of life is spiritual development (the Christian view) rather than meaninglessness
and inevitable dissolution of identity (the present-day scientific view) then the primary utility of science lies beyond its useful power of human invention. It lies in the ability to help resolve conflicting views of the world. Few, however, turn to it for this purpose. It is the technological abilities of science which are valued and funded, not the exploration of worldviews.

Paradigmatic exploration is difficult and there are those who feel the loss of the mechanistic worldview was fatal to science in philosophical terms. Even some architects of the quantum mechanical revolution (and Einstein was among them) felt that the loss of causal sequences (mechanistic cause and effect relationships) meant the loss of science. There are many scientists today who feel that -- theory aside -- if thought can change measurement conditions, exactness of measurement is lost -- and science with it. Yet, quantum mechanics has enduringly undermined the mechanistic view while the uncertainty principle and Bell’s theorem have established the measurement quandary. Science has continued despite both these crises.

As a next step, Spindrift’s research, with its linkage of an ordering mode of consciousness to probabilistic norms and to identity, opens the door of scientific investigation and evaluation (1) not only for phenomena science has long classified as anomalous but (2) to the scientific investigation and evaluation of long ignored anomalous scientific outlooks -- anomalous outlooks embedded in the present day wholly materialistic scientific paradigm.

Shortcomings in earlier scientific outlooks can arguably be traced to an understandable lack of measurement expertise or mathematical knowledge. Centuries of development were needed to establish Newtonian physics and its conceptual outlook. There was nothing sinister in that. Men began from where they were and advanced from there.

The quantum mechanical revolution came to pass when mathematics and measurement penetrated the world of the very small. Again, knowledge was hidden from us in an understandable way. It was our lack of skills which prevented us from peering into the world of the very small before we did. Today’s scientific revolution, the breakthrough of Spindrift’s research, uncovers a more inexplicable, more sinister, characteristic of the world which bars us from knowledge, namely, an aspect of our own minds which, not through ignorance but through design, seeks to hide from us an understanding of our worlds and of our minds. Thus it can be argued that future scientific advances depend more on the dissolution of mental barriers than on the refinement of measurement techniques.

Conscious Spiritual Power versus Unconscious Volitional/Intentional Defense

In the eyes of those who developed and conducted the test described in this paper, the calling of the images was an exercise in a mental and spiritual effort by the researcher to diminish the power of the volitional/intentional defense mechanism through the conscious use of a holy state of consciousness (quality-imbued prayer). As briefly discussed in the very generalized background of the preceding paragraphs, we felt it was possible to use one part of consciousness to modify another. This is the nature of the redemptive journey of the Christian. We also proposed to measure our success in terms of parapsychological methodology. We have already presented our results in objective terms. We now present our subjective description of the means by which such results were obtained. The subjective description of mental action is accompanied by another data presentation. We seek to show the correspondence of mental action with traces left in the data by this subjective mental action (the second level of data interpretation).

RESULTS: THE COLOR AND THE PLAY-BY-PLAY

Our testing, thus far, almost all of it over the past 18 years, has centered around the relationship
of spiritualized thought to pattern. The test described in this paper is our first venture outside the ambit of our familiar research patterns. It also represents the continuing subjective journey of a spiritual healer (one of our researcher/practitioners) into unfamiliar territory. In this section of our paper we freely mingle the viewpoints involved.

This researcher had done a double calls test for us at an earlier date with excellent results. However, we did not take this kind of testing further at that time. Although the researcher could, in this earlier test, after a while, distinguish between "hard calls" and "easy calls" each call was a mental effort to distinguish the target image, a mental effort which could not be quantified in terms of logical steps. We wanted this quantification and felt we could get it. Therefore, we turned to the development of other VIUR tests, tests which could help us identify images with which this researcher had stronger associational linkages than the images he was using. We were successful in these efforts.

The second step we took was to get behind us the inveterate displacement of this researcher's hits to the previously called image. We felt this was a tactic of the defense mechanism which had to be eradicated in order to fruitfully progress with our line of inquiry. Using the newly selected pair of images (the images used in the test described in this paper) the researcher made additional standard (not double calls) VIUR runs and continued his prayerful efforts to diminish the power of the defense mechanism until the displacement disappeared.

The third step necessary in preparation for the resumption of the double calls tests by this researcher was the development of an ability to initially identify images on each call. We knew that, because of defense mechanism activity, this identification would not always be a correct identification. However, we also felt that if our conceptualizations were correct then, if our researcher could come to a point where images were perceived, the defense mechanism would be there to alter those images as needed in order to conceal the fact of psi. (See our paper VIUR Tests: Conceptual Probes, Programmed Defenses for a discussion of these preliminary steps.)

The point of the double calls test was this: the defense mechanism would have to alter each image in order to accomplish its purpose. And we had, in our earlier tests, learned some things about the defense mechanism. We knew that it would, if it could, expend less energy rather than more energy. We knew, too, that it could more easily conceal the secondary image (the image less related to the researcher) than the primary image (the image more powerfully related to the researcher). (By making both images look alike the calls would be approximately 50/50.)

Specifically, we wanted to know what made a call "easy" and what made a call "hard." We wanted to know the modus operandi of the defense mechanism's operation. We reasoned that the defense mechanism could more easily project a deceptive secondary image than a deceptive primary image. We reasoned that the defense mechanism would use a low energy approach at least some of the time. To us, this meant that when the researcher mentally evaluated the contents of the two envelopes the defense mechanism would, at least some of the time, create a deceptive secondary image and substitute it for the primary image.

Practitioner: After getting past the hurdle of displacement the next step was to achieve a measure of self-knowledge about the defense mechanism. To me, its most obvious characteristic was its continual concern with the conservation of energy. So much of our testing has shown this. A secondary characteristic which our testing has shown us is the push-pull nature of psi hitting. The defense mechanism sometimes relaxes its efforts a little, thus producing streaks of hits. And, sometimes, it intensifies its efforts a little, thus producing streaks of misses. This "psychodynamic tension", as we have called it, leads to longer-than-expected strings of hits and misses in the data.
Spindrift: This trend was found in the data from this test. In terms of lengths of sequences, sequences of hits one hit long occurred 7.51% less than expected value and sequences of hits more than one hit long occurred 2.81% above expected value. Sequences of misses one unit long occurred 1.10% less than expected value and sequences of misses more than one miss long occurred 0.10% above expected value.

Practitioner: This psychodynamic tension meant that awareness of the perceptive power and the resistance of the defense mechanism tended to come in waves. I tried to be aware of the ebb and flow of the perceptive power and the resistance to it.

Spindrift: We had, in previous testing, determined that the primary image, for this researcher and for these images, was the black color and the sculptured skeleton. The blue color and the mother and child was the secondary image. It is of interest that neither image was mentally recognized by the researcher in pictorial terms. However, the mental “feel” of each of the two images was expected to be, and was, the same for this test as for previous VIUR tests by this researcher with these images.

Practitioner: I didn’t want to tackle another double calls VIUR test until I could get an “initial fix” on the images. Without some measure of increased conscious control over the calling process I felt the calling would be just another struggle with unconscious process and not yield much information, no matter how successful that calling was in terms of a hit rate. My goal was to pick up those two envelopes and have -- without struggle -- an idea of what image was in each one of them. When I had reached this point in my own inner struggle with the defense mechanism I was ready to proceed. This point came soon after getting rid of the displacement which had characterized my initial calls.

I knew, from earlier tests I had done for Spindrift, that the primary image came through more easily than the secondary image. Thus, the hardest calls to make were those in which each envelope appeared to contain a secondary image. Here is where I could be most easily fooled. I decided -- with Spindrift’s concurrence -- to abandon the old “subjective/objective” evaluation of “hard/easy” calls used before I could identify, rightly or wrongly, the image in each envelope on picking up the envelope.

Spindrift: Hard calls (for this test) were identified as those calls in which the initial presentation of the images in the envelopes to the researcher’s mind was that of a secondary image in each envelope. Easy calls (for this test) were identified as those calls in which the initial presentation of the images in the envelopes included at least one primary image. This classification produced the same separation of statistically significant distributions (the same patterns of separated calls) as the subjective “how they feel” approach used in the earlier double calls VIUR test done by this researcher. This suggested that the process which was unconscious in the earlier test was now consciously recognized.

Practitioner: My own feeling is that the hard call/easy call breakdown is just another reflection of the effort -- apparently the necessary effort -- of the defense mechanism to conserve power. Given the urge to win of the defense mechanism it would go all hard calls all of the time if it needed to and if it could.

The First 42 Runs -- How We Were Had

We expected to start with something of a learning curve and we did. Our data sheets were laid out in such a way that each page contained the record of six runs. Thus, in our discussion, a “page” represents a set of six consecutive runs. As can be seen from Figure 1 (covering data pages 1-7) the
hit rate moved from 54.17% for page 1 to 77.08% for page 3 and then declined through page 7. We were beginning to realize we were being snookered when we got into page six. Efforts to rectify this on pages 6 and 7 were not successful, so we paused in our data gathering and took the time to more fully analyze the data. (Up till that time we had only been tallying hits for each run on the bottom of the data sheets.) This section, The First 42 Runs -- How We Were Had is devoted to the results of that fuller analysis of pages 1 through 7.

![Graph of percentage of hits against successive pages (groups of 5 runs)]

Figure 1. Each page represents 6 runs of 24 trials (144 trials). The data line is interpreted in terms of interaction between an ordering force and a psi defense mechanism.

For the first 10 runs it took an average of about two minutes for the researcher to make each call. As he went along he began to feel that if he took more time he could do better than he was doing. On the 11th run he took an hour-and-a-half to make the calls and called 19 out of 24 trials successfully. On the 12th run he took a little over three hours and called 22 out of 24 trials correctly. All of this was well and good, but it was impractical in terms of gathering a volume of data. We told the researcher to "knock it off" and get back to two minutes a call.

His next 6 runs (page 3) were his best effort in the 42 runs evaluated here. His overall hit rate was 77.08% and the calling process was flowing smoothly. The last two runs on page 3 had hit rates of 22 and 20 respectively. He was elated and that's when he began to be taken.

On page 4 he began to find that the easy runs were the easiest he had ever known. And, an even happier thing began to occur. Up to this point, the combination of a primary and a secondary image in the original presentation to his mind was a not-too-frequent thing. The easy calls usually began with two primary image presentations. Primary-secondaries were only about 5% of the total calls. Now the balance began to shift and primary-secondaries began to make up the great majority of the easy
calls. The percentages were roughly reversed with primary-primary calls making up five or six percent of the total calls.

Well, it looked like happy days were there. Hit rates were slipping slightly but on the other hand he was making the easy calls as fast as he could write them down. By page 5 he was really rolling. By page 6 he began to suspect he was being fooled but he wasn't sure quite how. Toward the end of the page he began to realize that the hard calls were slipping too. And, he began to realize why.

The easy calls were not the clear perceptions he was used to in the first three pages. They were usually right, but the new easy calls were impressions rather than clear perceptions. He had been attributing this to the fact that he was "catching them" so fast, like pictures quickly glimpsed rather than carefully looked at. That was well and good, but the very same impressions were what he was reading on the hard calls as well, and they were not nearly so reliable there. The blend was confusing, less reliable, and the combination of a greater volume of increasingly less efficient easy calls and the usual less accurate hard calls, now more elusive than before, was working increasingly to cause his overall hit rate to plunge. He began to take corrective action but the overall hit rate continued to slip.

On page 7 he made a determined effort but found that it was unsuccessful. It seemed difficult to apply one set of criteria (impressions) to one set of calls (the easy ones) and another set of criteria (clear perceptions) to another set of calls (the hard ones). By the end of page 7 he knew full well he had been taken and a more careful look at the data was in order. Figure 2 gives us some idea of what had happened.

![Graph showing percentage of hits over successive pages]

Figure 2. This figure breaks down the data line shown in Figure 1 into easy hits (easy correct calls, the solid line) and hard hits (difficult correct calls, the broken line).
We see in Figure 2 (covering data pages 1-7) the pattern of the hard and easy calls. The easy calls were being made at a rate of 90.24% hits on page 2 and 90.63% hits on page 3. Hard calls also reached their high of 66.25% hits on page 3. It is clear the defense mechanism had to do something. On page 6 the researcher was successful in raising the hit rate of the hard calls a little and on page 7 he was successful in raising the hit rate of the easy calls, but the overall hit rate kept declining (as shown in Figure 1).

In terms of volume of calls (Figure 3) we find that on page 1 roughly half of the calls were easy, on page 2 only about one-fourth of the calls were easy. The defense mechanism was doing what it could to fight back but it was losing. On page 3, as the calls were getting easier and easier overall for the researcher, 44.44% of the calls were easy ones. But as the counterattack began on page 4 the number of easy calls began to rise dramatically, reaching their peak at 78.47% of total calls on page 5. On page 6, with the researcher trying to take corrective action, the percentage dropped a little. With more intense action by the researcher on page 7 the percentage dropped more sharply. But by that time he’d been had and the overall hit rate continued to drop.

![Graph showing percentage of trials over successive pages](image)

Figure 3. This figure presents the percentage of trials (as opposed to the percentage of hits) of the easy hits for the first 7 data pages.

**The Next 42 Runs -- The Comeback Trail**

Having tumbled to the defense mechanism's counterattack the practitioner responded by paying special attention to the hard calls and to what he considered to be a defense mechanism strategy concealed within the impressionistic flow of easy calls. He had become aware of the fact that a second false secondary image was beginning to appear.
By this it is meant that when he was trying to resolve two secondary image presentations into a primary and a secondary, clearly perceived, an intermediate perception of the primary image would sometimes appear before there was a clear perception. There would be a clouded perception before the clear one, a clouded perception that had the feel of a dimly remembered picture. It was, in essence, a secondary image that was suspect. This "false secondary" began to appear in secondary-secondary presentations to the mind and, in the rapid flow of easy calls, was being wrongly called as a primary image.

In this set of 42 runs there were no primary-primary presentations to the mind. Approximately 48% of the calls were secondary-secondary (hard calls) and approximately 52% of the calls were primary-secondary (easy calls). Amazingly, for the first three pages the hard calls became easy to call and the easy calls became difficult.

As he progressed through the first three data pages of the second 42 runs the practitioner became aware that the difficulty with the easy calls was that the defense mechanism was now frequently presenting two of the suspect false secondary images when it made its secondary-secondary presentation to the mind. By page 4 he was learning to cope with the strategy and the usual "hard call/easy call" relationship returned. The data patterns may be seen in the data pages 8-14 area of Figures 4 and 5.

Figure 4. This figure presents the percentage of hits (solid line) for each of the 30 data pages. The shaded line represents the percentage of hard calls for each of 4 groups of data pages.

For reasons of brevity we shall not present separate graphs of each phase of the learning process. It can be noted (Figure 4) that the same pattern appeared in the second group of 7 pages as appeared in the first group of 7 pages, namely, a surge and decline. Page 12 was the high point of the second 7 pages of runs. Figure 4 (pages 8-14) reveals the practitioner's success on the "comeback
trail." The decline of pages 13 and 14 was foreseen and expected.

After page 12 the practitioner quit "double checking." By that is meant that he quit taking a second mental look whenever there was any suspicion about the integrity of the call. He quite "pushing the process." This resulted in a falloff of the hit rate (pages 13 and 14).

![Graph showing percentage of hits over successive pages]

Figure 5. This figure presents the percentage of easy hits (solid line) and the percentage of hard hits (broken line) for each of the 3 data pages. The shaded line represents the percentage of hard calls for each of 4 groups of data pages. This figure is a breakdown of Figure 4 into easy hits and hard hits.

The Next 54 Runs (9 pages) -- Hitting a Stride (Ceasing to "Push the Process")

It may be felt that the practitioner, in his inner imageries of strategy and counterstrategy, was unduly anthropomorphising the calling procedure, almost thinking in terms of two human opponents. However, it must be remembered that the human part of us, a portion of the willful, petulant, emotional volitional side of us, is the essential "human" part of the mind the practitioner was in contest with. The defense mechanism is ultimate human nature.

Practitioner: The whole feel of the calling procedure was that of being in contest with a petulant, willful, and emotional human being. It was discomforting to know that this human being was myself. It was discomforting, too, to know that the game was just that, a game played in intense seriousness, but with emotional characteristics. Often after recording a difficult call I would find that immediately the images in the envelopes were as clear to me mentally as if I was looking at the markings on the backs of the envelopes. After the reason for the resistance to the call had vanished the defense mechanism did not bother to provide further resistance to the call.
Spindrift: It was apparent to all of us by this time (from this and earlier testing) that the defense mechanism is:

- ever-present and ready for action,
- conserves energy at every opportunity, and
- is easily capable of wearing down the conscious mind in any continuing engagement.

In a limited engagement psi hitting could be achieved through:
- engagement of the attention of the unconscious mind through novelty, freshness, or strong desire, and
- patient, conscious effort.

Our own experience with various data providers has shown us (as parapsychologists have found) that it is virtually impossible to beat the defense mechanism over a long period of time using volitional methods. Therefore, we were not primarily interested in seeing what our researcher could push himself to do. We were interested in "hitting a stride," in seeing whether or not the researcher could diminish the power of his defense mechanism sufficiently to make it possible to easily call the images at above chance levels. Thus it was that, from this point on in the runs, he ceased to "push the process."

Practitioner: I felt I had learned enough by this time to be comfortable in a settled mode of calling. Progress made at this point was, I feel, due primarily to recognition of yet another defense mechanism strategy. The defense mechanism, as part of the volitional/intentional structure of the mind, was capable of initiating an "urge" to make the call. Yielding to that urge, rather than calling less on impulse, was responsible for a number of incorrect calls. As I worked to counter this, my scoring became less erratic.

Spindrift: These pages (15 to 23) show quite a bit of perceptive power-defense mechanism interaction. From Figure 5 we note that hard calls were being called more readily than easy calls from time to time.

The Last 42 Runs

From Figure 4 we see that the peaks and valleys of pages 1 to 14 are diminishing. We also see from Figure 5 that the initial large separation between easy calls and hard calls (in terms of hits achieved) is returning.

The "shaded" lines (4 of them) on Figures 4 and 5 represent the level (percentage of total) of the hard calls for each group of pages. Note that in the final 7 pages this percentage increased dramatically.

Practitioner: It seemed to me that the defense mechanism and I had settled into a "game style" that was going to endure unless and until I could make some further progress in weakening the defense mechanism. Easy calls were not being played games with -- we had been through that -- but this was countered by a large number of hard calls. We had reached a plateau of relative strengths and the game now seemed to have settled into a pattern of going through familiar motions.

Spindrift: If we evaluate the percentages of hits achieved in the hard calls/easy calls for each of the four categories we have used to summarize the learning experience of the practitioner we can see more easily the flight from and return to hard call/easy call separation of results. Figure 6 does this.
Figure 6. This figure shows the percentage of easy hits (correct calls, solid line), hard hits (broken line), and all hits (shaded line) for each of 4 groups of data pages.

**Blatant Anthromorphism: The Willful Urges of the Defense Mechanism**

In the earlier double calls VIUR test made by this practitioner we ran across a characteristic of the defense mechanism (for this individual, anyway) which we described as follows:

From our work with electronically generated random events we were well aware that the unconscious mind is acutely conscious of the patterned nature of the events with which it is presented. Through use of our double loops technique we have traced some of the ways the unconscious mind plays with patterns of electronically generated data. Thus, when we set up the double calls test for our researcher we deliberately did not randomize all 12 pairs of envelopes. We randomized one pair of envelopes at a time, thus avoiding the structured pattern of 12 calls in a run. After 84 "runs" of this nature (1008 calls) we began randomizing 12 pairs of envelopes at a time to see if the researcher could notice any difference in the calling pattern.

Following this change the researcher reported that an immediate difference was felt. The first two calls (in the structured runs) were felt to be very difficult to make while the third call was somewhat easier to make. The researcher felt that the defense mechanism was initially more than usually obstructive (the first two calls) and then eased off (the third call). Accordingly, we evaluated for this and found that the number of times the first two calls were both missed ran 30% above expected value. Given the small size of our data base we cannot attach statistical significance to this 30% figure but the fact of the researcher’s identification of the phenomenon before evaluation was
made was sufficient to cause us to attach provisional reality to the presumption of a "kickback" of this kind by the defense mechanism.

The practitioner reported that he felt the same interaction occurring in this set of trials and, naturally, we evaluated for the phenomenon. We found that the chance of getting a hit on the first call was 57.78%. The chance of getting a hit on the second call was 62.22%. The chance of getting a hit on the remaining calls was 68.26%. Obviously the defense mechanism wanted "to get there furthest with the mostest."

We also found another interesting characteristic of the first two calls. For the first call, 68.33% were hard calls (above average and to be expected). For the second call, 41.44% were hard calls (below average and something of a surprise). (Average of the remaining 22 calls was 53.71% hard calls.) An analysis of the data we made for a different reason threw light on the situation.

The role of the attention of the unconscious mind in psi hitting is large and can be documented in various ways. For example, we collected a data base of 125,784 trials (calls) from nine data providers and analyzed the success of the calls in terms of whether or not the preceding fall was the same as or different from the image correctly called. When the falls were different this little bit of novelty or change was sufficient to significantly increase the hit rate. The pattern was the same for displaced calls as for non-displaced calls. Moreover, the hit rate for such "different falls" was greater when the fall being called was a primary image than when it was a secondary image. The phenomenon was sufficiently strong to lead to a Z-score of 11.74. (See our paper The VIUR Test: Massive Psi, Massive Defenses.) We found a somewhat similar phenomenon in this current series of runs. Figure 7 (next page) presents the results of our analysis.

When dealing with the possible combinations of hard calls and easy calls there appear to be recognizable differences in hit rates associated with the different sequences of defense mechanism activity. The hardest second call to get is an "easy" call preceded by a hard call. This is the pattern which is most in evidence for the second call of every run.

DISCUSSION

Presumably the psychic mind struggles against the defense mechanism with volitional/intentional powers, an exercise of will. Presumably the Christian struggles against the defense mechanism through repentance and regeneration, the way of holiness. Presumably, if one wishes to make the appropriate logical connections, the test described in this paper is among the first of the experimental variety to be made of a theory which reaches back several millennia into history, the conceptual structure which sees the universe as a thing of thought, and considers matter as an objective and subjective state of consciousness. Somewhat indirectly, we link our data patterns to a particular conceptual construct in terms of the mind/matter relationship. Thus, our third level of meaning, provisional of course, is a working hypothesis often ignored in our times and in our culture.

Many words will be uttered, many books and papers will be written, before the subject of the relationship between the experimental test and such a paradigm is exhausted. However, the concept of a relationship between this ancient philosophy and the modern experimental test has, through Spindrift's research, been introduced into the conceptual armamentarium of the modern researcher.
Figure 7. This figure takes the data from the 180 runs (30 data pages) and classifies the data as follows:

1. an easy hit preceded by a hard call (H,E),
2. a hard hit preceded by a hard call (H,H),
3. an easy hit preceded by an easy call (E,E), and
4. a hard hit preceded by an easy call (E,H).

There is some historical comfort for those who choose the objective and subjective approach. The vital force of the vitalists has never been found, nor has the animal magnetic fluid of the mesmerists, the ether of the physicists, nor the bioenergies of most of the consciousness oriented (as opposed to brain oriented) researchers of consciousness today.

There is some aesthetic comfort for those who choose the objective and subjective approach. The defense mechanism seems obviously to be a psychodynamic construction rather than a signal perceiving and signal manipulating construction. The elegance of a unitary theoretical view as opposed to the pandemonium of various portions of the mind fighting over access to the signal perceiving and signal manipulating elements essential to the perceptive power and equally necessary for the ordering (pattern) power to affect the fall of the dice and perhaps the fall of the cards (who governs the muscles?) is apparent.

There is some practical comfort for those who choose the objective and subjective approach. The more scope is given to the psi powers to process information (ESP) and to control processes (PK) the less anomalies there are to contend with. Moreover, the circumstances of "mixture" theories (the consciousness/bioenergetic hybrid) seem self-defeating, at least to some observers. The more reasonable the consciousness/bioenergetic hybrid theoretical construction is as a theory (the less psi powers ascribed to it), the more anomalies there are to contend with. The less reasonable the consciousness/bioenergetic hybrid theoretical construction is as a theory (the more psi powers ascribed to it), the more the theory possesses the required explanatory power.

There is some philosophical comfort, an appeal to reason in the largest sense, for those who
choose the objective and subjective approach. Mind and matter are dissimilar in nature and a theoretical matter/mind hybrid is a theoretical construction in which each opposite has power to manipulate the other. Ultimate victory in the interactive relationship implied in such a hybrid either vanishes in perpetual struggle or disappears forever in a final return to a materialistic world and a materialistic paradigm in which consciousness has no place.

There is some conceptual comfort for those who choose the objective and subjective approach, for the outlook permits a unified view of presently unlinked or poorly linked conceptual positions. Such things as the difficulties of explaining the circumstances brought to center stage by the theoretical outlook of the "anthropic principle" and the difficulties of explaining the non-life to life and the non-consciousness to consciousness transitions of purely mechanistic evolutionary theory become more tractable when the objective and subjective position is taken. And, for those who take a qualitative as well as quantitative view of the world, who seek and find meaning in goodness as well as in order, the objective and subjective approach presents a conceptual framework wherein the wonders of Christianity have as much logical coherence as the wonders of science.

Spindrift's various tests were conceived in terms of modes of consciousness interacting with the physical universe, the "natural" world. This interaction was conceived in terms of a perceptive power, an ordering power, and corresponding defense mechanisms. The ordering force has been demonstrated in our various tests to affect both the world of thought and the physical world. In this paper the emphasis of the experimental work was on the modification of the power of one mode of consciousness by another, thus permitting the calling of the images above expected values.

In more familiar tests of spiritual healing (tests of the power of holy thought, patterning thought, in people's lives) the modification of modes of consciousness is accompanied by physical healing. In the test described in this paper, modification of a mode of consciousness was accompanied by an increase in the perceptive power of the mind. For those who follow the path of science, conceptual structure which explains the phenomena described in such tests is sought. For those who choose the objective and subjective approach to developing conceptual structure (the approach which sees matter as a phenomenon of consciousness rather than viewing consciousness as an epiphenomenon of the mechanistic action of the brain) the objective and subjective outlook permits a unified view of the various capabilities of holy thought and of the mind.

The test described in this paper was intended (as all of our research has been) as a beginning effort to evaluate the various possible conceptual structures which can conceivably flow from our research. Specifically, we are interested in the relationship between mind and matter, the relationship between consciousness and the natural world. A salient question is whether or not the linkage is direct or mediated through bioenergies.

The test described in this paper extends our earlier tests, tests which showed a correlation between the spiritual (healing) perception of a system and the moving toward pattern (healing or pattern mending) of that system. This is a correlation between an act of thought and physical change. The test described in this paper shows a correlation between the spiritual (healing) perception of a mode of consciousness (the defense mechanism) and the increased power of another mode of consciousness (the perceptive power).

Interaction between two modes of thought can presumably be explained only in psychodynamic terms. Interaction between thought and the physical universe has traditionally been conceptualized in bioenergetic terms. The yearning for mechanism, for reductionism as a primary tool of science, for force/particle or force/wave explanations, dies hard. Thus, the alternative position is seldom considered.
This paper, by showing that certain modes of thought (holy consciousness) modify other modes of thought as well as the action of the physical universe, presents two forms of action linked to the same originating mental conditions. Either we must consider these two forms of action as disparate, one requiring bioenergies and one not, or we must consider them of one cloth. Thus, somewhat indirectly, the conceptual position of matter as an objective and subjective form of consciousness is placed on the table for consideration along with other theoretical constructions. Somewhat obliquely, a modern test of an ancient philosophy has been made, a test that is suggestive rather than definitive, a test which points to a road to be traveled rather than to an edifice to be built and inhabited.

THE FUTURE OUTLOOK VERY VERY TENTATIVELY

The extent to which the Rhines were moved by religious convictions and interests in their efforts to establish psychical research on a scientific footing has been documented by the historians Maushof and McVaugh. They note that the Rhine's religious impulse was a continuation of the founding motivation. In their history of the quarter-century of psychical research from 1915 to 1940 Maushof and McVaugh write:7

Organized psychical research can be dated, symbolically, from a conversation between Henry Sidgwick and his student F.W.H. Myers, one moonlit night in Cambridge about 1870, over the need to validate religious belief through the methods of empirical science. The impulse that had moved the founders of psychical research had not lost its power in the intervening half-century.

Rhine's efforts to move the study of psychical phenomena into a scientific setting involved not only a professionalization of methodology along scientific lines, it involved, as well, efforts to move the research into a university setting. The psychical societies were, he felt, in no position to serve as a cornerstone for the effort. Later, as a result of difficulties at Duke, he successfully labored to establish an independent institute for the purpose.

Today the parapsychological world seems as fragmented in its outlooks and its efforts as it was in the 1920's and one wonders now, as the Rhines did then, if the existing institutions pursuing parapsychological research can serve as a basis for another significant forward step. As Spindrift's work has indicated, religion today is capable of playing more than a motivational role in pushing on the effort; it is capable of playing a contributing role in inter-disciplinary research. However, the sociology of the parapsychological world today is such that religion does not fit well into its outlooks or its institutions. Inter-disciplinary efforts may not be possible in the future as they have not been possible in the past.

Thus it is that we speculate that the next substantial exploratory thrust may well include another change of venue for the investigative work. It is clear that the efforts will be inter-disciplinary. The methodologies for the next step forward are in hand. It is less clear what the sociology of the next step forward will be. As it was some seventy years ago, so it is today, a fluid situation awaiting the joining of an organizational thrust to a methodological one.

SPINDRIFT’S AUTOMATIC PSI TEST

Spindrift, Inc.

ABSTRACT: Physically, this test consisted of the electronic generation of random binary sequences and the mathematical evaluation of those sequences for internal order. In this test no attempt was made by any individual to consciously influence the output of the random events generator. The test departed from the familiar approaches in that it reflected our belief that every generation of random binary sequences by an experimenter would be affected by the unconscious thoughts of the experimenter. In other words, it is not possible to generate a control sequence which is beyond the reach of unconscious thought.

- We predicted that very strong precisely defined deviations would appear in the data.
- We predicted that these deviations would possess the characteristics of patterns which we had studied in random binary sequences which we had generated by various means in earlier tests.
- We predicted that these patterns could be interpreted in terms of the theoretical constructs which underlay our research effort in general and our work with binary random sequences in particular.
- We predicted that the magnitude of the predicted patterns would be less than the magnitudes of similar patterns produced by conscious thought.

Our predictions were confirmed by test results.

INTRODUCTION

PART ONE: THE BACKGROUND OF IDEAS

Input and Output Boxes

Science is a sophisticated, objective process that creates elegant experiments and theories, and then enables us to draw conclusions from them. But our only access to this process is through an input box called the human mind, whose preconceived ideas of what is real and what is possible shape and limit how we create an experiment or a theory. And we assign meaning to the results of our experiments and our theoretical efforts by the output box of mind, again shaping and limiting what we conclude. A classic example is light. So long as we thought of light as waves, we designed experiments that showed light to be wave-like, and our theories supported the experiments. Once we considered the possibility that light might also have corpuscular properties, it was easy to devise confirming experiments and theories that revealed those properties.

The Meaning of Meaning

Spindrift’s researchers have a different set of preconceived notions about the nature of the world, and it should therefore not be surprising that they devised different kinds of experiments, and looked at the outcome of these experiments differently than most other scientists. To understand the
origin and rationale behind these experiments, and the methods of analysis by which we derive meaning from them, one must understand the worldview on which they are based. This paper is not intended to present the arguments for such a worldview, but merely to explain it sufficiently to enable others to understand the experiments and analytical protocols. We expect scientists to evaluate our experiments and our findings on their scientific merits alone.

Because the neutral process of science does not require any particular metaphysical beliefs of its practitioners, many scientists conclude that the physical world carries out its functions without the need of any supernatural creator, plan, or purpose. Even spiritually-inclined scientists tend to leave that aspect of their worldview outside the laboratory, assuming it is not applicable to their research. This creates the curious situation that, although we all recognize that consciousness is the central feature of human life, yet we accept the fact that modern science virtually ignores the relationship of mind and matter, of consciousness and physical experience. In view of this, a worldview encompassing these realities deserves consideration.

**Spindrift's Worldview**

We believe that the ultimate of holy experience, the highest level of self-awareness, is equated with ultimate meaning. We test the concept that modes of consciousness which are deeply holy in traditional Christian terms express themselves quantitatively in pattern-developing and pattern-mending ways. Thus, meaning is seen as a dynamic which determines the nature of physical experience.

We use a non-goal-directed mode of prayer as a dependable, available-on-demand form of mental input to repeatable experimental tests. Most of our work has employed this methodology and requires researchers capable of producing the required results. The essence of the mentation used in our tests (and in Christian healing), is the mental perception of the target system (the patient) in terms of the attributes, or qualities, of God.

Other tests we have made evaluate the effects of conscious and unconscious thought on the simplest pattern we could think of: binary sequences. The presumption is that some goodness exists in all of us and will produce an observable patterning effect on a randomly produced binary sequence.

In our worldview quality and quantity are linked, the good/evil and order/disorder dichotomy are considered to be one in essence, and the effect of human consciousness on developing pattern can be observed as an increase in adherence to pattern.

**The Peek-a-boo Power**

If thought and physical experience are so closely related, the question arises as to why this closeness has never been "pinned down" in the laboratory. Parapsychologists, for example, have been chasing this relationship for decades and have discovered only a now-you-see-it-now-you-don't kind of power. Other scientists never see it at all.

Our own outlook, which we have experimentally explored, is that: (1) the effect of consciousness (patterning or volitional/intentional) is to produce mechanism, or what appears as mechanism, and effect is then ascribed to that mechanism, or appearance of mechanism. (2) In addition, the unconscious mind engages in a "defense mechanism" activity which actively operates to conceal the relationship of thought and the physical universe from conscious observation.

In the test described in this paper we evaluate both the patterning power of the mind and the "psi defense" of unconscious thought, the mechanism of concealment used by the unconscious mind to hide the patterning power from conscious observation.
PART TWO: RANDOM BINARY SEQUENCES
AND THE HIGH CENTER, HIGH TAILS PATTERN

On the wall of a laboratory at Princeton University hangs a machine for measuring the effects
of thought on the random mechanical action of cascading polystyrene balls. Unimaginatively, but aptly,
this machine is referred to by those who use it as a "random mechanical cascade" (RMC). The rest of
us might think of it as a kind of massive pinball machine.

Princeton Engineering Anomalies Research (PEAR) is the research group behind the RMC.
When they turn it on, balls tumble down through rows of pins and then come to rest in bins below the
pins. All of this can be watched through the clear panel at the front of the machine.

Evaluation of the data produced by this machine (the number of balls which come to rest in
each bin) is designed to test the thesis that random action can be volitionally influenced. With the
exception of this single proposition the theoretical structure underlying the evaluation by PEAR is
conventional. From a different theoretical perspective the baseline produced by the RMC may be viewed
as more powerful evidence of psi than the conventional data analyses produced by PEAR.

The RMC is a form of the "Galton's desk" kind of device used to demonstrate the Gaussian
distributional form taken when "N" random binary events are evaluated in groups of "R" occurrences.
In PEAR's version of the device 9,000 polystyrene balls drop through an array of 330 nylon pegs and
are scattered into 19 collecting bins. If the collecting bins are viewed as a histogram the distribution
represents the binomial approximation to the Gaussian function.

How good is this representation? We'll come to that in a moment. First, let's describe the
experiment itself. The theoretical approach used is that of a volitional/intentional psychodynamic model.
The operator, seated on a couch about eight feet from the machine, mentally attempts to distort the
distribution either to the right or to the left or to "generate a baseline" (a presumably non-distorted or
non-shifted distribution).

In each series of runs the right and left shifts are compared to the baseline for that series. The
results obtained have been described in PEAR's research report Operator Related Anomalies In A
Random Mechanical Cascade Experiment (Technical Note PEAR 88001, June 1988).

As the report tell us (page 7) "early attempts to establish a universal baseline distribution by
copious calibration data had to be abandoned,..." Thus, those runs selected as baseline runs in each
series serve as control runs for that series. In the report, PEAR's Figure 2 compares the baseline mean
bin totals to the Gaussian distribution. The report also advises us (page 8) that "there is a slight excess
population of the end bins by balls reflected from the side walls of the machine, and of the center bins
by balls falling directly through the finite pin matrix, but these do not compromise the gross utility of
the Gaussian model."

We do not say that the deviation of the baseline data is not due to the machine imperfection
described by PEAR. Maybe yes, maybe no. When someone builds a machine and that machine does
not operate as perfectly as one thought it would, one looks about for the reasons why. Having done
this, one settles for the most logical reasons one can think of. Sometimes, as is probably true in this
case, it cannot be proved one way or the other that the reasons one has settled on -- however logical
-- are or are not true.

Speaking for ourselves, we note that the baseline deviation does not affect the mathematical
analyses performed by PEAR on their data. And we note, too, that we are unable to assess the
performance of their machine. However, as it happens, our own direction of experimental inquiry shows us that the deviation of PEAR’s baseline data matches patterns we have found when random binary sequences are exposed to thought. Thus it is that we speculate whether or not an order-producing (patterning) component of thought might be intertwined with or responsible for the observed distortion presently wholly ascribed to machine perfection.

We are aware, of course, that the data patterns of the RMC are not derived from random binary sequences in the usually studied way. The complex combined ball/peg and ball/ball collisions are unmodelable in practical terms and corresponding theoretical expected values are therefore unobtainable. The situation is, however, mathematically evaluated by PEAR as if were the result of “N” simple binary events for each ball. And, it may well be possible that the ordering effect, like the volitional effect, is undeterred by the complexity of ball/pin and ball/ball interactions.

PEAR’s experience, as noted in their report (pages 26-27), is (with the acronym “REG” standing for “random event generator”) that “Operator signatures on RMC often show similarities to effects obtained by the same individuals on the micro-electronic REG and pseudo-REG experiments implying that while the results are operator-specific...they may not be so device-specific.” Other researchers working with random event generators have noticed that the volitional/intentional effect apparently acts teleologically and without such regard for complexity of experimental conditions.

The power of the RMC lies in the information content represented by the histogram of 9,000 balls in the bins after every run for, as PEAR has noted in their report (page 9): “Although this distribution derives from a very complex ensemble of collisional events, it can be modeled, for statistical purposes, as if were the result of N simple binary events for each ball, in each of which it is deflected either to the right or to the left by some uniform distance, D = 0.5 bin. If the probabilities for deflection in either direction are equal, binomial statistics requires a distribution variance of $\sigma^2 = D^2N$. Hence, we may assert that the complex physical process actually experienced by a single ball is equivalent to about 43 elementary binary choices, which may be regarded as a minimum estimate of the information content of a single ball’s trajectory. Since there are 9000 such “ball-trials” in a single run, the statistical power of each run consists of approximately 387,000 binary equivalent bits.”

The degree of adherence of the RMC histogram (the balls in the 19 bins) to the approximation of the binomial distribution to the normal curve (where the probability of each event is 0.5) rests on the adherence of the sequential random events (ball/pin and ball/ball collisions) to expected values for random binary sequences. The deviation of the baseline of the RMC from the normal curve rests, ultimately, on a deviation of the pattern of random binary events (ball/pin and ball/ball collisions) from the expected values for random binary sequences. We note that the form of this deviation by the RMC reflects an above-expected-values adherence to alternating order (and a countering response) in the sequence of binary events represented by the RMC histogram, We note, too, from our previous work, that this increase in alternating order:

* apparently exists in all random binary sequences which possess associational links to human consciousness,
* that the strength of this increase in alternating order varies with the strength of associational linkage of thought to the system, and
* the form in which this alternating order is offset by the defense mechanism varies with test conditions and the intention of the observer (to look or not to look for psi).

Spindrift approached the question of the effect of thought on random binary sequences from a different perspective than PEAR. In theoretical terms we postulated a bi-dimensional psychodynamic model. Our conceptual structure posited not only the volitional/intentional power of consciousness but an ordering force as well. In addition, we postulated a volitional/intentional defense mechanism...
Spindrift's Automatic Psi Test

guarding the conscious mind from knowledge of psi.

When PEAR noticed higher center and tail columns in their baseline distribution they (in view of their uni-dimensional theoretical model) ascribed the circumstance to machine imperfection. When Spindrift noticed higher center and tail columns in the baseline distribution of our data we (in view of our bi-dimensional theoretical model) ascribed the circumstance to an increase of alternating order coupled with defense mechanism action.

In experimental terms we first became aware of the pattern shown in PEAR's Figure 2 as a result of generating random binary sequences by throwing dice. (See Appendix C, including Table 15, of our paper The Viur Test: Massive Psi, Massive Defenses.) When we asked a group of individuals to sort the red and black cards of bridge decks into two piles, guessing what the colors might be, the pattern appeared again. More than a million such sorts (total guesses of black and red cards) were made. (See Appendix B of our paper The Viur Test: Massive Psi, Massive Defenses.)

In guessing the identities of black and red cards by runs of single decks we were, in effect, grouping random binary events into groups "N" (where N=52) trials long. As with the RMC, the effect appeared (center column and tails were elevated above expected values). In addition, there was a small right shift of the distribution (as compared to expected values) reflecting the fact that most of the data providers were psi hitters.

The expected value for ordered pairs in a "closed deck" run of 52 trials is 0.5098 rather than the 0.5000 expected value of an "open deck" circumstance. Thus, actual expected value for the tails of the histogram will be somewhat less than the calculated expected value and actual expected value for the center column will be somewhat more than the calculated expected value conventionally employed. Although unable to calculate the adjustments to expected values necessary to establish the phenomenon, we felt the evidence for the pattern was strongly suggestive given the size of the skewing found. In observing our red and black card data we noted that the center bar of the histogram was more than 4% above calculated expected value, more than enough to offset the "closed deck" skewing. The tails were above calculated expected value as well, even though they (as a result of the "closed deck" skewing) should have been below calculated expected value.

Given the results of our bridge deck distribution (and experiments with thrown dice) we developed the VIUR (Visual Image, Unconscious Response) tests. These are tests which include checks for alternating order in random binary sequences. We found that this same alternating order continued to appear in our data in a suggestive but hard-to-pin-down sort of way (because of the closed deck problem).

For example, in our paper VIUR Tests: Conceptual Probes, Programmed Defenses we describe what we term a 4X4 VIUR test. This test involved making color and image calls of pictures with a colored border. We made 21,120 trials with each trial including a color call and an image call.

If we consider the color and image calls separately as part of a sequence of 42,240 trials and take the number of hits in each run of 16 trials, then break the hits down into the occurrence categories 0-1, 2-3, 4, 5-7, 8-16, we can compare these occurrences to expected values (but without the closed deck adjustment). Percentages of data over and under expected values were: 10.82, -1.79, 3.69, -3.58, and 14.83. Note the high tails (high left and higher right). This effect is understated since the closed deck skewing artifically increases the expected tails values used for the evaluation. Psi hitting and defense mechanism activity are strongly indicated.

The "high center, high tails" pattern is the pattern we have singled out for examination in this paper.
Histories as Representations of Alternating Order

One of the ways we look for order in binary sequences is to evaluate groupings within the sequence. For example, we go through the sequence looking at characteristics of groups-of-two, groups-of-four and so on. In other words, we look at "N" things "R" units at a time where R is an even number and N is the number of elements in the sequence.

If we count the number of occurrences of one element in groupings R units long, we find that the larger R is, the more categories there are in the histogram which can be formed to represent the distribution of occurrences. For example, if we go through a sequence of 0's and 1's 2 units at a time and count the number of 1's that occur in each group-of-two the histogram has three columns. The counts of 1's can fall into 3 categories: 0, 1, and 2. If we go through a sequence of 0's and 1's 4 units at a time and count the number of 1's that occur in each group-of-four the histogram has 5 columns. The counts of 1's can fall into 5 categories: 0, 1, 2, 3, and 4. The larger the grouping, the more extensive the histogram.

The histograms can be considered as visual representations of alternating order within the sequence they represent. For example, in a histogram representing groups-of-twelve each extreme tail represents the least alternating order it is possible for the histogram to represent: 12 0's or 12 1's. Conversely, the center column represents the highest amount of alternating order it is possible for the histogram to represent. The closer one moves toward the center of the histogram the higher the degree of order represented. The farther one moves from the center of the histogram the higher the degree of disorder represented.

For purposes of mathematical manipulation and evaluation it is often convenient to think of alternating order as composed of sequences of pairs which contain one occurrence of each element in the binary sequence (ordered pairs). Groups-of-two contain two kinds of ordered pairs (0/1 and 1/0) and two kinds of disordered pairs (0/0 and 1/1).

Forms of Defense Mechanism Activity

The main task of the defense mechanism is to hold steady the number of random binary occurrences (close to p = 0.5 in most of our VlUR tests) and the order of random binary occurrences (close to p = 0.5 in terms of ordered pairs in most of our VlUR tests and as modified by the closed deck adjustment). This is a "high power" approach. It is not easily detectable since it directly counters the action of the ordering force and perceptive power. The most powerful means of exposure of this mode of defense mechanism activity which we know of is modification of the power of the defense mechanism itself and observation of the results of such modification. (See our paper An Ancient Philosophy, A Modern Test.)

The same ordering power that would (if unopposed by the defense mechanism) create more ordered pairs than expected is also working to increase the order of ordered pairs. Differently stated, pairs (groups-of-two) respond to the ordering force just as single occurrences do.

The defense mechanism does not meet this subsidiary ordering directly but relies instead on increasing the number of disordered groupings of pairs (into larger groups) to offset the increased number of ordered groupings of pairs (into larger groups). This "low power" tactic is often used by the defense mechanism where the effects of the tactic are unlikely to be noticed or likely to be dismissed if noticed. (See our papers The VIUR Test: Massive Psi, Massive Defenses and VlUR Tests: Conceptual Probes, Programmed Defenses for various examples of this approach by the defense mechanism.)
Spindrift’s Automatic Psi Test

The high power approach of the defense mechanism keeps the number of ordered pairs in a sequence at approximately expected values. The low power approach of the defense mechanism deals with the problem of the ordering of pairs (the combining of ordered pairs in additional ordered units in groupings which occur above expected values) by forming more disordered groupings than expected (so the theory goes!). This explains the phenomenon seen in the sequences we have evaluated and possibly in Princeton’s RMC. In essence, the low power approach of the defense mechanism produces the high center, high tails phenomenon.

A Hierarchy of Order

Let us return now to the visual representation of order represented by the histograms. Let us use as an example the histogram representing groups-of-twelve. The center column represents maximum order. The columns on either side represent a second level of order in a descending scale. Note that each of the two columns represent the same degree of order. This is true as you move outward in each direction from the center of the histogram. By the time you get to the two tails they each also represent the same degree of order, that is, maximum disorder: 12 0’s or 12 1’s.

Because of the redundancy built into the histogram in terms of its representation of order we do not use the histogram to graphically represent order. Instead, we look at the shapes represented by the amount data are over-or-under expected values for each order level.

Pattern Changes

The process by which the histogram of groups-of-two (which closely adheres to expected values) becomes the pattern of Princeton’s RMC can be observed. In the test of psi described in this paper we did observe it. The process was not fully complete until we arrived at groups-of-twelve. In groups-of-four, -six, -eight, and -ten the scope of opportunity available for the patterning force progressively increases and, in this situation, was sufficient by the time groups-of-twelve were reached to enable the high center and high tails pattern to fully appear.

PART THREE: SPINDRIFT’S AUTOMATIC PSI TEST

Definitions of Terms

Let us begin our discussion of the specifics of Spindrift’s Automatic Psi Test by considering our terms.

**Automatic:** By "automatic" we mean that data were computer generated and computer evaluated. Data gathering consisted of computer sampling a random binary sequence of events recognized by the program as a series of 0’s and 1’s. The computer evaluation of this random binary sequence by the program revealed skewings which were interpreted as evidence of psi. Thus the entire test (data production and data evaluation) took place "within the box" with results taking the form of printout or screen display.

**Test:** In the context of this experiment we define "test" as meaning the production and evaluation of a random binary sequence, a random binary sequence as long (through concatenation) as we care to make it.

**Psi:** "Psi," in this test, is not defined in the usual way, as a conscious or unconscious volitional influencing of events. It is defined in terms of the interaction of an ordering force and a defense mechanism, an interaction which takes place whenever human consciousness rests on (is
associationally linked with) events which are sufficiently thought-sensitive to easily reveal the existence and nature of mental influence of physical events.

**Spindrift:** For the purposes of this test, the term "Spindrift" implies a point of view, a theoretical position which established a mental landscape in which the possibility of a test such as this one could be conceived and the test carried out. In general, Spindrift’s Automatic Psi Test was developed from a conceptual standpoint which views the paradigm of modern science as a subset of a more comprehensive view. The road we walked unfolded conceptually and experimentally from our theoretical outlook and suggested that the test might be possible, told us what to look for, and suggested what the results might be.

**Random Binary Sequence:** Truly random binary events must be defined in terms of a given pattern of overall sequential order of the binary elements of the sequence. Specifically, sequential order must adhere to the following equation (in this equation for calculating the expected values of numbers of sequences of varying lengths "p" represents the probability of occurrence of an element of a random binary sequence, q = 1 - p, s = sequence length, and n = number of trials made):

\[
\sum_{s=1}^{np} \text{sqp}^s \cdot p \cdot q^{s-1} \cdot \left(\frac{np}{s}\right)
\]

For more detailed information refer to Appendix D of our paper *The VIUR Test: Massive Psi, Massive Defenses.*

**Linkage of Theory and Data**

Our definition of "test" as, in this case, the demonstration that electronically generated random binary sequences predictably and repeatedly manifest characteristic aberrations of pattern raises the question of why such aberrations exist and why they should be ascribed to mental influence, that is, psi.

Linkage of the data skewing to theory rests on the coherence of the conceptual scheme (the ability to logically predict) and the "goodness of fit" of the patterns found in Spindrift’s Automatic Psi Test with the family of patterns found in similar analyses of data produced by random binary events generated by other means (see our paper *The VIUR Test: Massive Psi, Massive Defenses*).

**Development of the Test**

Christian prayer is a concept that implies a relationship between the Creator and creation. If the grace of God, the love of God, is held to be universal and impartial, then the power of prayer can be considered as a universal characteristic of the universe rather than an unpredictable and miraculous intervention in the natural order.

Prayer occurs in human consciousness. The relationship of this form of thought to the Creator is a theological question, something to be left to the variables of denominational interpretation. As an identity-referenced, identity-supportive power it can be explored by the scientific method because an identity-developing and identity-mending power can be measured in reference to pattern. Pattern is the measurable dimension of identity and an identity-supporting power is, by definition, a pattern-mending, pattern-developing, and pattern-enhancing power.
Spindrift's Automatic Psi Test

In our research we found it to be a fairly simple matter to explore the power of prayer using pattern-referenced techniques. This approach involved the conscious linking of thought to the object of prayer with measurements taken in reference to the target systems’ closeness of adherence to pattern before and after prayer. The ascription of the measurable effect to prayer was conventional, namely, the correlation of effect to intent and with appropriate comparisons to controls.

Our next step was to move to a more universal test of the patterning power, a test which anyone could do as compared to a test which only religious adepts could do. Such a test had to rely on the power of the unconscious mind. Whatever problems this may present for theology -- and they do not appear to be difficult problems -- the experimental problems are only those of methodology. However, a new methodological problem does arise. We are no longer able to point to a correspondence of volition and effect and the "obvious" -- which is to say the usual and accepted -- method of proving a psi effect disappears.

We worked with the simplest patterns we could think of: random binary sequences. We assumed that the same ordering power which was enhanced by spiritual power and was under volitional control also existed in everyone to some extent and would be linked to any pattern a person was aware of.

Of course, the developed and directed use of power as compared to the unconscious and merely aware use of power is, in measurement terms, the comparison of a relatively strong force to a relatively weak force. However, we were able to measure the effect of the patterning power on the order of random binary sequences in tests which we developed. We called these tests VIUR tests, VIUR being (as we have noted) an acronym for "Visual Image, Unconscious Response".

After these occurrences we took yet another step. We wanted a test that was not only universal but automatic. This meant that there was to be no human involvement in the test at all, other than the running of a computer program. This, in turn, meant that the linkage of the mind to the test had not only dropped from the volitional to the unconscious, it had dropped from the unconscious with active involvement in the test to unconscious with almost a completely passive relationship to the test. We knew, of course, that the result would reflect another drop in the magnitude of the measurable effect. We also knew that we could offset this drop in magnitude of effect with the power of the computer to easily generate vast amounts of data.

Note that this methodological step further increases the difficulty of ascribing the unusual effects we find to psi. The linkage between volition and effect is less clear than ever.

The Psi Linkage (Again)

It will perhaps be difficult for many of us to ascribe the interesting phenomenon described in this paper to anything save a peculiarity of electronic circuitry or, alternatively, to some unknown oddity peculiar to binomial statistics. Only extensive replication and thorough mathematical investigation can erase all doubt. Nevertheless, a theoretical basis can be ascribed to the phenomenon (as we have done). Indeed, the phenomenon was predicted by the theoretical construct, a construct which was in place before the test was conducted.

It is fortunate that the mathematical analysis is straightforward and the test easy to replicate. The circuits can be built, borrowed, or made to order for a few hundred dollars. The program can be very easily written or copied.

We have ascribed the effect seen in this test to psi not only because no better explanation is readily available, but because: (1) the test is part of a family of tests, many of whose members rely obviously on psi for their effects, and (2) this family of tests is part of a larger family of tests which rely
wholly on the volitional use of the pattern-mending and pattern-developing power.

This pattern-mending power has been field-tested for more than a century by Christian Science practitioners, spiritual healers who rely on its use to earn their livings. This test was conceived, developed, and conducted by individuals who, vocationally, are Christian Science practitioners and who, avocationally, serve as researchers for Spindrift, Inc. Thus, there is a sufficient background of theory and practice leading up to the test to indicate a psi component and to warrant replication of the test.

Although the test itself is an extension of a body of theory and practice which have made a number of tests possible, the body of work does not stand or fall on any single test. Rather, each part of the whole must be repeatedly tested.

The Search for Artifacts

The search for artifacts, for this test, reduces to the examination of the adequacy of the random event generator (REG) and the validity of the mathematical analysis. These reduce, in turn, to an evaluation of the circuitry which produced the random events and to an evaluation of the program which embodied the mathematical analysis. As noted, replication is simple, a matter of building or buying circuitry and writing or copying a program, and then running the test.

Rationale of the Test

The “high center, high tails” pattern is a dead give-a-way that data patterns are not as they should be. It seemed obvious to us, therefore, given our theoretical approach, that this was a circumstance which would be defended against if efforts were made to evaluate the situation. In practical terms this meant that if one were actually evaluating the data an additional defense mechanism response would be triggered when the probability of discovery rose to an unacceptable level. We asked ourselves what form this response would take.

In the high center, high tails pattern, the high order and the high disorder categories are elevated above expected values. The high tails offset the high center. We believed that, when the need arose, the defense mechanism would switch from low power to a higher level of defensive action. What pattern would such an offsetting approach produce? The answer, we felt, lay in the mathematical constraints through which the defense mechanism had to operate and in the nature of the defense mechanism itself.

By the time the defense mechanism’s alarm system was triggered there would already be “pieces on the board.” Such pieces had to be offset. Also, since the defense mechanism was using a low power approach (in this area), we felt it might not be capable of the additional energy expenditure of the undetectable high power approach. We knew from previous tests that when the defense mechanism had to expend energy in a new direction this drew down energy already being expended. We believed it was possible that the defense mechanism would not go from a low energy approach to the undetectable high energy approach; it would opt for a different tactic.

We had some idea of what this tactic might be. We had seen it in other VIUR tests. Basically, it consisted of countering high levels of data above expected values (whether due to ordering force or perceptive power) with intermittent bursts of “offsets.” The offsets appear as nothing more than random variability. They do, however, have characteristics which betray them as something more than random action.

Our conclusion that the “usual” and the “offsetting” patterns would possess betraying
characteristics came from a consideration of the mathematical constraints under which the defense mechanism had to act. We realized that the defense mechanism had to offset the high center, the high tails, and the low middles on each side of the histogram. Therefore, the offsetting action had to shut down the high tails defense it was producing and also increase the disorder of the high order categories. This meant that it had to move the "data bulge" in the high order categories down into the lower order categories. This would take a recognizable mathematical form.

Our ratiocinations led us to an exciting possibility. The fact that the defense mechanism was mathematically constrained in what it could do and the fact that by its internal power dynamics it would offset an action of the ordering force with bursts of countering action meant that what it was doing was detectable and that an automatic test of psi was possible.

Now then, all of this was theory. We set up Spindrift's Automatic Psi Test to see if the theory worked. Amazingly, it did.

MATERIALS AND METHODS

Materials

We used two electronic REG's coupled with the pseudorandom function in QuickBASIC to provide our random inputs of 0's and 1's. We mounted our REG's on circuit boards which plugged into a desk-top computer. Thus, our REG's were available on demand and could be called directly from a computer program. In the circuits we relied on noise generated from a reverse-biased base-emitter junction of an NPN transistor, biased beyond the avalanche point. Such noise is caused by a number of processes, among them random generation and recombination of hole-electron pairs and thermal noise due to ohmic resistance.

For the purposes of this test there is no reason not to have both circuits on one board. However, since we do many different kinds of tests we opted for flexibility. The simplest way to build such circuits (although we had this done for us) is to mount them on prototyping boards which can be bought for the purpose. Such boards already contain the computer interface circuitry.

Methods

We programmed in such a way that if the output of the two circuits we used did or did not agree (the 0's and 1's coming from each circuit did or did not match) the result would be interpreted as a 0 or a 1 with the determination depending on whether or not the accompanying pseudorandom input was a 0 or a 1. Specifically, the coding was as follows (this was the entire data gathering procedure):

```plaintext
' collection of data in d array
' INP(793) and INP(600) bring in random 0's and 1's from special circuitry
FOR i = 1 TO n
    a = INT(RND * 2)
    IF INP(793) = INP(600) THEN b = 1 ELSE b = 0
    IF a = b THEN d(i) = 1
NEXT i
```

We used the double inputs and the pseudorandom selection in order to obtain very close adherence to expected values for the number of 0's and for the number of 1's coming into the program and in order to obtain very close adherence to expected values for the numbers of ordered pairs coming into the program. Although this kind of complexity may seem daunting to the conscious mind
the unconscious mind appeared to have no difficulty dealing with the conditions established.

It may well be that one circuit and the pseudorandom function are a perfectly adequate combination to produce both flexibility (some randomness which the mind can work with) and consistency (the pseudorandom inputs which help keep the random inputs in adherence to expected values). However, we had no idea how good the QuickBASIC pseudorandom function was; we had two circuits and we used them. It is possible that the mind has more scope to work with when only one circuit is used. If so, then the results might have been better with one circuit.

Ideally, perhaps, the best procedure would be to gather data at a rate slow enough to ensure that the sampling speed does not overrun circuit speed and to evaluate the data as rapidly as possible (that is, evaluate at a higher rate than the actual sampling speed). If sampling is too fast then “first order effects” (very long strings of 0’s and 1’s coming through) might inhibit the ability of the mind to affect data sampling and lower test results.

It also might be true that our results are better than would be achieved with circuits which had not been thought about as much as ours have been. By “thought about” we mean that we have spent hours in past years developing associational links with the circuits. It is also true, as our tests have shown, that these associational links fade rather quickly. (See our paper Descent Into Imagery: Micro Randomness.)

In our own approach to data gathering and data evaluation we worked with runs 25,920 trials long. We accumulated these runs in batches of varying lengths according to computer time available. The data gathering program evaluated each run as it went along and, when the program terminated, the evaluation figures for the batch of runs involved were saved to disk.

The Extent of Our Evaluation

In our early data gathering we evaluated the data patterns for groups-of-two, -four, -six, -eight, -ten, and -twelve. We also evaluated the number of sequences of various lengths, and, of course, the number of 0’s and 1’s being produced. In addition, we checked on the number of those groups-of-four with the following patterns: 0/1/0/1 and 1/0/1/0. We tracked most of these indicators only to see if the data patterns we were familiar with from earlier tests were appearing.

In due course, satisfied that our test was proceeding well, we dropped those evaluations which were not the primary focus of the test (see Appendix A for further information) and, to reduce computer running time, pulled off only the following information from the data: (1) number of 0’s and number of 1’s, (2) the number of each of the pair (groups-of-two) configurations, and (3) the number of occurrences of groups-of-twelve in each of the categories of order recognized by our evaluation.

RESULTS

The equation of sequential order specifies a precise mix of sequences of varying lengths in a random binary sequence of infinite length. Thus, a specific number of end-points of sequences exist. There are, accordingly, a specific number of pairs of sequential elements of specific composition (0/1, 1/0, 0/0, and 1/1).

Binomial statistics requires that when the number of occurrences of each element are equal in an infinite random sequence 25% of the pairs will fall in each of the four categories of pairs. The common method of calculating this is: PxQ, QxP, PxP, and QxQ with P equal to the probability of the occurrence of a given element and Q equal to 1-P.
It can be seen that the validity of this calculation rests directly on the characteristic of a specific number of sequences of specific length in a random sequence of unlimited length.

Just as it can be seen that the calculation of the expected values of the histogram of "N" elements of a random binary sequence taken "R" elements at a time rests on calculations of the probability of occurrence of P and Q (which derive their validity from the equation of sequential order) it can also be seen that the expected values of the (now familiar) histogram can be derived (an alternate calculation) from the composition of the groups "R" elements long which provide the data for the histogram and which also derive their character from the equation of sequential order.

The Alternate Calculation

In going through the data sequence by groups-of-four the center of the resulting "histogram of hits" (occurrences of a single binary element) consists of all groups-of-four containing an equal number of binary elements. This is order category 1, the most ordered category. In a group-of-four appraisal the two mid-height columns of the resulting histogram consist of those groups-of-four which contain 3 occurrences of one binary element and 1 occurrence of the other. If we were evaluating for 1's (which is how we did it) we would assign all counts of 1 occurrence or of 3 occurrences to the second category of order (order category 2). In like manner those groups-of-four which contained 4 occurrences of a single binary element (counts of 0 or of 4) were assigned to the last category of order (order category 3).

Thus, for a group-of-four there would be 3 categories of order, for a group-of-six there would be 4 categories of order and so on.

In the groups-of-four it is predictable that order category 2 will be elevated above expected values while categories 1 and 3 will have less occurrences than expected values. In groups-of-twelve order categories 1 and 2 and 5 and 6 will be elevated above expected values while categories 3, 4, and 5 will have less occurrences than expected values. (This is for the low energy pattern.) In between groups-of-four and groups-of-twelve a transition will occur.

Let us now examine our calculation of expected values. Table 1 (next page) shows us the number of order categories for each of the groups (of 2, 4, 6, 8, 10, and 12) and the number of those groups which expected values tell us will occur in every combination in that category. However, Table 1 is a guide to expected values only when the data inputs are truly random.

Table 2 (page 7-15) shows the occurrences of 0's and 1's found in our data. Table 3 (page 7-15) shows the occurrences of 0/1, 1/0, 0/0, and 1/1 pairs found in our data.

When we set up our evaluative system we were not sure just how good the production of 1's and 0's and the production of pairs (0 and 1 combinations) would turn out to be. Therefore we set up a two-track evaluation of the data. We not only worked from the usual calculations of expected values, we also worked from the actual numbers of pairs in each category (each possible pair combination) and considered groups-of-four (for example) to be composed of various combinations of pairs (16 possible combinations) with the precise number of pairs of each kind that the ordering force and defense mechanism had to work with being the basis of our calculations. We felt that if data production was not closely adhering to expected values for 0's and 1's and for pairs, the alternate calculation was essential.
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</tbody>
</table>

QuickBASIC, in its usual mode of operation, evaluates to 7 decimal places and, as can be seen from Table 2, our data for 0's and 1's approximated the expected values of .5 to 4 decimal places. As can be seen from Table 3 our data for pairs also approximated the expected values of .25 to 4 decimal places. Thus, for our total data, the results of the two possible calculational approaches virtually coincided.

**The Role of the Pseudorandom Function**

It may well be that the pseudorandom function is unnecessary. A single circuit may be adequate if the alternate calculation is used to arrive at expected values. We used the pseudorandom function to ensure good expected values for the numbers of 0's and 1's. This also helped ensure that the 4 categories of pairs would (because of approximately equal values for 0's and 1's) come quite close to expected values.
Spindrift's Automatic Psi Test

TABLE 2
57,700 runs of 25,920 trials each

<table>
<thead>
<tr>
<th>Element</th>
<th>Occurrences</th>
<th>Occurrences /Trials %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>747,802,000</td>
<td>.5000</td>
</tr>
<tr>
<td>0</td>
<td>747,782,000</td>
<td>.5000</td>
</tr>
<tr>
<td>Total</td>
<td>1,495,584,000</td>
<td>---</td>
</tr>
</tbody>
</table>

TABLE 3
57,700 runs of 25,920 trials each

<table>
<thead>
<tr>
<th>Pairs</th>
<th>Occurrences</th>
<th>Occurrences /Pairs %</th>
</tr>
</thead>
<tbody>
<tr>
<td>0/1</td>
<td>186,966,800</td>
<td>.2500</td>
</tr>
<tr>
<td>1/0</td>
<td>186,930,300</td>
<td>.2500</td>
</tr>
<tr>
<td>0/0</td>
<td>186,952,400</td>
<td>.2500</td>
</tr>
<tr>
<td>1/1</td>
<td>186,942,500</td>
<td>.2500</td>
</tr>
<tr>
<td>Total</td>
<td>747,792,000</td>
<td>---</td>
</tr>
</tbody>
</table>

However, if the alternate calculation for expected values is used the inability of the circuit to maintain very close adherence to theoretical standards may be of very little importance. Dropping out the rigidity of the pseudorandom function could well make things easier for the ordering force and defense mechanism. These are, of course, untested speculations and for our initial test we chose to use the pseudorandom function.

While the pseudorandom function helps bring in 0's and 1's somewhat more accurately than the circuits would do on their own, the pseudorandom function exercises only a very marginal influence on the order of the data. Just as the calling patterns of individuals providing data for our standard VIUR tests exercise only very minimal influence on the resulting data patterns, so the "calling pattern" of the pseudorandom function does not meaningfully affect results.

The pseudorandom function in QuickBASIC has a modest accuracy in terms of the patterns it should produce for groups-of-twelve ordered categories. For further information see Appendix B.

The Two Patterns

Drawing on our theoretical approach and on previous test results we felt that the ordering of groups of pairs (as opposed to the ordering of pairs which was directly neutralized by the defense mechanism) would be offset on a regular basis by the low energy defense mechanism approach represented by the high middle, high tails pattern. We felt that a "mid energy" approach (an opposite pattern) would also be in evidence. This meant that two distinct, and opposite, patterns would appear in the data.

From an examination of the data before the mid energy defense mechanism cut in we determined that the low energy, high middle, high tails pattern appeared specifically as a pattern in
which data counts in order categories 1, 2, 6, and 7 were elevated above expected values and data counts in order categories 3, 4, and 5 were depressed below expected values.

Order categories 1 and 2 were our evaluative focus. These categories represented approximately 61.23% of the data. Our hypothesis that the low energy pattern (high middle and high tails) actually existed equated to the belief that when order categories 1 and 2 were above expected values a specific force was acting on the data and when order categories 1 and 2 were below expected values a different force (or, more accurately, a different manifestation of the same force) was acting on the data.

In addition, we could say that when order categories 1 and 2 were elevated, order categories 3 and 4 would be depressed and vice versa. There is nothing mysterious about this. Since the two groups (order categories 1 and 2 and order categories 3 and 4) constitute about 96% of the data it follows that if one category is low on counts the other will be high and if one is high on counts the other will be low. And, since order categories 1 and 2 are a larger group than order categories 3 and 4 (61.23% of the data as compared to 34.91% of the data) the high or low status of order categories 1 and 2 are a more stable indicator (in terms of batches of data) than order categories 3 and 4.

The status of order categories 1 and 2 as a unit (above or below expected values) was our criterion for determining whether or not a given batch of data was assigned to a low energy classification or to a mid energy classification. Our goal was to demonstrate that two different patterns did indeed exist in the data.

In terms of producing a level of statistical significance high enough to demonstrate that the patterns coming from the circuits were indeed skewed we may well have not chosen the best indicator. The sequence orderliness test with its indications of extent of deviation from expected values may have been a better choice. However, the route we decided to go was inherently more interesting and more indicative of the nature of the forces acting on the data. However, the sequence orderliness test is sensitive and ideally both approaches should have been used. If our computer had been faster we would have included both approaches in our evaluations. (We have a 12 MHz machine.)

In our early data gathering we did not evaluate data in batches of uniform numbers of runs. After we got through evaluating for a number of things and running time of the runs became consistent, we evaluated runs in batches of 100 runs at a time. We don't know if this was the best choice. If batches are too short random variability interferes with pattern selection. If batches are too long then there is too much opportunity to muddy pattern selection through a shifting back and forth between patterns.

Figure 1 shows the extent to which data are over-or-under expected values. Figure 2 shows that the (very normal) Figure 1 pattern reduces, through our selection criteria, to the (unusual, and predicted) patterns of Figure 2. (Note the change in scale of the two figures.) As Figure 2 shows, our selection system worked well enough to bring the two different patterns into fairly good focus.

Figure 2 (page 7-18), while it show us two clearly differentiated patterns, does not demonstrate that these two patterns are due to anything more than the selection criterion. To make that point we must continue our evaluation. If we are correct in our assertion that two forces are involved then the patterns will be shaped by more than random variability. The null hypothesis is that only random variability is involved.
Figure 1. The x-axis presents the degrees of order represented by the various categories of hits in the distribution of data evaluated by groups-of-twelve. The correspondence of data with expected values (y-axis) is very good.

On the basis of the null hypothesis we can assert that the distribution of the positive and negative values (above or below the mean) of order categories 1 and 2 will be distributed around the mean in identical distributions (in terms of absolute values). Differently stated, we are looking at the left and right sides of the normal curve.

**Number of Runs**

Mid energy runs ("low data") did not appear until more than 2200 runs had been made. Thus, the "equal and opposite" mid energy runs had to "play catchup" in order to neutralize the accumulated "high" data and produce the pattern of apparent randomness seen in Figure 1.

In order to allay any concerns we (and others) might have from introducing an adjustment to balance the data on each side of the normal curve we continued our runs until the low data catchup was complete. We ceased gathering data when this occurred.

**More Evidence of Skewing**

Each batch of data (most often 100 runs) was evaluated as a unit. A batch of runs in which order categories 1 and 2 (considered as a unit) were above expected values was termed "high data". A batch of runs in which order categories 1 and 2 were below expected values was termed "low data". (The high and low data groupings are the groupings represented in Figure 2.)
Figure 2. The x-axis presents the degrees of order represented by the various categories of hits in the distribution of data evaluated by groups-of-twelve. The relationship of data to expected values (y-axis) for "high data" (solid line, high 1 and 2 counts) and "low data" (broken line, low 1 and 2 counts) reveals the predicted patterns.

The low energy approach was represented by 62,316,000 trials. The mid energy approach was also represented by 62,316,000 trials. The total number of trials with which we had to work was 124,632,000 (1,495,584,000/12). If we consider the distribution of the occurrences of trials in order categories 1 and 2 we know (referring to Table 1) that the theoretical probability of such occurrences is 2508/4096 (.6123). Table 4 shows us that there is virtually no deviation from this theoretical probability (expected value) by our data.

<table>
<thead>
<tr>
<th>Elements</th>
<th>Expected Values</th>
<th>Data</th>
<th>Data/EV%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2</td>
<td>76,312,758</td>
<td>76,313,420</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Half of the Table 4 data should theoretically fall into each tail and no percentage adjustments need be made since the number of runs represented by each tail is equal. Table 5 shows us that this is not the case for our data. That this would not be the case was our prediction, based on theory and earlier testing using VIUR techniques.
Spindrift's Automatic Psi Test

Table 4 tells us that the number of times the two most-ordered categories were represented in the groups-of-twelve represented by our data was very close to expected values (0.00 departure).

Table 5 tells us that these two most-ordered categories were not distributed evenly about the mean. "High data" were unusually high and "low data" were unusually low. This means that in any given batch of data classified as "low", counts tended to be unusually low and in any given batch of data classified as "high", counts tended to be unusually high.

TABLE 5

<table>
<thead>
<tr>
<th>Elements</th>
<th>Side of Normal Curve</th>
<th>Expected Values</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2</td>
<td>Right</td>
<td>38,156,675</td>
<td>38,197,710</td>
</tr>
<tr>
<td>1,2</td>
<td>Left</td>
<td>38,156,675</td>
<td>38,115,640</td>
</tr>
<tr>
<td>Totals</td>
<td>--</td>
<td>76,313,350</td>
<td>76,313,350</td>
</tr>
</tbody>
</table>

In order to illustrate this circumstance more clearly we generated additional data and evaluated it differently.

An Important Point

We have spoken of the distribution of occurrences of order categories 1 and 2 as approximating a normal curve. In making such a statement it must be borne in mind that (since $P = .6123$) the approximation is somewhat right-skewed. However, we have come to understand somewhat the forces acting on order categories 1 and 2 in a groups-of-twelve distribution. Thus, we are ready for the next step in our evaluation.

Closing in on Spindrift’s Automatic Psi Test

We began by creating an entirely new data base and examined it in a two-step procedure. We produced the data base as before and (as our first step) went through the data in groups-of-twelve.

The second (and final) step in our evaluation was to consider each group-of-twelve as an element of a new binary sequence, a binary sequence in which occurrences of order categories 1 and 2 were considered as "1's" and other occurrences were considered as "0's". Our procedure was to go through this new sequence by groups-of-four and examine the resulting distribution.

We believed that (in terms of ordering force and defense mechanism interaction) this groups-of-four distribution would be like the other groups-of-four distributions we had examined in our various VIUR tests but with two very important differences.

Difference Number One

The distribution is not made up of ordered pairs whose occurrence rate is held steady by the defense mechanism.
Difference Number Two

The distribution is right-skewed. For this particular group-of-four the "ordered center column" does not exist. "Center" is in between the 2 count and the 3 count columns. This has important consequences for the distribution.

Number of Runs

18,000 runs of 25,920 were made. Table 6 shows the adherence of the counts of order categories 1 and 2 to expected values (quite good; -0.01% deviation from expected values).

<table>
<thead>
<tr>
<th>Data</th>
<th>Expected Values</th>
<th>Data/EV%</th>
</tr>
</thead>
<tbody>
<tr>
<td>23,803,350</td>
<td>23,806,406</td>
<td>-0.01</td>
</tr>
</tbody>
</table>

How We Thought the Distribution Would Look

We felt that the ordering force would, as usual, be "pushing in" from the tails. Thus, the 0 and 4 counts would be below expected values. As a consequence, 1, 2, and 3 counts would be above expected values. The 2 count would be increased the most because it was closest to center.

The defense mechanism would be "pushing out" from the center. Because the 3 count is part-center-and-part-tails it would both gain and lose by this effort. The 1 count would only gain and would, we guessed, be larger than the 3 count but smaller than the 2 count. The 1 count would be more negative than the 4 count (because it was farther in the tails, that is, farther from center). All but one of these conjectures proved to be true.

The Strategy

The strategy was to pick a very unlikely place to look and then structure the observation in such a way that very few options were available to the defense mechanism.

Results of the Strategy

Data showed that this two-step evaluation (evaluate data first by groups-of-twelve and then by groups-of-four) worked very well. We had 180 groups of 100 runs and we classified them, as before, into "high data" and "low data". 80 groups fell into the high data classification and 100 groups fell into the low data classification. Since we evaluated by groups-of-four there were five occurrence groupings: 0, 1, 2, 3, and 4 occurrences. When we graphed the percentages by which data in each category (high data and low data) were over-or-under expected values our earlier findings were dramatically confirmed. High data occurrences were shifted toward the right tail and low data occurrences were shifted toward the low tail. (See Figure 3.)

Note that one value represented in Figure 3 is quite out of line. Zero count occurrences for the low data are actually very slightly less than the 1 count occurrences for the high data. This is explained by Figure 4 (page 7-22).
Figure 3. High data occurrences (solid line) are shown to be strongly shifted toward large numbers of hits and low data occurrences (broken line) are shown to be strongly shifted toward a small number of occurrences.

The ordering force is acting on the groups-of-four just as it was acting on the groups-of-twelve. This can be easily seen by sorting the 180 groups of 100 runs by whether or not the 2 count is above or below expected value just as we sorted for high and low data in Figure 3. Figure 4 (next page) shows us the 92 groups of 100 runs in which the ordering force predominates and the 88 groups of 100 runs in which the defense mechanism activity predominates.

As can be seen, the ordering force is drawing in from the tails toward center and the defense mechanism is pushing out from center toward the tails. This, of course, is the “push-pull” which produces the high center, high tails phenomenon when other forces are not distorting the interaction. The strong Figure 4 pull out of the 0 count occurrence category explains the out-of-line value in Figure 3. In a similar way, the strong negative 4 count value in the Figure 3 low data distribution explains the out-of-line ordering force 4 count in Figure 4.

All-in-all we see in Figures 3 and 4 strong effects from the ordering force and defense mechanism activity acting on groups-of-twelve (Figure 3) and the push-pull of the ordering force and defense mechanism acting on the groups-of-four (Figure 4). And, as can be noted from Table 7 (next page), one effect of all this interaction is to depress the 4 count for the over-all groups-of-four evaluation. This count, as can be seen from Figure 3, will not be normally distributed around the expected mean. This is even more true of the 0 count. We chose to look more closely at the 4 count simply because more occurrences are represented for the 4 count than for the 3 count.
Figure 4. High ordering force occurrences (solid line) are shown to be strongly shifted toward center (high order) and high defensive action occurrences (broken line) are shown to be strongly shifted toward the tails (low order).

<table>
<thead>
<tr>
<th>Number of Occurrences</th>
<th>Data</th>
<th>Expected Values</th>
<th>Data/EV%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>219219</td>
<td>219598</td>
<td>-0.17</td>
</tr>
<tr>
<td>1</td>
<td>1387928</td>
<td>1387264</td>
<td>0.05</td>
</tr>
<tr>
<td>2</td>
<td>3287712</td>
<td>3286501</td>
<td>0.04</td>
</tr>
<tr>
<td>3</td>
<td>3460568</td>
<td>3460346</td>
<td>0.01</td>
</tr>
<tr>
<td>4</td>
<td>1364573</td>
<td>1366271</td>
<td>-0.12</td>
</tr>
<tr>
<td>Totals</td>
<td>9720000</td>
<td>9720000</td>
<td></td>
</tr>
</tbody>
</table>

The 180 groups of 100 runs provide 83 data below the expected value mean and 97 occurrences above the expected value mean for 4 count occurrences. By the terms of the binomial expansion $P = .1405628$; the distribution consisted of 54,000 trials. From these values an expected value standard deviation can be determined and expected values for occurrences 0 to 1, 1 to 2, 2 to 3, 3 to 3.7 and more than 3.7 standard deviations from mean can be calculated. Percentages of data left and right of the mean can then be compared to expected values. Figure 5 (page 7-24) presents a portion of the data. The thrust into the tails is clearly apparent. It can also be seen that the defense mechanism is pushing into the tails a little harder than the ordering force.
Spindrift's Automatic Psi Test

If we wish to combine left and right tail occurrences and compare them to expected values Table 8 is the result. Chi-squared, calculated from this table, has a value of close to 30,000 (29,831). It would appear that this value can be made arbitrarily large by further breaking down data values above 3.7 standard deviations, which chi-squared weights very highly, or by running the computer as long as one wishes to accumulate runs. Whether looked at from the standpoint of Figure 5 or Table 8, the skewing is extreme.

The sequence orderliness test, when used to evaluate the "cut-in" activity of the mid energy defense mechanism is supportive of the "action and counteraction" hypothesis. For further information see Appendix C.

<table>
<thead>
<tr>
<th>Standard Deviations</th>
<th>Data</th>
<th>Expected Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 1</td>
<td>56</td>
<td>122.87</td>
</tr>
<tr>
<td>&gt; 1 to 2</td>
<td>39</td>
<td>48.92</td>
</tr>
<tr>
<td>&gt; 2 to 3</td>
<td>31</td>
<td>7.74</td>
</tr>
<tr>
<td>&gt; 3 to 3.7</td>
<td>20</td>
<td>0.43</td>
</tr>
<tr>
<td>&gt; 3.7</td>
<td>34</td>
<td>0.04</td>
</tr>
<tr>
<td>Totals</td>
<td>180</td>
<td>180.00</td>
</tr>
</tbody>
</table>

DISCUSSION

This test, as executed, was neither comprehensive in its range of data gathering nor elegant in its modes of data gathering and data evaluation. It was a pioneering effort, the first experiment structured in just this way. It was a successful effort, confirming the predictions which had been made from theory.

Given the nature of our culture, the questions which this experiment raises are as much sociological as methodological. The experiment itself is very easily replicable. Methodology is not a problem. The larger problem is the will to replicate within a culture in which the results we have obtained are inconceivable in scientific terms.

Beyond this larger problem an even larger problem, a massive problem, looms. If the experiment should hold up under replication and close mathematical scrutiny, the emotional structure of our culture will act to classify it as a mathematical curiosity and relegate it to the position of an anomaly rather than investigate the body of work of which it is a part, initiate new research directions, and consider the implications of the new findings.

It is our hope that by developing a test which is effortless (automatic) in both data gathering and data evaluation, a test which can be performed by anyone, we have developed a test which -- just possibly -- may serve as an opening wedge in the necessary effort to open the emotionally closed and materialistically committed mindset of the religious, parapsychological, and established scientific communities of today and, through them, the culture which established scientific and religious outlooks infuse and support.
Figure 5. The x-axis "range of occurrences" presents the number of standard deviations distance from mean on each side of the distribution of data grouped around the mean. Mean and standard deviations are presented as expected values. The proportion of data more than 3 standard deviations from mean is so large as to be omitted from the graph in order that the relationship of the values presented can be clearly seen.
APPENDIX A

To get an early indication of what was happening we evaluated after 14,515,200 trials with the sequence orderliness test. (For a detailed explanation of this evaluation of the data see our paper *The VIUR Test: Massive Psi, Massive Defenses.*) Using the equation of sequential order we determined that the percentages by which sequences were over-or-under expected values for sequences 1, 2, 3, 4, and over-4 occurrences long (we checked the 1’s) were: -0.1, 0.8, 0.19, -0.13, -0.5. Thus the familiar pattern of "pileup" appeared but more weakly than in the VIUR tests (strongest in this test for sequences 3 occurrences long rather than for sequences 2 occurrences long).

Since the defense mechanism holds ordered pairs to approximately expected values it follows that the number of endpoints of sequences are held to approximately expected values and thus the sequence orderliness test shows sequences 1 occurrence long at approximately expected values. However, since order is increasing (the phenomenon which produces the high center in our histogram of groups-of-twelve), there is "pileup" in other categories. In the VIUR tests this pileup is most noticeable in sequences 2 occurrences long and in the VIUR tests we used the amount of pileup in the 2 occurrence position to help us determine primary and secondary images.

In our early data from this test we not only checked sequence lengths, we also looked for the most ordered, ordered, disordered, and most disordered breakdown in the groups-of-four (in this case a 4-category order hierarchy). For a detailed explanation of this check on our data see our paper *The VIUR Test: Massive Psi, Massive Defenses.* Based on 28,512,000 trials the percentages over-or-under expected values for most ordered, ordered, disordered, and most disordered groups-of-four were: -0.13, -0.02, 0.07, -0.12. As with the sequence orderliness test, pileup occurred, but more weakly than in the VIUR tests (in the disordered rather than in the ordered category).

These "checks along the way" showed us that the phenomena we were familiar with in the VIUR tests were appearing in this test. And, as is to be expected, the weaker associational linkages of the mind with the images was resulting in weaker effects.
APPENDIX B

We did not timer seed the pseudorandom function in producing our data. Thus, if one made, say, 100 runs of 25,920 trials the order of the trials would be identical each time 100 such runs were made.

If one were to make 700 runs of 25,920 trials consecutively (in the same program) each of the 7 groups of 100 runs would possess a different order in the sense that the binary sequence would begin and end at a different point in the algorithm. This means that when going through by groups-of-twelve and classifying such groups (for each 100 runs) a different assignment could be made than for the always-the-same independent (individually run) runs of 100. (If this were not the case all of the data would be either "high" data or "low" data.) Thus, the variability of assignment of high or low data groups depends on how many runs are made consecutively within a program.

Given these circumstances it is clear that the "calling patterns" of the pseudorandom function, as far as groups-of-twelve are concerned, rests on the length of the group used to designate high and low data and on how many such groups are run within a single program.

To illustrate, let us presume an assignment group of 100 runs (of 25,920 trials) and let us presume that 7 groups of 100 runs are made within a single program 50% of the time. Let us suppose that a single group of 100 runs is made 10% of the time, 2 groups 15%, 3 groups 15%, 4 groups 6%, and 5 and 6 groups 2% each. (This situation is somewhat representative of the running pattern we settled into.)

Given the deterministic nature of the pseudorandom function, the length of the assignment groups, and the number of such assignment groups generated by each run of a program, the outcome is completely determined. Figure 6 shows us that the outcome in the predicated circumstances is not as close to expected values as is our actual data (Figure 1) with the exception, of course, of order category 7.

Approximately 34% of our pseudorandom runs were high data and approximately 66% were low data. Figure 7 (page 7-26) shows how the individual high and low data patterns look just as Figure 2 shows us these patterns for our actual data. Clearly, the predicted patterns for the actual data do not show up in the pseudorandom simulations. As with any set binary sequential patterns run against very freely formed binary sequential patterns, the resulting pattern is a pattern very little affected by the set sequential pattern.

At first glance, this characteristic may seem an unusual one since the sequence resulting from running one pattern against another in such a way is, in effect, very much a random sampling of the established pattern and sampling theory rests on the presumption that random samples will reflect the characteristics of the sampled distribution.

The question, of course, is the size of the effect. The degree of accuracy of pseudorandom functions and electronic random event generators makes it difficult to investigate the question. The size of the effect of the ordering of two patterns on the ordering of the newly created pattern (in the circumstances in which we encounter them in our tests) appears to lie below the margin of error our means of simulation (pseudorandom functions and electronic random event generators) possess.

The checks that we have made in different situations from time to time all show only marginal influence from an ordering standpoint. We conclude that the use of the pseudorandom function in our data gathering as we have done it in this test did not affect the gross utility of the procedures involved.
Figure 6. The x-axis presents the degrees of order represented by the various categories of hits in the distribution of simulated data evaluated by groups-of-twelve. The correspondence of data with expected values (y-axis) is fair.
Figure 7. The x-axis presents the degrees of order represented by the various categories of hits in the distribution of data evaluated by groups-of-twelve. The relationship of simulated data to expected values (y-axis) for "high data" (solid line, high 1 and 2 counts) and "low data" (broken line, low 1 and 2 counts) does not show the characteristics of our actual data.
A basic theoretical contention which this experiment was designed to test is the hypothesis that a "mid energy" defense mechanism was, from time to time, replacing the "low energy" defense mechanism action in order to keep evidence of ordering force (healing) activity from becoming apparent to the conscious mind.

From earlier VIUR testing we had come to believe that "cut-ins" of this sort came in "streaks" or "bursts". It was on this basis that we felt valid "high data" and "low data" classifications could be made.

Such "streaks" could, of course, continue for more than 100 runs at a time. In such an event the sequence orderliness test would expose this activity. Both high data and low data runs would come in clusters, that is, sequences of greater length than the expected values calculated from the equation of sequential order would indicate.

Figure 8 (next page) presents the high data pattern. Low data is similar, of course, since high and low data occurrences are elements of the same binary sequence. The testimony of Figure 8 is striking. The "hot hand of the mind" is much in evidence. The sequences show long sustained bursts of mid energy activity rather than adherence to expected values.
Figure 8. The x-axis presents the lengths of sequences of 100 run groupings of high data. Sequences of such groups of runs 1 and 2 occurrences long are below expected values and sequences of such runs 3 and over 3 occurrences long are above expected values. The powerful linearity of the relationship between sequence length and the action of the mid energy defense mechanism stands out clearly.
Research in Prayer and Healing: Past and Present

RESEARCH IN PRAYER AND HEALING: PAST AND PRESENT

Spindrift, Inc.

Only a century ago the record of medical practice was little more than a history of the placebo effect. Only the rise of bacteriology, the discovery of vitamins, the later discovery of the wonder drugs, and the use of double blind testing have given modern medicine drugs of known power.

In like manner, the history of healing through prayer today is, in the popular mind, little more than a record of placebo effect similar to that of early medicine and shamanic rituals. The major question confronting laboratory research in prayer and healing is stark: Is there a power of prayer other than that of human faith, the placebo effect? If there is, two striking corollaries to this fact follow hard on its heels:

- there is a power in or available to the mind which differs from the power of belief, faith, will, or emotion, and,
- this power operates over distance, that is, in ways unmediated by the human nervous system.

It is a premise of Spindrift's research that there is a healing power inherent in prayer, a power which is distinct from the psychodynamic operation of the human mind. Thus, two distinct characteristics of consciousness are part of our conceptual outlook. The assertion of such a premise leads to an operative question: How can these diverse powers be measured? If we think of measurements in terms of experimental protocols, measurements must be made which reveal two influences acting on the data, influences of known measurement characteristics, measurements which can be distinguished one from the other.

Virtually all research into the action of the mind today presumes a volitional/intentional model of effect. This is natural in terms of experimental inquiry into the nature of the mind since it seems clear that the human mind is intentional and/or volitional in its characteristics. The goals of the mind may fluctuate and change from moment to moment, conscious and unconscious thought may be in conflict, but emotion and will push toward certain ends even if those ends may shift and change.

The power of the placebo effect, and of faith healing, flows from the belief/faith of the individual. It is goal directed in the sense that the power of the mind pushes the body toward the object of faith, the consciously or unconsciously constructed mental image created by belief.

Prayer which thinks of its object in terms of the attributes or qualities of God, prayer which is powered by holiness in terms of the moral and spiritual qualities embodied in the Ten Commandments and the Sermon on the Mount, is non-goal-directed prayer in the psychodynamic sense, powerfully goal directed in terms of holy purpose, the development and protection of identity. Spindrift's research asks the question "How would such a mental state be manifest under experimental conditions?" and then, from its theoretical position, provides its answers. Thus, our research is theory driven. Our research is also unfund starved and methodologically primitive. The reasons for this lie in the mindsets of science, theology, and medicine, in our past and in our present.

Prayer and research

Throughout the entire history of scientific research virtually no attention has been paid to prayer. A strong conviction of the power of prayer has been foundational in Western civilization, yet evaluation
of this power and its relationship to healing has never occurred.

Why not?

Research is done by scientists. Scientists require funding in order to get their research done and they require access to journals to get their research published. Funding is dispensed according to the belief system of science; access to journals is also granted according to the belief system of science. This belief system goes far beyond the heart of the scientific enterprise (acceptance of the scientific method) and includes an overlay of mechanistic and materialistic theory which has nothing to do with the essential nature of scientific inquiry itself.

How the system works: an example

In the May, 1990 issue of Omni magazine we found an interview with the editor of one of the most prestigious journals of our time, the New England Journal of Medicine. The editor of this admirable journal, Arnold Relman, M.D., says bluntly: "I don't accept the idea of alternate therapies....We don't deal with mysticism...Our assumption, which is the assumption of all modern science, is that there would be some mechanistic explanation."

As the interview continues, the editor of the New England Journal of Medicine makes his point more strongly: "As for whether mental states can influence the course of disease, there is simply no hard scientific evidence of that....there's not a shred of evidence that it's true."

Spindrift's researchers have heard the "not a shred of evidence" statement so many times and from so many people over the years that they gradually became aware of the unspoken assumptions underlying the remark. The statement that there is no evidence implies, for example, that one has looked for evidence and has found none. This assumption is simply not true of modern science.

The statement that there is "not a shred of evidence" implies not only that one has looked, but that one had eyes to see, that one could find and evaluate evidence if it was there. This assumption, the assumption of evaluative ability, is also not true of modern science. Until Spindrift's research was developed, the concept of evaluating prayer and its healing effects in terms of its relationship to identity, in terms of a pattern-related measurement model, did not exist. Until Spindrift's research, with its new theoretical outlooks and experimental methods, there was no good theory or hypothesis, no tests, no measurement grid, with which to guide experimental work. There is, within the scientific community today, ample means for demonstrating the relationship between prayer and healing, but there is not the will, the desire, nor the theoretical capacity to do it.

A third, and perhaps less obvious, assumption behind the "not a shred of evidence" outlook is that if one looked and found evidence it would be accepted. Dr. Relman, as editor, states: "In principle, we don't have any problem with publishing reports of objectively documented phenomena for which there is presently no physical explanation....What's puzzling...when...so many people are aware of the scientific method, [is that] there can be such widespread acceptance of...folklore." One can note, in the just stated quotes, the mindset which says, in effect, "we would publish if we could, but there's obviously never going to be anything to publish." Anyone who has ever dealt with the institutions of modern science knows full well that a materialistic mindset is now an established part of the theoretical apparatus of thought, outlook, and action. It's puzzling to us at Spindrift to see this equating of the scientific method with specific theories drawn from the use of this method.
Prayer and research: a history

The reason for the lack of scientific papers on the power of prayer is the simple fact that the concept of "prayer power" is a concept which lies outside the belief systems of modern science and modern medicine. Thus, there is no place for the scientific study of prayer within these worlds. And -- worse yet -- when such studies are made, however infrequently, such studies are wedded to the prevailing belief systems within the religious, scientific, and medical communities. Such shotgun weddings are unfruitful and the results, in scientific terms, are of little real use. Let us consider two examples, one from the medical community and one from the parapsychological community.

In July of 1988 there was published in the Southern Medical Journal a study of the "therapeutic effects of intercessory prayer." The study, by Randolph C. Byrd, M.D., was entitled Positive Therapeutic Effects of Intercessory Prayer in a Coronary Care Unit Population. We are not familiar with the journal and read a copy of the journal mailed to health care professionals by Dr. Byrd. We have also read a capable methodological critique of the paper entitled God in the CCU? by Gary P. Posner writing in Free Inquiry.

Those wishing to review the meager medical literature on prayer and healing may note the references which accompany both articles and the more extensive references to William Kruskal's Presidential Address Miracles and Statistics: The Casual Assumption of Independence published in the December, 1988 Journal of the American Statistical Association.

It is part of the belief system of modern science and modern medicine that the placebo effect is, like all effects of thought, mediated by the human nervous system. Thus, the Byrd study assumes that effects noted in his study must be due to prayer since other variables have, presumably, been adequately controlled. The simple tests Spindrift has made reveal this assumption to be invalid.

The Byrd study also assumes that medical diagnosis (the determination of the categories of disease to be included in the study) adequately defines the circumstances and indicate the outcome. Such an approach gives no weight to adverse mental factors bearing on disease even though beneficial mental factors (prayers) are being investigated as having a positive bearing on disease. In essence, Dr. Byrd is stepping outside the consistent belief system of modern science and modern medicine without addressing possible inconsistencies in the logic of the hybrid alternative belief system being tested.

If thought can heal disease it cannot be ruled out a priori that thought can cause disease. It can be logically argued that the assumption that control and treated categories can be adequately defined in terms of purely physical diagnosis is inconsistent with the assumption being tested.

Dr. Byrd's study also assumes that mental action is "unitary" in its effect. The belief system underlying the study caused Dr. Byrd to select the prayer participants (people praying for the patients) in terms of religiously postulated criteria, in terms of an intellectual and moral stance which would cause their prayerful intercession to bring forth a divine response which was wholly good (identity referenced in terms of Spindrift's own research). The structure of belief in which the test was carried out and evaluated did not control for the possibility of a mixture of both holy and goal directed thoughts resting on and directly affecting the prayed-for patients.

Dr. Byrd's study has drawn more attention than most efforts to study prayer have done because even such modest efforts are so rare in the medical community. His study has been both praised and attacked, but, neither side has even thought to consider the nature of the belief systems which dictate the terms of data gathering and data evaluation.

The study of thought and the effects of thought is, at least in part, a study of belief systems. No
such studies can be successful unless they take into account the nature and influence of the belief systems which dictate the terms of data gathering and data evaluation in every test which measures the effects of belief systems. The history of scientific research on prayer is a record of studies which are both few and flawed.

In terms of prayer and healing, parapsychologists have studied gifted people rather than individuals representing a given religious outlook. In 1967 Robert Miller, Ph.D. (a research chemist) conducted a test of the efficacy of the prayers of Olga and Ambrose Worrall on the growth rate of rye grass. The method of prayer was described as "to visualize [the plant] as growing vigorously."

During the 58 hours following the administration of prayer the rye grass grew more quickly than expected; at the end of ten hours the growth rate was 840% above norm. After 58 hours observation was discontinued.

We are not familiar with the periodicals in which the descriptions we saw of these tests appeared (Journal of Pastoral Counseling, date unknown, and Psychic, March/April 1972). Copies of the articles were sent to us by a friend. The test is one of a number of similar tests made from time to time by parapsychologists. Such tests are conventionally interpreted within the parapsychological community in terms of a direct effect of thought on things, a goal directed action of the human mind. No religious inferences are necessarily drawn and no serious attempts have been made to draw the few one-shot studies which have been done into a meaningful research program.

Prayer, research, and shotgun weddings

The conventional approach to the scientific study of prayer and healing exemplified by Dr. Byrd's study requires a shotgun wedding -- the forced marriage of a scientific conceptual system inadequate for the study of thought with a religious belief system representing one of many Christian outlooks, a belief system selected by personal preference rather than through objective testing.

This attempt to objectively test a subjective outlook (as all scientific tests do) fails, in part, because the experimental design cannot distinguish the presumed conclusion (divine intervention in response to intercessory prayer by individuals of a specific creedal outlook) from such alternative interpretations as (1) a placebo effect acting without the mediation of the human nervous system, and (2) some degree of holiness in the thought of the prayer participants acting to benefit the patients in terms of impartial good or universal law rather than in terms of creedal righteousness triggering divine intercession.

Many, perhaps most, of those in the parapsychological community today strive mightily to stay within the paradigm of modern science. There is much talk of "energy fields," "energy medicine," or "electromagnetic field effects in biology." These efforts to explain mental phenomena in terms of material energy fields have much in common with nineteenth century efforts to explain mental phenomena in terms of an "animal magnetic fluid" or "animal magnetism."

The extent to which the holiness of prayer, the unique characteristics of holy thought, lends itself readily to an equivalence with material energy or to an equivalence with psychodynamic process is an open question. An attempted forced marriage of the human and divine may be yet another shotgun wedding bound to go wrong.

The casual assumption that all mental phenomena can be fitted into existing belief systems rests for some on an unwillingness to confront the belief system generally subscribed to in the scientific and medical communities, a belief system developed for the study of matter, not thought, and for others rests on an inability to conceive of or develop more consciousness oriented alternatives. This statement
Research in Prayer and Healing: Past and Present

Is not a rejection of science nor of the scientific method. It is an effort to address the circumstances which have, from the dawn of scientific investigation, kept prayer from being placed under the microscope of scientific inquiry.

Bluntly stated, the existence of Spindrift's successful research in prayer and healing challenges existing paradigms, existing scientific outlooks, and that alone has condemned such research to a poverty-stricken existence which neither attracts nor can pay for the kind of talent and equipment needed to make rapid strides forward.

In our society the most ardent advocates of a cause/effect relationship between prayer and healing have adhered to paradigms which conflicted with the scientific world view of our age. Those who lived in the Chicago area a decade or so ago could follow, through newspaper coverage, the mop-up of various faith healing congregations, a large number of which were in Indiana. The issue never escalated to national attention and enough parents in various states were put in prison to bring those who held these divergent views into scientific and medical conformity.

At the present time another mop-up of adherents of healing-by-prayer-and-no-medicine is going on with a great deal more attendant publicity than a decade or so ago although probabilities, rather than prison terms, have been the usual penalties. In the Chicago Tribune of July 7, 1990 the prosecutor in one such case was quoted as saying: "This is not a contest between medicine and religion, it's a marriage of the two."

It is not the purpose of this discourse to either attack or defend the practices of various religious groups nor to judge the social consequences of this particular tug-of-war. It is the purpose of this discourse to point out that experimental research in prayer and healing -- which is what Spindrift does -- has been rendered almost impossible by the aggressive determination of our society to reduce all unusual research and outlooks into conceptual conformity with existing scientific and societal norms.

As long as society insists on uniting conceptual systems with shotgun marriages instead of letting scientific research explore and evaluate the validity of all phenomena which are amenable to the experimental test, research into prayer and healing will continue to be, as it has been in the past, almost non-existent. Remove the barriers and, as Spindrift's hard-won results have shown, discoveries of enormous usefulness will flow from the new experimental directions of our research. Invisible prejudices, semi-visible rejection of new ideas, or visible shotgun weddings must be replaced by a willingness to experimentally test all hypotheses which can be experimentally tested if those who profess allegiance to the experimental method are to be honest with themselves or with others.

"Testing God"

The scientists are not alone in their opposition to scientifically evaluating prayer. In this crusade the Christian churches march beside them. In this, at least, two long-antagonistic interpretive systems make common cause.

The relative ease of demonstrating experimentally the powerful relationship between prayer and healing led Spindrift's researchers, initially, to believe that such results would be welcomed by the Christian world. After years of successful experimental work, years of harassment by fellow Christians, and years of financially-starved research, they have changed their minds.

The difficulty does not lie in Christian disbelief in the power of prayer. The difficulty lies in the fact that those who believe in the power of prayer are usually committed Christians, individuals who love and support their respective denominations, their churches, and who look to those churches as spiritual guides in all questions of religious concern. And, the churches have deep reservations about any
activity which would link science and Christianity.

Just as science refuses, in general, to investigate phenomena which it believes "cannot happen," and just as society would rather forcibly unite conceptual systems by cultural consent rather than even think to settle such matters through scientific investigation, so does religion throw its strength into the stifling of scientific inquiry. Supporters of Spindrift's research, be they Catholic, Protestant, or Christian Science, be they religious, lay ministry, or lay, have suffered penalties from their respective churches for their beliefs.

In fairness to the Catholic and Protestant churches it must be stated that such penalties do not reflect policies at the highest levels; the issue is only beginning to be understood. In fairness to Mary Eddy, the founder of Christian Science, it must be stated that her own life and writings supported the scientific method and endorsed the validity of its findings while often questioning the conclusions drawn from such findings. Nevertheless, her church today is the only church which will, as a matter of long-standing policy, excommunicate members for belief in the validity of the experimental test across the entire range of human experience and excommunicate them as a matter of church policy at the highest levels.

In the last analysis, one set of beliefs cannot be used to devise the tests and evaluate the data of another set of beliefs. The scientific method is just that -- a method, not a conclusion. An unspoken assumption of modern science is that experimental tests of prayer are valueless, valueless because they couldn't possibly work or, if they did work, the new results could be explained in terms of the old beliefs. A far-ranging assumption of Christianity today is that experimental tests of prayer couldn't work and, if they did work, would be theologically invalid, the work of the devil or whatever symbolism by which evil is conceived.

In general, conceptual arguments against scientific evaluation of prayer break down into four categories: (1) the "testing God" argument, the assertion that testing prayer is testing God and conflicts with a pure faith, (2) the "against the Bible" argument which asserts that, whatever its merits may be, experimental evaluation of prayer is inherently wrong, (3) the assertion that science itself is a flawed tool and that many of its findings cannot be relied on, and (4) no matter what science may say about prayer or about God, its findings do not apply. An often cited reason for the inapplicability of scientific review of spiritual things is that acceptance of the scientific method in such matters would involve placing the things of the Spirit at the mercy of the testimony of the things of the flesh and would place the Church at the mercy of the scientific establishment. Accept a good thing now and find yourself at the mercy of the devil of materialism later the argument often runs.

A second set of arguments against the validity of experimental tests of the relationship between prayer and healing is the underlying fear of loss of denominational place and power. The church scene is competitive, Christianity today is a tribalism of many outlooks, each fiercely defended by zealots at the core of each tribal establishment. It has been recognized that if the effectiveness of individual prayer can be objectively measured then -- at some future time -- the ability of individual denominations to produce individuals who can pray effectively can be statistically evaluated. Report cards on the churches could be issued. Indeed, report cards on the individuals who rule the churches could be issued. When a bureaucracy is frightened new ideas are fiercely resisted.

A third set of arguments against the new research is its place of origin. Granted, whoever discovered the new research probably would have belonged to some church, some denomination, but the actual denomination presented more problems than would otherwise be the case. Spindrift's research was discovered by Christian Science practitioners (now ex-Christian Science practitioners according to the Christian Science church). This caused particular problems given the labeling of the Christian Science church as a "cult" by close to one-fifth of all Americans, given the bad publicity given
Christian Science healing today, given the fact that even some mainline Christian churches consider Christian Science a heresy, given the fact that Protestantism itself is a heresy in the eyes of the Catholic communions, and so on and on. The discovery of Spindrift's research within the Christian Science community simultaneously offended both the Christian Science community and much of the non-Christian Science Christian community.

The various objections to the new research spring from: (1) distrust of any rapprochement between science and Christianity by the Christian community, (2) bureaucratic fear of the results of "letting science in the door", and (3) the question of who is benefitted as well as who is hurt -- the politics of prayer.

We, at Spindrift, have tried to separate our research from denominational concerns. This is done: (1) out of loyalty to the validity of the scientific method, a desire to find scientific reference points, not religious ones, for our research, (2) a desire to avoid being a party to denominational fights over the results of our research, (3) a desire to establish Christian concepts on the basis of universal validities rather than creedal outlooks, and (4) a desire to let the objectivity of the experimental method become a watch dog rather than a lap dog for the churches. The experimental tests tend toward religious unity, religious unity can all too easily become religious power, and such power needs all the oversight it can get. When holiness can be objectively appraised holiness cannot be claimed as the exclusive province of any denomination or religious outlook.

Research in prayer and healing: the present status

For a number of years we at Spindrift rather naively believed that the churches would welcome proofs of prayer, that parapsychologists would welcome repeatable tests of psi, that mainline science would follow where the experimental test showed the way, and that the organized skeptics, people who even offered money for convincing proofs of paranormal power, would really give all comers a crack at their prizes.

All those beliefs proved to be false. After a dozen years of very successful experimentation Spindrift had been disabused of its beliefs and had learned that what was needed to break the mindsets, the sociological constraints, were not tests which addressed themselves to conceptual structure and to methodology, tests which worked and developed science along the traditional lines, but a single test which addressed itself to the sociology of the society in which science operated. According, in 1987, Spindrift addressed itself to the problem of developing such a test and, after a three-year gestation, the VIUR (Visual Image, Unconscious Response) test was born. Additional work on the test has been done since that time.

Let's briefly review the sociology of the problem as Spindrift saw it in 1987. First, the religious scene. In general, the churches had been hostile. A number of people on the Spindrift network had been penalized for supporting Spindrift. This was true of Catholic, Protestant, and Christian Science supporters. Scientific proofs of prayer were not welcome. Only one denomination had resolved the issue at the highest levels and declared Spindrift's work heretical. But the mindsets of other religious bureaucracies at that time were such as to discourage religious supporters in most of the mainline denominations. Religious, lay ministry, and lay all took the heat. The reasons were, for the most part, emotional, but the logical tap root was the reasonable fear that if Christianity accepted science as a support to its theology, then, someday, that acceptance of science as a valid component of outlook would lead to the ability of science to judge, and then mold, theology, and this was unacceptable.

Second, the scientific scene. Mainline science possesses a paradigm. The paradigm is grossly materialistic and vastly deficient but it's the only game in town at the present time. Among the defects of the paradigm are the inability to adequately explain the role of consciousness in the world, to solve
the brain/mind problem, to successfully address the emotional side of illness, to successfully address the conceptual issues raised by quantum mechanics, and to provide conceptual tools with which to explore the paranormal side of all cultures from the earliest times to the present, including the nature of religious phenomena.

Given the failings of the present paradigm one can only marvel at the tenacity with which it is upheld, but it is a fact of scientific life in the sociological sense that the mindset of the scientific community today is that all failings of the paradigm will be met by minor adjustments to the existing framework. It is certainly not expected that failings of the paradigm will be met by fringe elements working from conceptual outlooks divergent from the conventional wisdom. In grubby bottom line terms that meant that Spindrift didn’t stand a chance of getting its experimental work considered by the mainline scientific community no matter how good that work was.

Thirdly, the organized skeptics. It took us five years before we gave up on this one. We began by trying to get a well-known skeptic who offered prize money for any exhibition of paranormal power to put his money on the line in 1984 and gave up in 1989. In February of 1989 he advised us by phone -- and after years of desultory correspondence -- that he’d get back to us after he cleaned up his desk. The promised phone call never came. We’d gone through the same hassle with various groups of organized skeptics who also offered prize money and had very slowly come to learn that the offering of prize money was just another part of a political offensive and prize money would never be risked where there was a real chance of losing it.

Fourthly, the parapsychological community. In 1987 our assessment of this community -- after years of trying to communicate with it -- was that parapsychology was in trouble. Part of the trouble -- as we saw it -- was the weakness of the consciously and unconsciously held theoretical model. Another part of the weakness was the flak they took for studying phenomena which implied deficiencies in the paradigm so dear to mainline science and to mainline scientists. And yet another part of the weakness was the flaky nature of the liberal element in the consciousness-oriented research community.

The conservative heart of the parapsychological community was not about to expose itself further by any linkage with aberrant groups claiming results of such size as were considered to be impossible after a century of parapsychological research, by linkage with groups with non-traditional conceptual outlooks, with groups with no scientific credentials and so on and so on. The outlook was understandable, it was a clear-cut consequence of the sociology of science, and it seemed to us that it was sociology that had to be addressed.

By 1987 we felt we had enough of the conceptual pieces in place to address the sociology. Up to that time our research had largely depended either on tests with conscious mental input by individuals able to produce results or on tests which utilized research methodology which would have to win acceptance. We knew by then that -- no matter how powerful such tests were -- they would never win through. We proposed at that time to develop the ultimate test of psi, a test which anyone could do, a test which would clearly illustrate both the patterning power and the perceptive power of the mind, a test which would depend on unconscious thought for its measurable effects, a test which would be so simple to do, if not to analyze, that grassroots acceptance, media attention, popular support, would force the sciences, the churches, the skeptics, and the parapsychologists, too, to take notice. Our attention, for the next six years, was devoted to the development of such a test and the VIUR test was the result. The VIUR test makes it possible to document the power of the ordering force in a practical and simple way, a way which produces such powerful results that they cannot be denied.
Measuring the effects of thought on matter: various viewpoints

A Nobel Laureate

A Nobel Laureate commenting on a colleague’s experimental tests of the effects of thought (in this case goal directed) on electrons (as quoted in the September, 1990 issue of Omni magazine): "When [he] calls himself a physicist, we’re a bit skeptical, because if he is right, he would be negating the entire basis of the profession. After all, if someone just thinking about the electrons in my experiment can influence them, then precision measurement becomes pointless. Why do the experiment at all?"

The First Church to Declare Spindrift’s Tests Heretical

The governing body of the Christian Science church writing to a Christian Science practitioner in expelling him from his ministry for believing in the possibility of measuring the effects of thought (in this case prayer) on seeds and yeast (letter of October 18, 1983): "such attempts to measure the effectiveness of Christian Science healing (based as they are on physical sense testimony) are so wholly at variance with the standards expected of practitioners...we feel we have no choice but to act...any attempt to ‘measure’ healing by tests...is not in accord with the teachings of Christian Science."

Charles Steinmetz -- the Founder of Electricity

I think the greatest discovery will be made along spiritual lines. Here is a force which history clearly teaches has been the greatest power in the development of men. Yet we have merely been playing with it and have never seriously studied it as we have the physical forces. Someday people will learn that material things do not bring happiness and are of little use in making men and women creative and powerful. Then the scientists of the world will turn their laboratories over to the study of God and prayer and the spiritual forces which as yet have hardly been scratched. When this day comes, the world will see more advancement in one generation than it has seen in the past four.

Steinmetz

Spindrift’s dilemma -- as stated by Marconi of his own work

The Inventor of the Radio

My chief trouble was that the idea was so elementary, so simple in logic that it seemed difficult to believe no one else had thought of putting it in practice....The idea was so real to me that I did not realize that to others the theory might appear quite fantastic.

Marconi

Conclusion

Nowhere in the world today is there any coherent body of substantial, good quality, scientific research on prayer, or on the relationship between prayer and healing. As universal as prayer is, as much as it is a part of our lives, such research has never been done. Neither the scientific, the medical, nor the religious communities have made such studies, no funding sources devoted to such exploration exist, and no journals devoted to such findings are extant. In times as devoted to scientific exploration as our own, in a period when health care is so thoroughly researched from a material basis, the most
that can be said for the study of prayer and healing is that a very modest and a very promising beginning has been made by Spindrift. Our research has been modest but extremely fruitful, our tests have been simple, repeatable, and have produced remarkable insights into prayer and its healing power.
THE QUIET REVOLUTION

Robert Owen

Christian concepts have been translated into many languages but never, until now, into the universal language of mathematics and the experimental test. The initial account of this new and hitherto unexpected direction of experimental inquiry was contained in my book *The Quiet Revolution* published in 1980. This small paperback described the first five years of homespun tabletop research and led to the founding, in 1981, of Spindrift, Inc.

In 1988 I published a second book, *Qualitative Research: The Early Years*, a book which covered the first twelve years of experimental work. Both books were written from the Christian Science standpoint of the writer, not from the point of view of Spindrift. Today these books have, for the most part, only a pioneering, historical value and their experimental content has been subsumed into *The Spindrift Papers*. Some of the conceptual content has current relevance in illuminating the theoretical perspective from which we worked experimentally and it is this perspective which is the substance of these historical notes.

In explaining the background of ideas which enabled us to develop a new area of experimental inquiry some material will be taken directly from my early books, added to and revised to meet the current requirements of this commentary.

Until 1975, when the systematic study of spiritual healing through the experimental method began, there was no significant body of rigorous proof anywhere in the world establishing either the fact of spiritual healing or its distinction from faith healing. Qualitative research, as it was then called by those who discovered it, showed that spiritual healing was readily amenable to the experimental test and its existence easily proven by this method. It also proved experimentally possible to distinguish spiritual healing from other actions of thought, such as faith (placebo effect), suggestion, will, and so on.

The mode of consciousness we set forth to study experimentally we termed "qualitative thought." By "qualitative thought" we referred to a state of consciousness which embodied the qualities or attributes of God as traditionally defined in Christian theology, the moral and spiritual states embodied in such verbal expressions as the Ten Commandments and the Sermon on the Mount. Today, Spindrift and those associated with Spindrift have dropped those terms because of the measurement connotation carried by the word "qualitative" in the scientific community.

The research we chose to undertake centered around the study of a particular mode of consciousness, the mode of consciousness which underlies Christian healing. This mode of consciousness differed, we believed, from the mode of consciousness which underlies suggestion, human faith, and the placebo effect. In approaching the research my own convictions -- then and now -- were expressed in these words: "Development of experimental means through which to study the nature of consciousness was not an accident of history. It was a development nourished in the context of the theology of Mary Baker Eddy, given its developing power and form by the translation of this theology into measurement terms, and then wrought out on the forge of the experimental method."

The grounds for such a statement were threefold and were rooted in the conceptual necessity to reconcile basic features of Christianity with the experimental method. This had to be done before experimental work could begin. The concepts of miracle, mechanism (or model), and authority, had to be addressed.
Miracle

A cornerstone of Mrs. Eddy's teaching is her statement that "Love is impartial and universal in its adaptation and bestowals." This is a theological position toward which both Catholic and Protestant theological outlooks have been moving in this century. Predictability and consistency in God's mode of operation in the world are preconditions to experimental study since the scientific method is based on the existence of regularities of pattern in the natural world. A study of a mode of consciousness interfacing with that world must be similarly based.

If God's interaction with the world is predictable and consistent it ceases to be miraculous. In keeping with the more accurate translation of the New Testament word, it is "marvelous," not "miraculous". It is presumed, as a precondition of experimental inquiry, that although the operative laws may not be understood, they do exist.

Mechanism and Models

The explanatory mode of science has traditionally been mechanistic. As scientific inquiry has increasingly extended into the atomic and sub-atomic realms the concept of mechanism has become more mathematical than it used to be. Today matter is conceived in terms of energy; energy is conceived as mathematically modelable in its operations. From the point of view of quantum mechanics probabilistic (not mechanistic) actions, actions which can only be understood in mathematically modelable terms, dictate the apparent mechanistic state and action of our natural world.

Traditional Christianity conceives of God as all-powerful. Under the pressure of a scientifically materialistic worldview, Christian theology has increasingly abandoned the miraculous (and marvelous) and, in some of its forms, has suggested that God works in the probabilistic gaps of the world's natural laws or, perhaps, through "subtle" (that is, undetected) energies.

The concept of "subtle energies" represents the yearning for a mechanistic mind/matter interface. Such an interface has been sought almost from the dawn of science by those who would interpret mind and spirit in the mechanistic terms with which they are familiar.

Conventional theology has never fully faced the implications of a mind/matter interface mediated in energetic terms nor pronounced on it. Unless a mode of consciousness exists which can directly mold human experience we cannot ascribe all power to God nor can we assert the infinite possibilities of prayer. This was a point which Mrs. Eddy saw clearly and she built into her theology the proposition that matter was a subjective and objective form of consciousness. On this basis the mind/matter interface was not mechanistic. However, given the proposition of universal and impartial action of God's grace, the interface was modelable.

Authority

In conventional theological terms revelation is the ultimate authority. Revelation may be in a book such as the Bible or the writings of a religious founder, it may lie in codifications of the meaning of denominational history, or it may lie in the conscience of the individual. It is seldom considered to lie in reason and in provability in scientific or in consistent pragmatic terms. Mrs. Eddy, in a position unique to Christianity and to all religious history, asserted that when reason and revelation were reconciled and the resulting reconciliation tested through demonstration, the "broadest practical tests",

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1EDDY, MARY BAKER (1875). *Science and Health with Key to the Scriptures*. Boston, MA: The Christian Science Publishing Society
the ultimate of certainty possible was reached.

In practical terms this meant that inductive and deductive reasoning each had a place in the scheme of things, authority was not confined to untestable revelation, and the scientific method was inherently acceptable as a mode of understanding. To an individual committed to Christianity and its worldview as a way of understanding, a theological standpoint which shared its authority with reason and demonstration made it possible to conceive and develop experimental tests of spiritual healing.

Quality and Quantity

Spindrift's research arose from one fundamental conviction: that quality and quantity are unified on some basic level, that science and Christianity are one in essence although divergent in approach, that each reveal the mind of the Creator.

To those setting up the tests this implied a relationship between matter and mind -- between the qualitative value structures of Christianity and the quantitative world of science. Put another way, there was a unity between goodness and order on the one hand and between evil and disorder on the other.

As tremendous forces in human life and history, science and religion have each spawned immense organizations and conceptual systems. From one has come the sometimes controversial values that have guided men, from the other the sometimes controversial technology that has served them.

At its best, religion has provided a framework for spiritual development; at its best, science has provided the conceptual tools and lawful framework for the public validation and common acceptance of observed processes and phenomena.

In the past, religion has concerned itself with values and with thought, science with matter and with energy. For Spindrift's researchers, as products of a religious viewpoint which views science and religion as one in essence, it was only natural to see no fundamental difficulties in putting spiritual healing to the experimental test, to extend the ultimate proof of personal experience to the public validation and commonly accepted proof systems of the experimental method.

Until or unless this is done life experience is fragmented, the qualitative and quantitative aspects of our lives have no meeting ground, the union of science and Christianity is not complete, and the modern Christian has no truly defensible theological home.

The Quiet Revolution

The relationship of Christianity and the experimental method was an unseen and unacknowledged issue until the rise of the laboratory sciences in the latter part of the nineteenth century began a revolution, a quiet revolution centering on the question of certainty and proof and the authority that flows from them.

In the nineteenth century various healing systems flourished. Their pragmatic successes gave each of them a place in the sun. The rise of the laboratory sciences, making the controlled test possible in many diverse fields, made medicine increasingly monoithic and ensured the gradual decline of all healing methods not meeting the more rigorous tests of our modern times.

Careful testing has also enabled the world to observe the effects of faith in human experience entirely apart from a religious context. The placebo effect in medicine, the experimenter effect in
parapsychology, the effects of expectation in education and personal experience, the will to live, self-fulfilling prophecy, and the effects of suggestion are but a few among many observed and documented characteristics of the human mind.

Since it is impossible, without the experimental test, to separate the effects of spiritual healing from human faith and from other known actions of the human mind, spiritual healing has been increasingly seen as a psychological phenomenon, with a religious context being but one possible conceptual expression of a basically non-religious and rather well understood mental action.

The quiet revolution of the developing proof systems of modern science has had a gradual but pronounced effect on the religious world in other ways as well. In the United States liberal religions reached a peak in the mid-sixties, then ceased to gain ground in relationship to population for the first time in the history of our country.

Two trends were especially evident. One was that the younger the age group the greater the decline. The other was, the more highly educated the age group the greater the decline with the greatest decline among the college educated and the least among those with only grade school education.

If it is true, as many have suggested, that religions today can gain ground only to the degree they can heighten inner emotional intensities and maintain separation of the young from free intellectual exposure, then a watershed of some kind is at hand in the relationship of thought and values in our culture.

In today's quiet revolution -- centering around the experimental test, the very nature of proof itself -- religion, if it does not meet the challenge of our times, must inevitably decline. The emotional thrust of religious conservatism can no more today than yesterday stem the tide of man's increasing knowledge.

From the dawn of civilization, and perhaps before, men and women have sought to understand the world about them. Some have followed the inward path and have sought to understand creation and its Maker through thoughtfulness and prayer. Some have followed the outward path and have sought understanding by examination of the universe, through experiment and test.

Deeply religious individuals have sought personal assurances and proof in revelation and its effects in their own lives. The scientific way has been to seek truth through means that are not personal, but collective -- through tests that give the same results to everyone, proofs that can be publicly validated.

Thus, religions are personally validated, and its truths are accepted through conversion or some form of inward acceptance. Science is impersonally validated; its truths are accepted when they stand the universally accepted tests of reason and demonstration.

Spiritual healing stands at the junction where these two approaches merge. It flows from the inward approach, yet it constitutes a validation or proof which can be seen and tested by others, apart from inward and subjective factors.

The uniting of the approaches of Christianity and science to our understanding of the world is not something new in the history of thought. From the churchman William of Conches in the twelfth century to Werner Heisenberg, one of the founders of quantum mechanics in the twentieth, the point has been made that to study the creation is to learn more of the Creator.
Christianity, generally accepting the premise that God made the material universe, has had to live with the conclusion that to seek out an understanding of this universe was to come into some degree of understanding of the Mind of God. Yet profound uneasiness and deep and unanswered theological questions have always resulted from this outlook for the Master Christian taught his disciples that power and dominion flowed from spiritual development and closeness to God, without reference to equations, machines, and material knowledge.

In its heart Christianity, by its very nature, and very rightly, has felt most at home hewing closely to the example of the Master and has found comfort and direction in such words as these from St. Paul (1 Corinthians 13) "whether there be prophecies, they shall fail; whether there be tongues, they shall cease; whether there be knowledge, it shall vanish away... But when that which is perfect is come, then that which is in part shall be done away."

To those Christians who would turn away from the world as a source of heavenly understanding Spindrift's research speaks with special clarity. For these tests seek not to describe the world, or the things that are in the world, as the sciences do. These tests describe instead an aspect of the incarnation, the interrelationship of spiritual power and material conditions -- the finger of God in human experience -- however unexpected the form of it may seem to be.

The success of science rests on no religious or philosophical basis, but on its methodology, and its technology. Like the machines it has created, it is a blind power, led by those who control it, and doing good or evil accordingly. Seeking out the secrets of the material world and guided by no internal values as it does so, it continually pours forth dilemmas for the Christian thinker.

Bound to it by theology, stung by its ethical dilemmas, indebted to it for much of the good of civilization, yet fearing its amoral nature and deeply concerned over man's possible loss of control over its power, Christianity's relationship with science is understandably difficult.

Yet, for all their importance, none of these issues are the basic question existing between Christianity and science at this time. A quiet revolution has taken place, a quiet revolution of outlook which has brought an entirely different and largely unforeseen issue to the fore. This issue is the nature of proof.

The controlled test will never replace individual experience, for this is paramount in each individual's life. But in collective experience -- schools, courts of law, textbooks, governments, mass communication, all the features of universal human experience -- reliance is placed today on tests and conclusions that are not individual and subjective, private and personal, but on tests that are capable of public validation by means and processes common to all trained observers.

As science has moved from a personal to a more universal standard of proof it has dimmed, in areas of conflict, the persuasive powers of religion. Many systems of thought considered provable in their times have not stood the more rigorous tests advancing understanding makes possible. Becoming unprovable, other than on a testimonial or anecdotal level, they have gradually fallen away.

Spindrift's research reflects the assessment that, as Christ Jesus said of many of his own contemporaries, (Matthew 16:3) "ye can discern the face of the sky; but can ye not discern the signs of the times?"

In a world in which values have their only meaning in religious systems -- other than as an averaged, agreed on good -- and in which proof has its only meaning in scientific systems -- other than on a personal basis with its subjective and uncontrolled, unmeasured factors -- a great need has arisen.
While many of the self-assured elements of religious life have gone the communications route, producing among other things the "electronic church," many of the less assured elements have been seeking to strengthen their structures against possible adversity, often blaming "scientific materialism" along the way. Yet both approaches will have only short-lived success unless they read aright the "signs of the times."

In a civilized world, authority flows from proof of rightness. Science offers today the tightest proof system ever devised in the form of the rigidly controlled test, but it offers no values or deep meaning. Religions offer meaning and purpose, but no universally accepted measure of definitive proof of rightness.

Unless religion today reads aright the signs of the times and addresses itself to the quiet revolution -- the immense changes of thought going on in the area of authority and proof -- all its outward propaganda and its inward purification are not likely to clothe it with increased unity or authority in the years ahead.

Yet today, through the avenues of spiritual healing and the rising strength of our experimental research, it is possible to unite the existence and authority of ethical conditions and spiritual values with the proof systems of our times.

If Christianity seizes the promise of this hour a renaissance different from and greater than that of medieval times awaits us. For all its challenges, better this than to be increasingly relegated to the position of the quaint keepers of cherished values -- values linked only by tradition to the lost spiritual power of a pleasantly remembered religious heritage.

Faith and Healing

Spindrift's research takes a wide range of definition for the term faith as it relates to healing and says that one end of the spectrum of faith is simple belief in whatever one thinks will heal them. At the other end of the spectrum is the richly qualitative state of consciousness associated with spiritual healing. The term "spiritual" in this context is taken from Christian theology in reference to the power of the Holy Ghost or Holy Spirit.

We know from experimental tests that spiritual healing and faith will modify each other's actions if the patterns of that faith do not coincide with the norms supported by spiritual healing.

What is called experimenter effect in parapsychology and placebo effect in medicine is simply a mild form of faith -- faith without strong emotional content or without spiritual depth, two greatly different elements. This mild faith enters into many of our experiments. When such directions of belief are intensified by emotion or by fear their effect is greatly strengthened. This fact gives strong support to the practice of conducting spiritual healing in as supportive an atmosphere as possible and to the concept of two modes of consciousness as a basic consideration in any theoretical system.

In our research we measure states of mind which are value-oriented and thus definable only in Christian terms. Our measurement methods, however, are understandable only in scientific terms. Thus a discussion of our research must include theological concepts as well as scientific concepts in order to be complete.

Christianity and Spindrift's Research

The presence of God in the world is not yet fully understood by any Christian nor has the life of Jesus Christ penetrated our hearts sufficiently to cleanse us of all prejudice and misconception.
Religious experience is more diverse than any categories, wider than any creeds. It has achieved its most rational expression and its noblest definition in Christianity, a Christianity which should not fear the exaltig ordeal of uniting the religious experience of looking deeply within one’s self with its counterpart of looking out upon the world.

The world of thought, of retrospection and introspection, is colored by the images of our senses; the world of material observation is colored by the nature of the mind which observes it. Looking out is influenced from within, looking within is influenced from without. Until the two are reconciled, religious experience is fragmented and torn. The harmonizing influence of Spindrift’s research is a friend, not a foe, of religious experience and of Christianity.

The Road Less Traveled

The road of the pioneer can be difficult; the road of the heretic is almost always so. The deliberate shattering of a private world with which one is at peace is an act of conscience which does not come easily.

It is possible today to look back over almost two decades of research and note that as these pioneering years draw to a close the majority of those who helped us out of conviction, out of their hearts, suffered penalties from their respective churches, Catholic, Protestant, and Christian Science alike.

In my book The Healer I tried to give some feeling of what it was like to walk “the road less traveled”. The experience is as old as human history but it needs to be retold in every age, for without this retelling, rethinking, and walking of the road there is no progress. Old truths remain for truth is eternal, but what we see of truth is never all of truth.

The clearest understanding of the road we walked came not from our own, but from those who, out of their own heart’s experience, understood.

Spindrift’s research opens a whole new world to science; but this advance came out of a religious more than a scientific search for truth. It came out of simplicity of heart and inner guidance more than from human wisdom. It was not the work of formally educated men and women. There is a lesson in this that needs to be remembered. Truth speaks most clearly when the heart as well as the mind is involved in the seeking.

Shortly after The Healer was written one of our Spindrift people received a letter which touched me deeply for it went to the heart of my own inner journey. It is appropriate that my commentary on The Spindrift Papers should close with the words of one who could understand because her own lifetime rested both on inner certainties and on inner seeking.

Dear _____,

I am happy to respond to the occasion to tell you how I felt about The Healer. But I am not entirely sure what I feel about the book, having finished it only yesterday.

Although I have great admiration for [the] kind heart [of a Christian Science friend], I have always felt this religion is the anti-Christ. I approached a book about the Christian Science church with

2OWEN, ROBERT (1985). The Healer. grayhaven books, P.O. Box 4294, Salem, Oregon, 97302-4294, paperback, $12.00
great apprehension, with much prayer, and only as a courtesy to [my friend]. Now I am not sure what I feel on this subject.

I did not understand most of the book’s scientific references. I grew up in a different era and in a less sophisticated country. I do not comprehend the age of the computer. Having worked as a missionary, I do know the power of prayer.

People do not understand why I am a nun. They believe I am frustrated or hiding from the world. I know why I love to be a nun but had long accepted that the world would never understand my thoughts. Now I find in Stephen [the book’s main character] an outsider who understands.

I had a vision when I was young. It led me to the Church. I did not doubt at first that it came from a heavenly source. When joyfully I told the priest, he said I did not have a vision. He said the priests would have had the vision first and there had been none.

In years following I had an occasional vision but learned to attribute them to tropical disease. I treasured them nonetheless. The last time I had one it was very meaningful to me. Still, I thought perhaps it was mild sunstroke that brought this vision on. In The Healer Stephen has the very same vision, almost exactly. I accept to believe, in holy simplicity, that our shared vision was a gift from the Creator; but I am not a child kneeling naturally at the feet of the Blessed Virgin any more. I am an old woman who cannot tell what thoughts are of her own making and which come from God. To discover I am not alone is great comfort. Also great hope.

The thing that touched me most is that the book is true. It is my understanding that the characters are composites of many people but that the events are true. It had the ring of truth to my heart. I sympathized with Stephen when he went out to meet the world and struggled with the scientific vocabulary and culture he encountered. Surface things perhaps, with our same truths underneath, but oh how we long to receive truth in a familiar package. I wore a habit for 37 years. My first several years wearing street clothes were most uncomfortable to me. I was the same person beneath but I missed my familiar package. I know it should not matter but it did. So there was a chord in my mind that responded to Stephen’s discomfort, and to his bravery.

Perhaps Stephen’s church means as much to him as mine does to me. Perhaps it was sin for him to act in such a way as to be expelled from his ministry. Knowing what it cost him, I am in awe of his courage. According to the preface this happened only a year ago. It is hard to view such a recent story dispassionately and tuck the book back on the shelf.

I prayed for Stephen tonight whoever and wherever he may be. I lit a candle for him because his life lights a candle inside of me, a candle I had not expected to shine this side of heaven. God bless him and God bless the yeast he prays for.

Sincerely,
CHRISTIAN OUTLOOKS AND SPINDRIFT’S TESTS

Samantha Fairfax

A modest body of laboratory evidence has been developed that illustrates the healing power of holy thought and separates it from the effects of carnal thought, especially in the form of suggestion. It has been developed by religious people, not professional scientists, using the very simple methods and materials available to lay persons.

Their work builds on a handful of studies by earlier researchers, individuals ranging from a Roman Catholic nun to spiritualists to non-believers. These studies of mental healing developed over the last several decades involved simple organisms such as plants, mice, and enzymes. Although the results of these studies were provocative, they were conducted within the conventional framework of thought which presumes the "scientific materialism" kind of reality of a material world. They weren’t structured in such a way that the power of conscious holiness was distinguished from the belief and suggestion that counterfeit it, and the results were erratic.

Studies involving prayer work with simple organisms like seeds or yeast too, but they differ radically from their predecessors in their design. They begin with the premise that the world is not rigidly material but is embraced in a mental structure of goodness and order on the one hand and evil and disorder on the other. They are shaped in such a way that these two mental strains are seen to have different effects. The results are clear and repeatable. They establish at least provisional evidence that healing appears in response to holy consciousness, while carnal mental elements push toward their own ends.

Why Are They Important?

Healing is central to Christianity. It has always been through healing that Christianity has not only brought wellbeing to individuals, but has demonstrated effects that can’t be explained by material law—effects which Christianity affirms as evidence of divine law. This is a leavening power in human thought and is the profound importance of healing.

However today Christian healing is often not seen as spiritual healing, healing from a spiritual source. A healing accomplished through spiritual means is certainly seen as proof of divine law by each of us as individuals. The most convincing proof is always derived from a combination of reason, revelation, and demonstration. One’s own individual healings include all three of these. But proof that is meaningful to society does not have the element of revelation available to an individual. It is capable of many definitions, and standards of proof change.

Those standards have changed a great deal over the years. A century ago healing methods were not rigorously evaluated. Anything that seemed to work was accepted. Testimonies of healing were used in support of patent medicine as well as prayer.

The way the effectiveness of a drug was established was the double-blind test. People began to suspect that the healing effects they saw were sometimes just the result of belief. To eliminate the power of individual belief the double-blind test was used. (One group was given "active" drugs and the other was given sugar pills with neither the giver nor the receiver of the medicine knowing which was which.) Drugs found to have an effect that was not produced by individual belief were considered to be "real" healing agents. However, besides giving society the "wonder drugs" of the 1940’s this test also focused attention on the fact that belief alone could have powerful effects. Along with evidence in
various other fields of the power of human belief, this placebo effect, as it was called, made people markedly conscious of the power of suggestion.

Because the power of belief or suggestion has been widely noted, it is not surprising that many individuals regard Christian healing as simply suggestion in a religious framework. And suggestion is something which they have observed to be only mildly and erratically effective.

Testimonial evidence no longer meets today's standards of proof. When testimonies are dismissed as "anecdotal," this is not random name-calling. "Anecdotal" is that term used to signify evidence not subject to the rigors of laboratory study. Therefore it's evidence that could be due to any number of causes other than the one claimed for it. Today's standards demand that prayer and Christian healing repeatedly demonstrate their efficacy as distinct from other possible causes, including suggestion.

Healing in the Laboratory: Is It Possible?

We have to resolve at the outset that our tests start from a premise different from the one that commonly underlies scientific studies. A scientific test that begins with the premise that the material world runs on its own laws and sees evidence of Spirit as intervening through supernatural means wouldn't tell us much about lawful healing process. But a scientific test that begins with the premise that the world is embraced in a mental structure of goodness and order on the one hand and evil and disorder on the other can provide powerful evidence of spiritual power. This is an assumption from which we work.

The first idea that may come to mind when study of healing is mentioned is usually that of submitting human patients to scrutiny. (There have been studies of groups of human patients treated by prayer groups, for example.) But this approach has its difficulties. Evidence of improved health may appear in the body as a sign following the spiritual change that is healing. But anything that would influence the patient to look to what is happening to the body as determining health (such as a laboratory environment) would weigh against his healing. It would divide his thought. Volitional/intentional elements enter in and make it difficult to give evidence of healing power as distinct from the other elements that counterfeit it, such as the patient's own expectation of healing.

When a healing happens in everyday life, it is at the deepest level a change in thought in the direction of holiness. Yet it is also "measured" on the human scene, in a very broad sense, by observation of the body's return to normal—to an orderly state. Study of healing in the laboratory also observes identity responding to spiritual power. But on the human scene the measurable aspect of identity is the body. The aspect of identity that can be measured is the body. So these tests measure (more clearly than is possible on an everyday scale) the return of an organism to its norms in response to healing treatment under conditions where other causes have been eliminated. Then premises need to be stated that link this evidence of ordering power to the goodness, the holiness, from which it flows.

When an identity, as represented by the body, is seen to return to its norms in response to the healer's treatment, this represents an influx of spiritual power. It is spiritual power that supports and enhances identity (whereas self-assertive carnal elements such as will are indifferent to identity). The best representation of identity on the human scene is a normal or healthy body. Spindrift's studies look for the return of an identity to its normal state or pattern (in contrast to volitional/studies that may have a healer accelerate growth in a plant). It is the return of an identity to normal that evidences the order that is also spiritual goodness.
This is true of every identity from the smallest organism to the greatest. By working with simple organisms it is possible to eliminate the many variables associated with complex living things. It is also possible to eliminate the mental suggestibility that would be present in a human patient. The only mentality resting on the “patient,” or organism, is that of the healer. Then it is possible to go even farther and establish conditions that minimize suggestion in the thought of the healer as well (to be described later).

But isn’t measurable evidence matter? Doesn’t matter inherently have nothing to say about spirit? It’s true in one sense that matter tells us nothing about Spirit. Spiritual reality is true, whether or not material evidence says so. A healing treatment must proceed from this fact. But the signs that follow do bear witness to spiritual reality in human experience. If it were true that observable evidence never told us anything about Spirit, God, then even testimonies, a form of witness, would be meaningless, since they rest not only on spiritualized thought, but also on restored evidence of wellbeing.

**What Do the Spindrift Studies Include?**

One of the simple organisms studied was seeds at the germination point, where they were found to be more sensitive to thought than at other stages. The first studies simply took two groups of seeds under stress (undersoaked, oversoaked, or soaked in salty conditions) and gave prayerful treatment to one group. In every case over many tests the germination rate of the treated seeds significantly exceeded that of the control groups. This confirmed the premise that holy thought resting on an identity supports and enhances it.

Better germination rate is somewhat akin to healing on the larger, human scale. There, however, improved physical health is no ultimate evidence of spiritual healing since belief can produce the same effects. This has always been a problem for establishing the power of prayer—separation of faith-cure or placebo effect from genuine spiritual power. But working with simple organisms it is possible to eliminate more of the faith cure or placebo power. Seeds aren’t suggestible so the patient’s expectations have been eliminated.

We know that will, the power of the carnal mind, is self-assertive. It is the force that activates a belief. It can simulate any physical pill or mental therapy. But it can only produce an effect it can first visualize. So these studies use a design that doesn’t establish a single visualizable goal. They provide conditions where healing draws an organism to wholeness from different directions.

For example, one group of soybeans was oversoaked and another undersoaked, then control and treated groups were selected from both. Healing treatment was given to both sets of beans at the same time. It was found that the treated oversoaked beans gave off more water than control and the treated undersoaked beans retained more water than control. The same prayer, applied to the two groups as a whole, had different effects. It met the different needs of each set of beans. This is presumed to be evidence of that healing power that flows from selfless holiness open to the Father’s will. It acted independently of the goal-enacting capacities of the human mind.

(It might be noted that in working with mental factors, it is impossible to establish conditions that eliminate one or another kind of mental strain entirely. Thought has unconscious as well as conscious dimensions. But eliminating conscious awareness of a direction in which will would be expected to push is an advance over any previous effort.)
The most significant aspect of these tests is that they lay a groundwork for separating the holiness that flows from God from the suggestion or placebo power that so often counterfeits it. In ordinary circumstances placebo power usually mimics healing. But it's possible to establish conditions where the two act in an opposite direction.

One way to do this is for a healer to give treatment to an organism as it moves into and out of a period of stress. As numerous tests have confirmed, healing power returns an organism under stress to wellbeing under conditions in which will is unlikely to act. But will pushes an organism already at its normal state in an extra-normal direction. Therefore the patterns of evidence should not only be different but, according to these premises, the power at work during the first half of the treatment is healing power while that at work during the second half is faith/belief impelled by will.

These tests used yeast which responds to being fed with a sugar solution by producing gas. The yeast used was active but not quite fresh. The yeast was fed with a sugar solution and treated by a healer for forty minutes. The effect that's seen in the first half, because the yeast is under stress, is one of healing (it's brought back to its norms--its gas production pattern resembles that of a fresher yeast). The effect that's seen once it has returned to normal is different. According to the assumptions that underlie these tests, it is will, not spiritual power, that moves an identity away from its norms. The effect in the second half would be due to will.

While these studies are quite modest, their patterns of evidence are consistent over many trials with several different healers. The importance of this needs to be seen in some context. For years conventional researchers have been trying to find evidence of the human mind's ability to know without the usual sensory cues (ESP) or to change its surroundings by non-physical means (PK). While they have sometimes had interesting results, an overview of their efforts shows that strong effects were associated only with some people, were affected by emotion and drugs, and were highly erratic. Their findings have never been consistent enough to be taken seriously. Spindrift's studies are based on the premise that thought is of two kinds, one of which is goal-directed and erratic, but the other of which is holy and lawful. They are designed to allow the ordering healing power of spirituality to appear, and to distinguish this from the disorderly force of will activating belief. These tests provide results that are not erratic but solidly repeatable. Such studies are only preliminary attempts. But they do show that consciousness aligned with the divine has orderly, benign, and repeatable effects.

The Future

The division and disarray in Christianity is no secret. Many young people who grow up within Christian traditions leave them. This is not entirely surprising. In spite of the powerful strengthening effect of values learned in the home, the worldview of Christianity is significantly different from that presented by science and in the schools.

Nothing can take the place of spiritualization of individual thought. If anything, Spindrift's studies begin to show how profoundly different is the pure holiness that flows from self-surrender from the human will and belief that would sometimes simulate them. They point to the imperative need for individual self-immolation and regeneration. The purpose of the Church will always be to provide the structure and discipline through which the holiness that makes healing possible is developed. The world would be a dark place indeed without the cultivated spirituality fostered by Church. That is why it is crucial that the church make itself understood by the world, that it survive and fulfill its mission.

In many areas, people today are questioning the grip of materialism, understanding more fully mental power, seeking occasionally to find spiritual healing in studies of their own design, and developing models of thought that more closely resemble those of Christian teaching and experience. Spindrift's studies show that evidence can indeed be related to spiritual premises on a repeatable basis.
The world urgently needs the leavening power of spiritual revelation to inform its premises. Christianity should not seek to either ignore the methods of science nor oppose them. It should seek to use them. And when this happens—as it ultimately must—the world described by science will no longer be the materialism of today.
QUALITY AND QUANTITY

Robert Owen

Religious leaders have always felt that the ideals of Christianity, its fundamental concepts, stand up to the testing of human experience, that they, in a sense, are proved in the laboratory of life. And perhaps most people would agree that this is true of the fundamental values which permeate all great ethical and spiritual teachings. However, when it is claimed -- and the very fact of spiritual healing makes such a claim -- that the natural laws which lie at the heart of the conceptual systems of the scientific community are being affected in ways presently unknown to that community, then there is obviously, very obviously, both reason and opportunity for interdisciplinary action.

Developing deeper insights and broader theories through spiritually based scientific exploration should lead us toward reality rather than away from it and give a fuller meaning to the now empty mathematical parables of science. It should give, as well, a deeper and more unified Christianity.

Religions have traditionally relied heavily on revelation as the sciences have relied on reason and demonstration. The ability to apply the standards of proof of the scientific world to the religious scene would certainly do much to answer the question "What is truth?" in terms commensurate with the standards of the age in which we live. Providing a touchstone for revelation is but one aspect of such an ability. The elevation of the scientific conception of truth from a mathematical formula to a power able to communicate itself to man is also an inherent possibility.

It is also true that if religious conceptual systems cannot be proven to have validity other than as systems of social values, then the only unity Christianity will ever have will be the averaging of individual experience rather than the coherence of understood law. Under such circumstances the future of the content as well as the power of Christianity is increasingly in doubt.

Science at its best unifies. The deeply held conviction is that a unified structure of law underlies the universe and that this is the acceptable view of creation. Such a unified standpoint of cause and effect is one in spirit with the cry of the ancient prophets, "Hear, O Israel: the Lord our God is one Lord."

In spiritual healing we are talking about a mode of consciousness that affects material conditions instantaneously, specifically, irrespective of distance, and intelligently or purposefully. For instance, it is selective in its influence on the seeds which Spindrift's researchers have used in their tests, slowing or speeding growth according to the needs of the seeds. This means the interaction involved is quite different from those interactions resulting from "force" which are presently known to science.

Elementary particles and their mediation of forces are things unseen. We know them only as patterns of data obtained by instruments. In interpreting this data we must rely on mathematics, for we have no other means of ordering and understanding data. Thus, the meaning we assign to our observations is of necessity a mathematical construction. Our understanding of the nature of particles, energy, mass, and so on, is an intellectual construction which reflects simply one particular aspect of the nature of our own minds.

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This paper has been adapted from my book Qualitative Research: The Early Years.
Unless qualitative aspects of the reality we are observing with our instruments and interpreting with our mathematics can be introduced into our data in a way understandable by our mathematics --- that is, through quantitative measurement characteristics --- our theoretical models of reality will be badly skewed and will thus mislead us. And thus will our science fail us.

Probing with instruments phenomena that we can qualitatively experience only as patterns of mathematical order and which can be assigned no other qualitative or felt meaning inevitably leads us away from known reality. Spindrift’s research gives us a way to correct this operational and theoretical bias.

The reconciliation of scientific and religious modes of thought is not possible without the measuring of values and the valuing of measurements. Qualitative characteristics must enter into data in quantifiable terms and the method for doing so must be religiously as well as scientifically valid.

Since the language of modern science is mathematical, the parables scientists use to describe reality are mathematical formalisms -- descriptions which are in essence patterns of quantitative order. The thrust of experimental tests of spiritual healing is to interpret these quantitative patterns in terms of the interaction of a qualitative mode of thought with a qualitatively inferior or qualitatively negative mode of will or non-material energy which, for convenience sake, we can also refer to as thought.

In the kind of scientific parable known as field theory, power is explained in terms of the nature or "geometry" of the world. Electricity and magnetism are explained in this way. Einstein, in his theory of relativity, also explained gravitation in such terms. This kind of theory strives to make its mathematical equations descriptive of the world rather than of the forces in the world. Some physicists have tried to look even further into things. They have asked the question: "What is the pre-geometry of our world?" In other words: What is it that makes our "fields of force" the way they are?

Because the belief system of modern science postulates simplicity as one of the criteria of theoretical systems, scientific speculation (so far as it goes) is that a "two-valued pre-geometry" is the simplest possible answer.

It would be extremely difficult to explain the whole world in terms of just two fundamental characteristics simply for the sake of mathematical simplicity. Nevertheless, the reduction of experimental data to its simplest possible terms has been one of the most powerful approaches of science.

The theoretical implications of tests of spiritual healing do seem to lead to the conclusion that two strains of consciousness underlie the nature of our world. A two-valued pre-geometry in the sense of qualitative/non-qualitative characteristics is implied.

Science has never considered force in qualitative terms, for, until Spindrift’s research, there was no experimental evidence of such a characteristic. To think of power as intelligent, good, or loving was unique to religion.

Even though we are developing conceptual structures including the theological concept of incarnation in terms of law rather than in terms of personal care we find that we are talking in terms of the personal or qualitative characteristics of loving and wise care. We find we are categorizing this intelligent love dually in terms of its inherent nature and also in terms of its relationship with our world. Inherent in Spindrift’s research we thus have a threefold concept of cause, effect, and relationship with experience. This trinity of office, Father, Son, and Holy Ghost or incarnate love, becomes experimentally defined in terms of a qualitative/quantitative or good-order/evil-disorder interaction in which prayer is an active power.
In our daily lives we find that no matter how impartial and universal our love may be it is expressed toward persons, ourself or others, and in this sense it is personal or individualized in its expression. We must relate to a need in some way before we can meet it and this relationship is assocional.

In spiritual healing we find the same circumstances apply. The seeds which are affected in the structural relationships of test conditions are the seeds which the healer thinks of, loves, and relates to. As the assocional links are weakened the effect diminishes.

The ability of spiritual healing to interact with organic and inorganic systems under experimental conditions indicates a unity of science and Christianity on a practical as well as a theoretical level. In theory and in practice science and Christianity have shared strengths and shared dilemmas.

According to scientific materialism the chaos of the sub-atomic world forms itself into statistical patterns upon which the mathematical laws and theoretical calculations of modern physics are based and, in a similar way, the blind dice of the organic sciences, mutation and natural selection, operate to produce forms of life and consciousness.

Those who saw strains of value and purpose underlying the emergence of these later children, life and thought, have seen their arguments shatter like brittle glass on the hard rocks of reason. The vitalists, as well as those religionists who saw in evolution the hand of God, have joined the ranks of those who saw the argument from design disappear before their eyes, broken on those same hard rocks.

They were not alone. Einstein must have had similar feelings when he confronted the Copenhagen interpretation with his own firm conviction that "God does not throw dice."

As science has risen from the pragmatic to the experimental stage it has been unable to throw much light on the question of values and on that curious mix of purpose and purposelessness which seems to characterize our time and space, our world.

If we accept the conclusions of modern science that existence is without cause and effect characteristics at its most fundamental (sub-atomic) level, then we must address the question of why and how cause and effect appear at higher levels of existence. From the ordered energy patterns of an atom to ascending levels on the evolutionary scale the patterns become more complex and more qualitatively meaningful.

Spindritt's research shows a relationship between the world of spiritual qualities and the quantitative norms which emerge out of the randomness of the primitive sub-atomic world. The progressive emergence of those norms which make life and thought possible in a material world have been found in our experiments to be directly related to qualitative consciousness, to those states of mind traditionally and religiously defined as good, as the attributes of God.

From tests done in this way equations can be developed. The fact that this can be done tells us that qualitative experience is capable of flowing into human life in patterns that can be quantitatively described. It tells us that the world of thought possesses the same mathematical regularities as the world of matter and material energy.

The equations developed in this book also tell us that, as the mental climate changes from states of belief, will, emotion, to the rich qualitative states associated with deep Christian experience -- the attributes of God, theologically speaking -- the nature of the equations change. The raw thrust of power disappears and normalcy related effects appear.
We know from our tests that qualitatively specific characteristics of thought pull organic and inorganic systems and action toward norms which are experimentally verifiable. The resultant equations show the pattern of this good-order with bad-disorder interaction.

If all forms of human progress and evolution are products of this same norm-producing good-order/bad-disorder interaction then there are underlying patterns -- and equations -- which characterize all human progress and development.

If evil cannot produce good and if chaos is incapable of forming itself into ordered patterns then the mixtures of randomness and order, consistency and inconsistency, which show up in our research and our theories -- as well as the good and evil which qualitatively mingle in human life -- are not evidences of a house divided against itself. They are simply indications that the interaction of a qualitatively rich ordered system with a qualitatively different non-system is not a third system in and of itself but an apparent mixture of the two.

Since quality and quantity are both fundamental features of our world -- features never before associated in any really meaningful conceptual way -- it is not too surprising that the discovery of fundamental relationships between them should lead to profound new insights into human experience.

Since qualitative elements lie at the heart of Christianity and quantitative ones at the heart of the material sciences, the relationship which is appearing between quality and quantity signifies a new and fundamental change in the course of human thought and action. The new working relationship between science and religion will profoundly influence each and the insights which flow from such a relationship cannot help but bear deeply on human experience.

Order is the first indication of meaning in our world. Appearing at sub-atomic and atomic levels, cause and effect sequences are the most primitive and fundamental patterns of our experience. Since space, time, and matter are characteristics that arise out of non-material energy, then the explanation of why these patterns develop, and why they develop as they do, would answer the most meaningful questions human experience can offer.

Modern physical theory differs from classical theory in that it is not predictive in terms of absolute cause and effect. The action of individual particles cannot be understood in absolute terms. Cause and effect is understood only as a statistical measure of the action of many particles. Indeterminacy is built into the very nature of our world at a fundamental level in this view.

We must consider then, in harmony with the standpoints of modern science, that all the equations we have, all the predictive capacities of mathematical laws -- including such things as the trajectories of ballistic missiles, the flow of heat, the formation of a snowflake -- refer only to statistical norms, not to absolute and final laws. And yet these laws are here and they operate sufficiently well to constitute the universe we know.

Our research raises the possibility that the laws of modern science may be not only statistical norms (the action of order on disorder), but ethical norms as well (the action of good on evil). Since the norms we find in these experiments represent maximum good -- normal health as one example -- the ordered effect is related to the ethical effect, or good effect, and goodness and order, like space and time, are interwoven.

Einstein struggled to perceive patterns of absolute cause and effect underlying the statistical "norms" upon which scientific equations are based. Bohr, in a rather dialectical fashion, found some measure of virtue in paradox. In the life sciences the questions have been more sharply focused with the great historical figures in these disciplines and in modern Christianity seeing everything from
meaningless aberrations to the hand of God in the patterns of life and consciousness upon which our experience rests.

The religious thrust of Spindrift's research brings a startling new dimension to the picture. The traditional quantitative measurements of science which reveal equation-expressible forms of order in the statistical patterns, statistical patterns often termed "laws," now find themselves as part of a larger picture in which quantitative measurements reveal equation-expressible patterns of order which have -- something previously not clearly apparent -- unmistakable qualitative aspects, connotations of good or evil interwoven with the orderly aspects of existence. Thus, like space and time, the quality and quantity of life experience seem to be somehow related. Ethics and order would appear to have something in common. An additional thrust of Spindrift's research is that mind and matter are more closely related than experimental evidence has previously shown.

Let us also consider another outlook of modern science. In a speech given in 1981 at the University of Chicago David Schramm told graduates that evidence from Fermilab and other major particle physics centers indicated that quarks take up no space at all and that we are now reaching a view of matter as completely empty. The mass formerly believed to be contained in the atom is now seen to exist in points that occupy no space at all. Size, shape, dimension, structure -- all the characteristics of matter -- arise only from the nature of the forces involved.

If these indications of modern physics are correct, then the only things that constitute our universe are patterns of force. Force is not, as we like to picture it, the movement of matter, for matter itself is a form of force. The various equations which describe these patterns give us some sense of meaning in quantitative terms. But, if there are no "things," only forms of energy, then we are living in a much less material world than we thought. The experiences we have are only qualitative aspects of varying conditions of an energy field.

Our research gives repeatable proof in statistical patterns that thought, too, is a form of energy. Since both faith and spiritual healing (holy thought) alter the conditions of matter, they affect the energy patterns which give us the characteristics called matter. Since they alter force, they also must be power in some form.

Physicists define relationships between masses and forces in terms of equations. Yet, in essence, they are only talking about the properties of energy in different forms. And this energy is non-material; that is, not a condition of matter. The qualities and quantities we know as matter are simply energy in one of its forms.

If the non-material energy of which our universe is made and which can manifest itself as matter is of a different sort than that non-material energy which constitutes the force, or power, of spiritual healing, we are in harmony with those elements of Christian theology which regard Christ Jesus' distinction between matter and spirit as of more than passing significance. (John 4:24, John 3:6)

If this line of reasoning is correct, the data in every test of spiritual healing constitutes a quantitative pattern, descriptive in a mathematical way of the qualitative interaction of two opposite modes of thought. This predication of two modes of thought as the underlying condition of our experience and our world is in some ways more a semantic point than a theological one because, if we are dealing with two forms of energy neither of which occupy space in any absolute sense, it does not matter what terms we pick to describe a non-material energy with qualitative mental characteristics.

It can be seen that the theoretical basis of Spindrift's research is consciousness-based and thus different in nature from the theoretical basis of modern science. Spindrift's research reduces the laws of modern science to a subset of a larger and experimentally demonstrable theoretical perspective.
The existence of what we know as life and consciousness depends on the maintenance of ordered physical states, patterns of cause and effect. These patterns are responsible for normal conditions; even more, they are in essence the characteristics or "norms" of our material universe. The character of our world depends on their form at any given time.

Qualitative patterns have always been thought of in terms of moral and spiritual law. These patterns are things of thought and have never been considered in terms associated with the measurement of matter. Thought, however, is always influencing matter in ways that can be measured. A blush, a psychosomatic illness, the way we walk, talk, eat, sleep, vote, or drive our cars -- all offer measurable patterns of thought and feeling.

The existence and functioning of all living things depends on norms -- on specific conditions necessary to life and health. Even slight fluctuations of temperature, pressure, and a vast array of electrical and chemical relationships, disrupts or destroys the health and continuance of organic life.

If one reads the literature arising from the study of the placebo and the literature of parapsychology, the patterns of effect attributed to thought are found to have no relationship to the norms of organic life or to the norms of the inorganic world. Faith, will, suggestion, expectancy, visualized effects, push results in the directions indicated by thought. Their action, like the action of a drug, has no reference to norms; they are not normalcy referenced.

If one reads the testimonial literature of spiritual healing a different pattern emerges. The effects of spiritual healing are always normalcy referenced. The action of spiritual healing is always to return the body to those states necessary for normal functioning. For example, a specific body temperature characterizes the healthy state of a human being. It is one of the many norms, or characteristics of state of function, necessary for "perfect" health or natural normal functioning.

The measurement of spiritual healing involves these steps:

(1) the deviation of an organic (and occasionally inorganic) process or its environment from norms of "best" or "perfect" state or function,
(2) the application of holy thought, and
(3) measurement of the return of the process to "perfect" state or function (to its norms).

The temperature norm for human beings can be determined by examination of a sufficient number of healthy people. In medical practice this is how it is determined. The actions of drugs are also cataloged. If body temperature is too high or too low a drug can be selected which acts on the body to elevate or lower temperature. The drug is not normalcy referenced. The direction of effect depends on the drug selected.

Since spiritual healing raises or lowers the body temperature of a human being (if it is not normal) according to the need, one could also find out the temperature norm by determining the point toward which temperature is drawn by the action of spiritual healing.

Thought is something which ebbs and flows in its degree of quality. Inspiration is never uniform nor can it always be produced at high levels on demand. Yet, many of our experiments are dependent on prayer and failure to achieve results in the repeatable experiment with which we are familiar would throw in question the laws inductively arrived at through past experimental observations. The assumption is that if the law is there, the effect is there. A lack of effect is a failure of law and a law which fails is no law at all.
The good results of our tests indicate a consistency of treatment sufficient to be dependable for experimental purposes. In all mental action, including the prayer which produces experimental results, there is considerable variation -- inspiration is not as simple a thing to produce on demand as is the water obtainable at the turn of a faucet. With sufficiently sensitive tests one can trace the flow of inspiration just as one can see the effect of fear, anger, embarrassment, or other emotions on the body.

In an experimental model dealing with modes of consciousness the experimental effect must be seen as an indication of response to the presence and power of the mode being observed and tested. We are not proving or disproving the mode; we are really not even monitoring its presence or absence in real terms. We are simply observing its relationship, in the relative terms of the experiment, to the test conditions.

However, if this is repeatedly done under standardized conditions with statistically uniform results, it should be possible to inductively arrive at conclusions which test, in theoretical as well as empirical terms, the deductive characteristics inherent in the model.
CHRISTIAN SCIENCE ROOTS AND SPINDRIFT'S RESEARCH

Robert Owen

Both saints and psi-using societies have tended to flourish in pre-scientific cultures, cultures unable to synthesize their knowledge into coherent logic systems and then subject those systems to equally rigorous systems of proof. Indeed, those cultures and the people they have produced have seen no reason to do so. Within modern scientific cultures, psi-using and psi-conducive communities traditionally do not develop their conceptual structures into paradigms in any scientific sense nor do they subject their operational techniques to experimental testing.

Scientific research rests on regularities of pattern in nature. Without such regularities no laws could be inferred, no equations written. The existence of such regularities and the ease with which matter and its movements may be observed have led to a powerful and cohesive science. And, where the paradigm which has been inferred with such hubris from observed facts and deduced laws has shone on those to whom any science which paradigmatically neglects consciousness is automatically suspect, saints and psi-users have retreated with little concern to the comfort of their cultural traditions, the peace of their folkways, and the homage of those who seek their knowledge and their counsel.

In modern times the Christian church has been the only major institution to run afoul of its culture, learning to steer very carefully in the vicinity of those dangerous waters where currents of belief and modern science meet. Christianity has a pre-scientific past and, to the extent that elements of that past -- including the power of prayer -- are retained in Christianity, to that extent is Christianity at odds with science. This is especially awkward since science and Christianity are both powerfully represented in Western civilization. Yet, wherever a believer bows his head in prayer for the sick, there, in the sick room, with or without the presence of materia medica, the tradition of healing ways operating outside known scientific laws survives.

The more rigorous the belief systems of non-psi-conducive cultures become the more the survival of psi-conducive elements within those cultures is threatened. Educational systems, peer relationships and systems of reward, the cultural power of the larger community, operate to water down and destroy the roots of psi knowledge and psi power, whether Christian or pagan, within that community.

Since the paradigm in power dictates the rules of the game, the only recourse for those whose use of psi (including, by definition, prayer) is to slip away into alternate cultures, to abandon adherence to Western norms, to attempt to survive in little-noticed backwaters, or, alternatively, to revolt.

In 1975 the possibility of revolt began to be explored avocationally by individuals who, vocationally, were spiritual healers, professionals who were products both of Western culture and Christian tradition. Early experimental work was highly successful and a small network of committed people was formed, a network which operated out of members' homes and which, in 1981, became incorporated as Spindrift, Inc. The story of Spindrift's challenge to the scientific paradigm of today can be explored in three parts: (1) the conceptual roots of the enterprise, (2) the conceptual position taken by Spindrift in its assault on the paradigm, and (3) the current status of the challenge.

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1This commentary was written in 1992. There have been further developments in the Christian Science church and in Spindrift's research since that time.
The experimental work which led to the formation of Spindrift had its origins in research done by Christian Science practitioners. These individuals were more the product of the teachings of Mary Baker Eddy than of the outlook of the Christian Science church today. They were individuals who believed that, less than a century after her death, Founder and followers were somewhat out of step.

Eddy’s birth on July 16, 1821 was far less noted than her death on December 3, 1910. The difference was due to her development and espousal of ideas which became greatly popular at the turn of the century. Those same ideas are little thought of today as measured by the vast decline in the fortunes of her church. However, things are not quite so simple. Spindrift’s experimental research into prayer has deep roots in the vitality of her ideas. And, the easy transition of that research from denominational to universal outlooks has much to do with the self-destructive history of her church since its founder’s death.

In somewhat simplified terms, Eddy can be thought of as developing a theory of prayer which eliminated the concept of the miraculous while retaining full belief in those biblical events which would usually be termed miracles. The practical results of this application of the logic of the mind to the faith of the heart was a non-mainstream theology and a powerful emphasis on the healing power of prayer.

For purposes of our discussion we will focus on three unique aspects of Eddy’s outlook: (1) her emphasis on the equivalence of science and Christianity, (2) her emphasis on proof, and (3) her vision of how Christian Science would be disseminated and accepted by the world. We will examine how restrictive interpretations of the first two outlooks by her church inhibited the development of and finally explicitly banned scientific evaluation of Eddy’s ideas, and how the Church’s initial benign neglect and final outright rejection of the third outlook led to Church decline, present-day departure from Eddy’s form of Church government, and the determination by the Church that the linkage of science to Christianity on aught but a theoretical level is a punishable heresy. We will then move from the denominational origins to the universal concerns of today’s experimental study of prayer, research which links science and Christianity in both practical and theoretical terms on the basis of the experimental method. And, of course, we will move from there to the present status of the paradigmatic assault.

In Eddy’s eyes the linkage of the faith of the heart to the logic of the mind equated to a unity of Christianity and science. Speaking of Science (sic) as “this awe-filled word” she wrote in 1891:

Divinely defined, Science is the atmosphere of God; humanly construed, and according to Webster, it is “knowledge, duly arranged and referred to general truths and principles on which it is founded, and from which it is derived.” I employ this awe-filled word in both a divine and human sense....The two largest words in the vocabulary of thought are “Christian” and “Science.”

True to her concept of “Science” Eddy was firm in her insistence on the practical provability of Christian theology. In the textbook of her religion she writes:

In Christian Science mere opinion is valueless. Proof is essential to a due estimate of this subject.


At the time of Eddy's death the Christian Science church was the fastest-growing denomination in America. Its leadership was sure of itself and sure of the continuing success of the church they guided. When they opened the brown paper package tied up with string and sorted through the final writings their founder had left them they arranged those writings for publication. A few things were added, a few deleted. Among the writings not published was Eddy's final statement, her last article on Christian Science, written less than three months before her death. In this powerful statement an unfamiliar warning fell strangely on their ears. The last of the five short paragraphs began as follows:

Christian Science is not a faith-cure, and unless human faith be distinguished from scientific healing, Christian Science will again be lost from the practice of religion as it was soon after the period of our great Master's scientific teaching and practice.

The omission of Eddy's final statement on Christian Science from her published writings by her church was disturbing to some officials and some years later (1917) the article was published in a church periodical and then forgotten. Greater problems were looming for the infant church in the form of a legal battle for power at the highest levels. The contested issues were resolved in the courts of Massachusetts and a bruised and bleeding church emerged as the clouds of the first World War were fading. Bitter attacks from other denominations assailed the church from without and, most powerfully of all, the open hostility of the medical community bore down upon the faithful. Another World War would come and go before a Christian Science practitioner could practice freely and charge for his or her services in every state of the union.

At no point in its history has the Christian Science church been free to practice its healing system without legal and medical hinderance. There are substantial areas of cooperation between Christian Science healing and the medical system but there are also areas where the two healing approaches are incompatible in their outlooks. As materia medica gained in strength, a strength developed and supported by an increasingly materialistic science, both science and medicine began to be viewed as "the enemy" by the church. Mindsets which had been in place from the beginning among Christian Scientists hardened into theological conviction and interpretations of the founder's teachings became codified as virtually universally accepted cornerstones of Christian Science theology. For the purposes of this discussion we shall note only the single point of theological reinterpretation germane to our line of thought:

(1) Science, "this awe-filled word", was no longer seen as employed by Eddy "in both a divine and human sense." This meant that,

(2) proofs of Eddy's theological system were necessarily confined to non-scientific, non-experimental modes, confined to the testimonial evidence arising from personal experience, and

(3) the scientific method was judged to be of use only in the realm of matter. Belief in the ability of science to evaluate the things of thought, of prayer, or any elements of human consciousness that might be considered holy, was deemed heretical. Long before church membership peaked in 1955 and began its precipitous decline, no one was permitted to serve the church in any capacity who accepted this heresy. Yet, it was not until 1983 that a Christian Science practitioner was removed from the church's list of accepted practitioners for refusing to recant his belief in the power of the scientific method in all areas of human experience. Such was the unity of the congregation of the faithful.

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If you walk into a library and search for information on the Christian Science religion (other than the writings of the founder) you will find very little. With but one exception the biographies of Eddy are a very few sugar-coated and inadequate volumes by her supporters and a few and acid-dipped volumes by her detractors.

There is a reason for this. Free access to the archives of the Christian Science church is never granted to outsiders and only very rarely to insiders. Only under considerable pressure from the academic and literary communities was a single (three volume) biography allowed to be written, and that by an individual then trusted by the church. No history of the church has ever been written, for this is expressly forbidden. Ask a Christian Science practitioner (Christian Science healer) to come and talk to a group you belong to on the subject of Christian Science or Christian Science healing and he or she must obtain special permission to do so. In all probability, an individual specially selected by the Church for the purpose will be substituted for the individual you asked for.

Almost from the time of Eddy’s death all inter-communication of the church with the outside world has been very tightly controlled. Except for an occasional book compiled by the church or commissioned by the church, no books on Christian Science are permitted. So loyal and closely-knit is the Christian Science world that no outsider can gain the background or the necessary factual information needed to write intelligently or convincingly about Christian Science or the Christian Science community. And, if they did, chances are their books would not be approved by the church. Books not approved by the church’s leadership are routinely branded as "hate literature" (as my book The Healer had been) and bookstores that carry them are routinely and quietly boycotted. Let us take a moment to examine how this condition arose, for it is closely tied to the decline of the church and to the conditions under which the experimental study of prayer has developed in recent years.

Eddy established a church without personal preaching, without missionaries, and without provision for any of the personal forms of outreach so common to Christianity and which were so powerfully stressed by the churches of her day. Her reason for this was highly unusual and embodied in a powerful conviction of her own relationship to Christianity. She believed that by placing Christianity on a basis of scientific provability the teachings of Christianity would then enter into and shape, or "leaven" the modes of thought she felt were paramount in human consciousness, namely, science, theology, and medicine. Her vision of the future was a Christianity which would be embraced by all mankind as a result of the restructuring by Christianity of the central modes of thought which shaped, served, and molded the outlooks of mankind. This, and not personal conversion in the usual sense, was her vision of the future. This was a central Christian Science teaching, stated in her textbook, reflected in the structure of her Church Manual (the basis of Christian Science church organization), and in the outlook of her followers.

Unfortunately (for Christian Science) the church’s significant partial rejection of the scientific method, its relegation of “proof” to testimonial evidence, and its suppression of freedom of thought and inquiry within the church, slammed the door on science and medicine and partially closed it on any hope of theological dialogue.

As Eddy’s concept of "leavening" science, theology, and medicine went into the rubbish heap of forgotten ideas along with robust concepts of proof and union of science and Christianity, so did her warning that the heart and soul, the fact, of Christian healing, would be lost if spiritual healing was not distinguished from the placebo effect of human faith.

The growing rubbish heap of ideas dear to the Founder but neglected or reinterpreted by her followers increasingly took its toll on the church. So also did the self-isolation of the church from the culture in which it existed. And, so did the self-suppression by the church, members and leaders alike, of freedom of thought, in a religion in which the logic of the mind sustained the faith of the heart in the
inevitable clash of Christian Science with the culture in which it existed, the loss of the best and the brightest to a Christian Science life outside the church, and the loss of the young to the easy road of cultural acclimation, was a tragic loss indeed.

In the early days of enormous church growth Eddy had commented that such rapid growth was unhealthy and, citing Scripture, had forbidden the numbering of the people. However, a complete directory of Christian Science churches and societies is published monthly in The Christian Science Journal, the official organ of the church. By 1980, a quarter-century after membership decline began, the situation was too serious to conceal much longer and one of the members of the five-person governing body of the church, the Christian Science Board of Directors, began to gather around him those who could share his vision of church renewal. In due course all important top officers, the “official family” as it is known to insiders, were sufficiently united in a common vision to wrench the church from its old moorings.

The “new directions” were implemented with a ruthlessness possible only to those who feel the distasteful work they do is a necessary evil done in the service of God to promote a greater good. Mass firings of church personnel, forced resignations, and mass excommunications were the order of the day as the church was reshaped into a totally new incarnation of the old teachings.

Provisions of the Church Manual -- Eddy’s by-laws which, in the eyes of most members, existed to preserve the identity of the church -- were often ignored or disobeyed. Step-by-step a media empire was forged, a media empire which would constitute a largely electronic church, a church presumably able to financially endure and propagate its teachings, a church able to survive when the last domino of local congregations had fallen.

Thus far (1992) there is only incipient revolt although many members are withholding financial support. No alternate plan exists in the minds of the faithful, no organized opposition has been permitted to arise, loyalty to the Directors runs deep and, perhaps most important of all, an overwhelming majority of Christian Scientists are beyond retirement age. Only the close brush of the Church with bankruptcy in the spring of 1992 and the publication by church leaders of literature deemed heretical by the rank-and-file has finally begun to make freedom of expression possible in the Church.

It was in 1975, somewhat more than a decade before these times of bewilderment and unprecedented change in the Christian Science church that a few Christian Scientists began to apply the methods of spiritual healing with which they were familiar to simple organic and inorganic systems in an experimental context. As can be surmised from the experimental approaches and the conceptual linkages established, Spindrift’s founders were guided in their experimental work by outlooks they attributed to Eddy rather than by outlooks current in the Christian Science church today. Specifically, they accepted the validity of the experimental method, they distinguished spiritual healing from faith healing or the placebo effect, and they accepted the strict concepts of proof made possible by the controlled test.

Spindrift drew supporters from both the Catholic and Protestant communities. Some of these supporters took severe penalties from their respective church bureaucracies and from fellow church members for championing the new ideas. Some fell away under pressure, others stayed on the mailing list even if they had to rent post office boxes to do so. Others were attracted by the new ideas from a standpoint entirely apart from denominational outlooks.

Spindrift’s heritage of Eddy’s teachings is reflected today in two of Spindrift’s outlooks: (1) that prayer is a healing power of considerable strength and that this strength is measurable under laboratory conditions, and (2) that the appropriate conceptual model of consciousness is dichotomous, including
both identity referenced and goal directed modes of thought. The importance of distinguishing between these two modes of thought hearkens back to Eddy’s final warning to her followers, the warning her church omitted from the Miscellany they chose to publish as her final written legacy to her followers, her writings during the closing years of her life. It may be noted, however, that the concept of the power of prayer is basic to Christianity as well as to Eddy’s outlook, and that the dichotomy of consciousness in a good/evil context has always been a part of Christian teaching and experience.

By the time Spindrift was formed in 1981, the researchers had already known their books to be thrown away, ripped apart, and even burned by individuals of varying religious backgrounds who were unhappy with their contents. A Spindrift member had already come across a Protestant congregation which was collectively “praying against the tests.” It had already been noted by some that tests which measured an ability to pray could also indirectly measure the devotional systems which teach people to pray, just as measuring groups of students from differing schools casts light on the schools which train those pupils. The implied ability to issue report cards on the churches was threatening. In his maiden report to Spindrift’s initial Board of Directors Spindrift’s first president addressed this issue in these words:

Spindrift’s research program is totally dependent on the qualitative thought that produces spiritual healing. Spindrift thus has an interest in how this capacity is developed and where it can be found.

Spindrift, as a totally independent research organization, holds itself apart not only from organizational but from interpretive approaches to the nature and development of spiritual healing. Therefore, Spindrift’s approach to the question of how qualitative thought can be developed and applied to spiritual healing and where this developed ability can be found is limited to the development of statistical profiles.

This ancillary testing is not related to the normalcy referenced test nor to the identity field but simply provides background data on the existence and development of spiritual healing in our own and other cultures.

From the beginning, Spindrift has chosen to define itself not only in non-denominational terms but in non-religious terms as well. Although its commitment is to the study of prayer and spiritual healing and its interest is in these areas, its defined commitment is to the scientific method, the means Spindrift has chosen through which to evaluate their areas of interest. This commitment is frequently expressed in Spindrift’s publications in the following words:

Spindrift’s research is linked to no denominational outlook. Our definition of prayer is expressed in terms of particular mathematical signatures found as responses to specific experimental configurations. Thus, Spindrift has nothing to say about the particular religious or meditative approaches which produce the ability to pray.

We believe that our experimental work is value free, extending far beyond denominational concerns to universal Christian outlooks. Thus, Spindrift has no denominational commitments although we recognize the democratic right of any and all to interpret our experimental findings in terms of any belief system, denominational or otherwise, the individual sees fit. We welcome such interpretation by any and all while recognizing that such interpretation has no bearing on our experimental work or our organizational outlook.

The experimental method is not paradigm but process, a process which can be used to develop and defend any paradigm which is logically consistent with experimental findings. The primary
conceptual question was: Is the mental universe possessed of the same regularities as the world of matter and material energy? The primary experimental question was: Is there a mode of consciousness which is capable of producing measurable effect on a repeatable basis under laboratory conditions?

Within the Christian tradition healing power is equated with holiness; holiness is defined theologically in terms of the attributes of God, in terms of the qualities expressed in such standard reference points as the Ten Commandments and the Sermon on the Mount. Thus it was that the healing power was initially referred to as "qualitative thought". Such a mental modality (the power which produces spiritual healing) is different in kind from the volitional/intentional mode of consciousness studied in psychology and parapsychology. It should not be surprising, then, that the testimonial literature of spiritual healing differs in marked ways from the literature of the parapsychological journals.

The central finding of parapsychology according to some is the existence of experimenter effect. White⁵ speaks of it as "our most important finding... perhaps our only finding" (emphasis hers). Experimenter effect may be defined as the ability of those associated with tests of psi to influence those tests, often in unpredictable ways. The central fact of spiritual healing is the ability of thought to move a system toward its norms, toward those points of state and function which represent the "best" or "most perfect" condition of the system. Experimenter effect, like the placebo effect, or like strong emotion or faith, moves a system in the direction of belief. Measurements of volitional/intentional thought are made in relationship to one another (or to controls), the condition of the system which is the measurement vehicle at point A (before mental action) to the condition of the system at point B (after mental action).

Measurements of the effect of spiritual healing are made in reference to pattern. Measurement A is assessed in terms of its deviation from pattern, measurement B is likewise so assessed. Success of the test is gauged in terms of the amount of movement toward pattern by measurement B as compared to measurement A. Since spiritual healing moves a system toward its norms or points of greatest good, most perfect operation, "goodness" so defined acquires a quantitative as well as a qualitative dimension. Goodness becomes the moral equivalent of order and evil becomes the moral equivalent of disorder. Thus a goodness/order and evil/disorder correspondence of terms is established, a correspondence which ceases to be tautological to the extent it lends itself to experimental evaluation of the linkage between theologically good mental states and measurable orderly system states.

Such modest theoretical beginnings already indicate a vast departure from previous parapsychological approaches to experimental work. The postulation of a dichotomy of consciousness (identity or pattern related modes of consciousness and volitional/intentional modes of consciousness) sets up a framework wherein modes of spiritual healing can be distinguished from modes of mental healing which, in some ways, simulate spiritual healing, as, for instance, when faith, emotion, suggestion, belief, will, and so on, move a system in a direction which corresponds with the norms of the system. A pattern related mode of consciousness is distinguished from the mode of consciousness which produces experimenter effect just as the intrinsic action of a drug is distinguished (by the double blind test) from the power of thought which produces the placebo effect.

Before testing these conceptions in the laboratory it was necessary to apply more strict conditions to mental input than are common in conventional parapsychological testing. Four functions (presently assumed, with some experimental verification, to be simple ratios) were postulated to exist.

⁵WHITE, RHEA A. (1990). An Experience-Centered Approach to Parapsychology. Exceptional Human Experience, Volume 8, Numbers 1/2, 7-36
Measurable effect (E) of qualitative thought (the identity referenced or pattern related mode of consciousness) was assumed to be proportional to quality of thought (Q) (the ability of the healer or practitioner to produce an effect), quantity of thought (q) (the amount of thought associationally related to the measurement vehicle or target system by the practitioner), strength of associational linkage (a) (the clarity with which the practitioner can relate to the target system), and to the extent of deviation of a system from its norms (r) (the structure of the measurement grid against which the measurements of mental effect are taken).

With "k" as the appropriate constant the four ratios may be expressed as $E = kQ$, $E = kq$, $E = ka$, and $E = kr$. Measurement of the strength of either Q, q, a, or r requires that values of the other three variables be held steady.

Germinating seeds proved to be an ideal vehicle for early tests of the four ratios and for exploration of the viability of qualitative thought as a dependable laboratory vehicle. It was found that the easiest seeds to work with were large seeds, seeds in which degree of germination could be assessed by visual examination of each seed. Small seeds (such as rye grass) were less usable since germination stages could not be so easily assessed. Soybeans quickly became a favored vehicle.

Simple tests with seeds rely on increase in weight or increase in germination rate of the seeds as a substitute for the more difficult evaluation of either a single norm or a network of norms. Working with seeds as a measurement vehicle is a time-consuming and patience-requiring process. Thus the demonstration of the validity of the basic conceptual approach using seeds as a measurement vehicle required a period of a decade or so to establish. Some additional years were spent developing tests using the carbon dioxide production of yeast cells as a measurement vehicle and some time was spent developing tests based on electronic random event generation. Through these tests the basic conceptual approach was refined and extended. In the years from 1987 to the present time, 1992, the VIUR (Visual Image, Unconscious Response) test was developed. On this test, a test dependent on unconscious mental processes rather than on conscious prayer, Spindrift is pinning its present hopes for the acceptance of its research.
PLACEBOS AND PATTERNING POWER

Samantha Fairfax

A century ago any kind of healer could hang out a shingle. Whatever seemed to bring results was called a pill. The first Coca Cola was sold as medicine.

Eventually people suspected that pills sometimes worked just because patients had faith in them. Researchers began giving some people pills (active chemicals) and other people placebos (sugar pellets) and carefully recording the effects of each. This method, called the double blind test (neither patient nor researcher knows which is which), soon began to show that persuasion power could mimic the effect of pills. It had to be eliminated if you wanted pill-power alone.

But suppose you feel that healing must involve mental power (as spiritual healers, holistic practitioners, and even traditional doctors increasingly do). How can you distinguish a genuinely healing mental power from plain old faith in that power (the placebo effect)? As researchers have found, the double blind test isn't always blind enough. Belief still slips through. If it's an iffy task to distinguish a mental belief from a physical pill, it's even trickier to distinguish mental belief from mental healing power. You just can't put genuine prayer into one set of pellets and belief/faithe in another. You have to find another way to separate the two mental strains. And you have to do it in a way that gives data you can put in a computer and examine in graphs and tables.

It isn't as if people haven't tried, but it's just a tough nut to crack. Only once in a while does someone come along and make yet another try. One such try, a new study published in the Journal of Subtle Energies, provides evidence that an individual's desire to help and heal, apart from pills or suggestion, does speed healing.

The study, by Daniel Wirth of Healing Sciences International, builds on the work of a small handful of researchers who have studied a non-religious laying on of hands called therapeutic touch (or, more recently, non-therapeutic touch since physical contact isn't needed). These studies have shown that pain has been relieved and serum hemoglobin has been elevated in humans treated by a healer who wants to help. But in humans this could always be attributed to the patient's own expectation of healing. This study has tried to rule out this effect.

A piece of tissue was cut from the arms of forty-four healthy males, randomly divided into two groups. The doctor and all the volunteers were told that the purpose of the test was to "monitor bioelectrically" the healing process -- something that they wouldn't hear, see, or feel. One at a time they went into an isolated room and put their arms through a sleeve that opened into a second room. Then a therapeutic touch healer began the five minute healing session. This went on for sixteen days. The control group did the same, though no healer was in the room.

Now the idea of forty-four healthy young men sticking their arms through a hole in the wall under false pretenses may sound more like a joke than a serious study of healing. But bear with us. This kept them blind to the fact that they were part of a study of healing, so they couldn't expect to be healed. And it resulted in data you could put into a computer. You could read it in charts and tables.

By the eighth day the wounds of the treated group were, on average, ten times smaller than those not treated. Thirteen of the twenty-three subjects in the treated group were completely healed by the sixteenth day, but none in the non-treated group were healed by this time. Some who have read this study have said that the results are astonishing and that they have widespread implications.
But has it given evidence of mental healing that is wholly free from the placebo-effect? The researchers who conducted it assumed it did. They assumed that only the patient produces a placebo effect -- that his beliefs affect his body through his nervous system. So they thought that eliminating the patient’s belief had eliminated the placebo effect.

But suppose that the placebo effect is actually much broader than conventionally thought. Is it not possible that the healer himself can produce a more broadly defined placebo effect? Is it not possible that he has expectations that his healing power will work? In that case it would be necessary for a researcher to distinguish in the healer’s own thought that which heals/restores identity from that which simply believes in his own healing power.

Such a concept may not square with assumptions common today. But how well do those assumptions explain the healing effect in the Wirth study in the first place? They tell us to believe that mental power -- thought by mainline scientists to be the flimsy byproduct of the brain -- is able to mend tissue in another person without that person’s knowledge. We’re supposed to believe this involves an energy too subtle to be detected.

This sounds like the kind of problem science has run into before, for which it’s invented some ingenious answers! People once thought light and gravity flowed through an “ether” too subtle to be detected. But ether was never found. Instead, all the ideas of geometrical space and time had to be given up. A new view of the world as woven of invisible lines of force had to be accepted.

Perhaps another set of assumptions is needed to correctly identify non-placebo healing. What if we go a step farther and assume that, at an even deeper level, the world is woven of mental forces? Then the healing effect doesn’t have to be explained as an undetectable energy. It would result from changes taking place in a mental field -- changes from disorder to order, to restoration of pattern or health.

In fact there’s a description of just such a mental field given in the literature of those with an extensive record of healing -- early Christians. Jesus spoke of a “kingdom,” “within you.” His healing works illustrated that the order of this kingdom wasn’t just an idyllic afterlife. It was actually available in human experience to bring health. On the other hand the Apostle Paul spoke of the “carnal mind” (characteristics such as hate, fear, and will) as “enmity against God” -- as that in human experience which works against order. These are two opposite mental characteristics: the “mind of Christ,” as illustrated by Jesus on the one hand and fleshly propensities on the other. One orders, the other disorders.

The studies we’ve just mentioned indicate that there is an ordering capacity, a power to heal, available to human consciousness. But even everyday observation indicates that human consciousness probably doesn’t always produce order. Much of the time it isn’t even aware of what it includes. In the unconscious are elements opposed to order because they’re contrary to the goodness with which order can be provisionally linked.

Chief among those elements is will. Even the attitude of medical researchers implies that belief is undesirable. They try to eliminate its effects even though they may look like healing. We too assume that belief is undesirable, that because it is driven by will, it is opposed to order.

If we regard healing as taking place within a field of mental forces, then we’d need to be sure that the disordering force, wherever it is found, is separated from the healing, ordering force. When the patient believes in the power of the treatment, his will pushes his system. When the healer believes in the power of his treatment, his will too pushes the system of the patient. The force of will must be eliminated not only from the patient’s thought but also from the healer’s thought if non-placebo healing,
the ordering power, is to be found.

In short, then, we define the placebo effect in a much broader sense than medical researchers do. We define it as will pushing a system in the direction of belief, wherever this occurs. Whatever part of the healer’s thought is governed by will, by faith in his own ability, is the sugar and fizz of placebo-power, not patterning power. Unless a study eliminates this mental strain, it hasn’t truly separated suggestion from healing power.

How then can we distinguish an ordering, healing power from this more broadly defined placebo effect? First, we don’t work with humans but with simple organisms. This rules out the patient’s expectations.

Second, the design of the study must permit that aspect of healing power that does not result from will to appear. It’s sometimes assumed that you can study healing by starting with healthy organisms -- that faster growth is a sign of healing power. But we believe this is very often evidence of the very force we’re trying to eliminate. The healing power we’re looking for is the one that moves the body toward its norms rather than one that pushes it away from those norms. An ordering power would promote the state that best represents identity, and that state is normality. Ordering power could be seen only in the return of stressed or "ill" organisms to normal. Our studies are designed to observe this effect.

Now it’s true that physical health may appear improved when there is no spiritual regeneration because the healer’s own will or faith has produced the effect. That’s exactly why we must minimize this possibility in order to identify a patterning power. We’ve already eliminated the patient’s expectations by working with simple organisms. Now we need to eliminate the healer’s expectations as well.

We know that will (in patient, observer, or healer) can simulate any physical pill or mental therapy. But it can only produce an effect it can first visualize. So the third element necessary in studying non-placebo healing is a design that doesn’t establish a single visualizable goal. Our studies provide conditions where healing draws an organism to wholeness from different directions. For example, we oversoaked one group of soybeans and undersoaked another, then selected control and treated groups from both. We gave healing treatment to both sets of beans at the same time. The treated oversoaked beans gave off more water than control and the treated undersoaked beans retained more water than control. The same prayer, applied to the two groups as a whole, had different effects. It met the different needs of each set of beans. This, we feel, is evidence of a benign pattern-mending power available to human thought. And it acted independently of the goal-enacting capacities of the human mind.

Now a single isolated example of such healing may not prove the existence of reliable spiritual healing power. For example, one healer in a previous study moved enzymes in a test tube in different directions, each of which would have produced health had the enzyme been in a body. This was the patterning effect (available to everyone in some degree). But he wasn’t able to repeat this, indicating that the patterning power was for him elusive.

We believe, however, that the patterning power is not elusive to those who have developed the ability to embrace in thought and in living the spiritually minded mental state involved. This includes the ability to put off human will. While developing spiritual healing ability involves considerable discipline and sellessness, it can certainly be done. Thus it should be possible to repeatably demonstrate the patterning power.

Not only can patterning power be reliably demonstrated, but it’s also possible to determine quite
closely how much an individual is imbued with that patterning power, and how much will and faith are responsible for the effects. In this way individuals can develop the ability to increasingly manifest non-placebo healing. As we’ve said, patterning power returns an organism under stress to well being under conditions in which will is unlikely to act. But will moves an organism already at its normal state in an extra-normal direction. We can see both these mental strains in the way an organism responds to the healer’s treatment as it moves into and out of a period of stress.

Yeast may sound like an even less likely patient than wounded arms. But it obligingly shows its departure from its norms by producing gas, which we can measure. We took yeast in a certain window of freshness (active but not quite fresh) and fed it with a sugar solution. (Feeding makes yeast produce gas. It also put the yeast under stress.) We divided the sugar-yeast solution into control and treated containers, which we put on a measuring device. We gave one container treatment for forty minutes. (We also made an entirely control run: two untreated containers, placed on the measuring apparatus. This was so we could distinguish the difference between control and treated container in our active run from the random effects that might occur between two untreated groups of yeast.)

During the stress period (the first twenty minutes when most of the gas was produced, as we’d previously found) the treated yeast acted quite differently from the control. It conformed to the norms of a fresner, healthier yeast. Again, this effect did not involve a visualizable goal -- more gas or less gas production. Instead there was movement toward the norms of fresher yeast (whatever direction these took), toward a restoration of pattern. Since will can’t produce such an effect, it was evidence of the patterning power.

Then after the stress had ended, the yeast was at its usual norms. Any difference between the control and treated containers would not be patterning power, but placebo-power -- the healer’s will enforcing faith in his own treatment.

As individuals become aware of both the faith and the patterning power in their thoughts, and how to distinguish between them, they will be able to consistently heal under conditions where will couldn’t operate (and of course under everyday conditions too).

We’ve found even more basic evidence of the patterning power indicated in the Wirth study in studies known as the VIUR (Visual Image, Unconscious Response) Tests. These observe the effect of human thought on what seem to be random sequences.

Randomness might seem to be the last place to study healing. But what if apparent randomness actually turns out to be something other than it seems? What if it’s actually two powers: one that works for order and one that contradicts this order? We’d then know that order (the patterning power also seen in healing) is absolutely foundational. We’d see that the chanciness of material law could be lessened as the disordering force was exposed and subdued. We’d be able to bring more order into every area of living, including healing.

We started with the fact that holy thought enhances pattern in living things. We’d also seen that it ordered certain random sequences. So we designed a study simple enough for anyone to do. You can try it, and see for yourself if our findings are true.

The specific randomness we examine is the random sequence into which two pictorial images fall after they have been shuffled. We felt that the patterning power in human thought (in this case in unconscious thought) would bring more order to such a sequence than predicted.

A lot of somewhat similar card-calling studies have been done in the past at Duke University. People were looking for evidence of ESP by guessing images on cards. (They didn’t find much of it or
Placebos and Patterning Power

find it consistently.) We used this method for a different purpose: to study the ordering, patterning power available to human thought. We thought that random sequences made by a human being (by someone shuffling cards) might have greater order than expected.

We asked participants to select two pictures that they related to (one positively, one negatively). Each image was photocopied twelve times and placed in an opaque sealed envelope. The image in the envelope was noted lightly on the back in pencil. Then a participant shuffled the twenty-four envelopes and ran through them one at a time, guessing which image was in each envelope in turn and recording the guesses. He or she turned over the stack and ran through it again, noting which images were actually in the envelope.

We looked at several kinds of order in the results from thousands of trials by about a dozen people. First we looked at the physical order in which the images fell after they were shuffled. We found something unusual. The images fell in a pattern that was not entirely random. The most orderly pattern that could occur in the falls of the images would be the consistent alternation of image A with image B. Certainly this did not occur throughout the sequence, but it did occur more of the time than expected.

Then we looked at the mental order. The second unusual finding was that this mental order -- the order in which the correct and incorrect guesses followed one another -- was significantly above that which is expected.

It is true that the way the hits and misses of both images, considered together, succeeded each other appeared random. But our underlying assumptions led us to look at the data in a new way. We assumed that the hits and misses of each image considered separately, were a pattern and would respond to the patterning power. So we looked at the sequence of hits and misses for image A and then the sequence of hits and misses for image B. We found that neither was a random sequence. The most orderly pattern that could occur in the hits and misses would be the constant alternation of a hit with a miss. Certainly this did not occur throughout the sequence, but it did occur more of the time than expected.

The original sequence of images A and B combined appeared random. But the sequences of image A and image B separated were significantly more orderly than expected. How could this be? It appears that what looks like chance is really two interacting forces, one that acts and another that reacts. There is a power that orders the individual sequences. Then there's also a power that obscures this. It makes the combined sequences look ordinary. For instance, it counters hits of one image with misses of the other so that the sequence of combined correct calls of images looks random.

Tiny as these effects in a simple shuffled sequence may seem, they may be the tip of an enormous iceberg. They could point to the fact that the world isn't put together in the way it looks to the ordinary senses. Perhaps the whole structure of material law -- with its apparent chance, accident and illness -- isn't what it seems. The patterning power may actually be fundamental to all experience. The more we can understand this power and force that would oppose it, the more we can move toward building a new structure of law -- law that is consistent, orderly, and good. The more we can experience real healing.

We want arms to mend, hearts to heal, people to be whole. But we think that wholeness is found through a genuine patterning power, and not its simulations. We want to eliminate the placebo-power in its fullest sense. It's time to move beyond pills and placebos, beyond the soda-water of belief and faith to find authentic healing, the creative patterning power.
SPINDRIFT: AN INTRODUCTION TO OUR WORK

A Talk Prepared by Spindrift, Inc.

Spindrift, Inc. is an organization which studies spiritual healing using the experimental method. More specifically, we study the relationship between prayer and healing. Before I go any farther let me tell you: we have been tremendously successful. The verdict is in and it's a resounding vote for Christianity, for prayer, for God and His Christ.

What I have to say breaks down into four parts: (1) where we began, (2) who we are, (3) how we did it, and (4) what we've discovered. Time is short to say all that and I'll plunge right in.

When our researchers began their work in 1975 there were virtually no studies of prayer and healing out there at all. Research in this field was a barren wasteland. Science has traditionally investigated matter in all its forms but it has never investigated thought. Some say it's because they don't know how but a more accurate assessment is that they don't see any reason to do it. Any scientist today who believes that thought in any form is a true power in the world is at odds with the definition of power and reality held by the scientific establishment.

Frankly, this outlook has made it very hard going for Spindrift. First of all, it means that there is no funding available for what we do. Second, it means that we can't attract scientific talent to help us. Anyone who would work in our area would be considered an oddball, someone at odds with the establishment. And, since every scientist needs funding and since funding depends on reputation and reputation depends on keeping on good terms with your peers, no reputable scientist is going to risk his or her reputation studying prayer and healing.

The third thing the scientific outlook meant for our work was that there is no point of entry into the scientific world for our research. Research does not officially exist within the scientific community until it has been peer reviewed and published in a refereed journal. Since there are no journals devoted to the kind of work we do there is no point of entry for us. Officially, we don't exist.

In the last twenty years or so there has been a little research interest in prayer and healing. A few medical people have been interested. A little bit, a very little bit, has been done in this area. But, what has been done is only nibbling at the edges. Why hasn't there been some progress? Basically, it's because the medical community hasn't figured out how to deal with the placebo effect.

For about fifty years now medical researchers have been using the double blind test to distinguish between the intrinsic power of drugs and the placebo effect. It's possible to get some idea of the difference between what a pill does and what our own mind does. The trouble is, medical research has not yet come up with a way to distinguish between what one part of our mind does and what another part of our mind does at the same time. It's been a question of how to tell the difference between the effect of prayer and the effect of our own placebo kind of faith in our prayer, the effect of our expectations, the effect of suggestion and of human faith in whatever it is we're doing.

The parapsychological community has made more studies than anybody, studies of what they call "psychic healing." Parapsychologists have an interest in the effects of thought on the world around us and they have looked into thought and healing but not from a religious standpoint. And, they haven't done much. A few one shot studies every so often and that's it.
Given the kind of world it is out there, how has Spindrift survived without funding and without technical help and with no place to publish? We have done it by: (1) running up debt, (2) doing only very simple tests with very simple equipment, (3) keeping our methodology very simple, (4) keeping our mathematical evaluations very simple, and (5) running mostly on volunteer labor.

All of this is to say that we have worked in an experimental area which had no research history, no funding sources, no expertise available for the work, and no theoretical landmarks from which to orient the work. That’s where we began.

Spindrift’s actual research began in the Christian Science world. The experimental work was begun by Christian Science practitioners. However, they sought to ground their work in the universal outlook of the scientific method and relate their activities to concepts of prayer and healing common to all Christians. Inevitably, perhaps, they were declared heretical by their church and, when Spindrift was established, it was established as a non-denominational organization with ties to no one and with no commitment other than to the experimental study of prayer and healing. This, in a nutshell, is our history and our identity. This is who we are.

Now to move on to how we did it. We had to solve some conceptual problems in order to set up our research and the way we solved them has had a lot to do with how and why we set up our research the way we did. Specifically, we had to define prayer and healing in ways that were amenable to the scientific method and we had to solve the problem of the placebo effect.

Defining prayer in terms that could be studied by the scientific method meant that we had to think of God’s response to prayer as universal and impartial, we had to think of God’s grace in terms of law rather than of selective response. There was no way around this. Science is set up to study consistency of pattern in the material universe. It has no means or methods to study the miraculous, the impossible, or the changeable effects of an inconsistent cause.

We also had to define prayer in terms that were understandable within the Christian community. Prayer is like ice cream. The basic product comes in a variety of flavors. Many Christian traditions have their own particular emphasis. We chose to study the ice cream and not the individual flavors. And, we had to study the ice cream in terms of its own particular makeup, God’s power and grace, and not in terms of our human faith in what the ice cream may or may not do for us. That is, we had to find a way to do for prayer what medical research had done for drugs. We had to separate the power and grace of God from the placebo effect of human faith.

The way we solved these problems was to measure in reference to pattern. We knew that prayer, the love of God, was supportive of identity, that it sustained and blessed and developed the identity of everything on which it rested. In measurement terms this meant that God’s love and our prayers were supportive of the pattern of every identity, that we were dealing with a pattern mending effect. And, since we were dealing with a pattern mending effect we measured with reference to pattern.

In terms of experimental methodology this means that instead of measuring the state of a system before prayer and after prayer we measured how close a system was to pattern before prayer and after prayer. We measured to see if there was a pattern mending effect in evidence.

Essentially, we postulated two forms of consciousness, a pattern referenced form of thought and the usual volitional/intentional form of thought. Since the essence of prayer was the pattern referenced form of thought and since human faith was the familiar volitional/intentional form of thought we could set up tests which, by the way we set them up, differentiated between the two forms of thought. Thus we had the equivalent of the double blind test for drugs, we had tests which could distinguish between the power of prayer and the placebo effect. Basically, that’s how we did it. To
illustrate these ideas I'll move on into what we discovered.

Measurement in reference to pattern can be illustrated in very simple ways. For example, suppose over-soaked soybeans and under-soaked soybeans are prayed for at the same time. The same prayer will cause the over-soaked soybeans to lose more water than control and will cause the under-soaked soybeans to retain more water than control. The same prayer will have different effects on the over-soaked and the under-soaked soybeans. On the other hand, the belief/faith which underlies the placebo effect is goal directed and will move the soybeans in the direction of belief.

Now then, we have a way of coping with the placebo effect and a way of defining healing. We can define healing as movement toward pattern, toward the measurable state which defines the optimal condition of form and function for an individual. But what about prayer? How do we define that?

Actually, we fudged this question a little. Let me tell you how we fudged it and then I'll tell you what underlies the fudge factor. Since we could prove with our tests that there are two kinds of thought, a patterning and identity supporting kind of thought and a pattern indifferent volitional/intentional kind of thought we defined prayer as that state of mind which was supportive of identity. If a person could direct the patterning kind of thought toward person, place, or thing -- toward soybeans for example -- then that person could pray effectively. That was our definition.

As you see, we were result oriented. If a person could produce the patterning effect, that person was useful in our research. Our researchers are people who can get those kind of results. So, we fudged it a little. We said that prayer was a state of mind that produced certain results. That way we got out of saying just what that state of mind was.

Why did we dodge the issue? Three reasons. The first reason was that we had a non-controversial way of selecting researchers who, by definition, were capable of effective prayer. The second reason was that our definition was not only non-controversial, it rested on universal characteristics. In other words, it was non-denominational. The third reason was that our objective was to demonstrate that prayer was a healing power and to gain some idea of just how this power worked to produce healing. Linking prayer to results was something we could do now. Linking prayer to theology is something that's further down the road than we are at the moment.

Our fudge factor is that fact that we have put an operative definition of prayer in place instead of a conceptual definition. In different words, we have used a working definition instead of a theological one. This is a strategy that is working very well in getting our research off the ground and it's a strategy which is producing powerful results experimentally. However, I said I'd tell you what's behind the fudge factor and I will.

In telling you what lies behind the ability to get results I'm relying on non-scientific evidence. I'm relying on what we have observed so far. The emphasis is on observed as distinguished from proved. We use the fudge factor to separate what we've observed and proved from what we've observed but not proved.

So far as we can tell thus far the kind of consciousness that gets results is the consciousness which embodies the qualities or attributes of God. We call this kind of prayer "holy prayer" or "holy thought." Holy prayer is prayer which embodies the qualities found in the Ten Commandments and the Sermon on the Mount, the qualities which Christian tradition and teaching have always considered as holy. This kind of prayer seems to get results no matter what formulation it is expressed in. Prayer is of the heart no matter what kind of language the mind uses to express it. That seems to be the bottom line. If it is in your heart to think of a soybean, a yeast cell, or a human being in terms of the qualities of God you are going to have a spiritualizing effect, a healing effect, on that soybean, that yeast cell,
or that human being.

How does a person develop a God-inspired consciousness, a state of mind that is holy and close to God? This is where salvation, redemption, the way of the cross, the search for God, comes in. Spindrift leaves questions such as those to the churches. We only measure the results of qualitative thinking. We don’t presume to be theologians and tell you the best way to pursue the goal.

The fact that holy thought is supportive of identity means that we can -- at least to some extent -- model ethical questions, including environmental questions, in the laboratory and get answers to those questions. We’ve actually done very little of that but I’ll give you one example.

Scientists have developed new species of plants but only one new genus, the plant called triticale. Triticale was heralded as a great breakthrough some years ago when it was created but the promise has yet to pay off. Triticale is a cross between wheat and rye and was created to blend the nutrition of wheat with the hardiness of the rye plant. We wondered if this creation of a new genus was ethically correct and decided to test the question in the laboratory.

We set up tests in which holy prayer was given to wheat seeds and triticale seeds at the same time and to rye seeds and to triticale seeds at the same time. All of the seeds were in a growth-retarding environment so that the effect of spiritualized thought on them would be to increase seed growth if holy thought was supportive of all the identities involved.

On the other hand, if holy thought was not supportive of the triticale identity and was only supportive of the wheat and rye identities, then we would know that the moral and spiritual side of the universe disapproved of this new genetic creation.

Our tests came up with a resounding “no” to triticale. Growth of the prayed-for wheat and rye seeds was enhanced by holy thought as compared to control seeds. Growth of the prayed-for triticale seeds was inhibited by holy thought as compared to control seeds.

We have often been asked why we work with seeds and other simple organic and inorganic systems rather than with people. There are three reasons for this. One big reason is that we don’t have the money and the expertise to work with systems as complex as human beings. Another reason is that people think and seeds don’t. That means there are less mental variables to worry about when you’re running tests. The third reason is that we’re not prepared to deal with the ethical questions that arise from using human beings as subjects of experimental tests. Some day all of these objections will be considered and resolved as best they may be but they are matters that are beyond Spindrift at the present time.

What we do in every experimental test involving prayer is to increase, through prayer, the amount of spiritual consciousness associated with a system and then measure the amount by which that system draws closer to its inherent pattern. The fact that there is a form of consciousness which alters every system it touches for the better is something for which modern science has no explanation. It is also something which modern science finds very difficult to believe.

Consider the fork beside your plate when you sit down to eat. Your fork is a totally neutral tool. It will put into your mouth whatever food your mind and hand use it for. Consider now the scientific method. The scientific method is also a totally neutral tool. It will give us information about whatever our minds choose to measure and observe. It can as easily be used to evaluate thought as it is used to evaluate matter.
Spindrift: An Introduction to our Work

The fact is that scientists, not science, have chosen to use the scientific method to construct a materialistic philosophy. Having done this they then proclaim that science is opposed to Christianity. The fact is, that if they had used the scientific method to observe thought as well as matter they would have constructed a non-materialistic philosophy which would have been supportive of Christianity.

A patterning mode of consciousness is supportive of identity. It is, therefore, by definition a loving form of consciousness. A patterning form of consciousness must also be aware of an enormous amount of information. It must know the pattern it is mending, every detail of it, and it must know the detail of the environmental surroundings in which that pattern exists. It must also know how to modify that pattern and its surroundings in ways necessary to achieve its loving purpose. Such a patterning form of consciousness is therefore, and by definition, wise as well as good. This leads us back to the attributes of the Creator, to the nature and the will of God.

Now we come to a very interesting question to consider. If patterns are so sensitive to thought, why don’t we see the effects of our thoughts all around us? Why hasn’t science stumbled on this before even if it wasn’t expecting it?

We investigated this question and we did it in a rather unusual way. We used the card calling methodology introduced into parapsychological research by the Rhines back in the 1930’s. We realized, as they perhaps did not, that the shuffling of cards and the guessing of what cards are in a pile was an activity that formed very simple patterns. For most of our tests of this kind we didn’t use cards. We used envelopes with pictures in them and for the most part we worked with just two pictures.

We called these tests VIUR tests. VIUR is an acronym for “Visual Image, Unconscious Response.” This is a test you can do yourself if you want to. A participant selects two pictures, usually one they like and one they don’t like. Twelve black-and-white photocopies of each picture are made and each picture is put in an envelope. Thus you have a deck of 24 envelopes with pictures in them, envelopes which you shuffle and then guess what the pictures are in each envelope, one-by-one.

It sounds simple and it is. But, every time the deck is shuffled it must be shuffled six or seven times and the mathematical analysis of the order of your shuffled envelopes and the order of your calls is rather complex. If you want to try this test, write us for instructions.

The important thing is that when only two images are used binary sequences are formed. Binary sequences are very simple patterns. They are the simplest patterns we could think of and that’s why we used this kind of an experimental approach. We wanted to see if the effect of human beings on the shuffling of images and the calling of images modified the very simple patterns that were formed. After all, human beings, at least many human beings, have qualities of thought which are kind and good. We’re all a mixture of qualities from a human standpoint, God-touched and frail, but there is good in us and we wanted to see if we could find evidence of it in the simplest patterns of the world.

We did find evidence of the patterning effect. We also found that, when there is not a specific power of prayer trying to break through, as in our tests with seeds and yeast and other systems, there is also a mental force which is hard at work covering up the evidence of the patterning power.

This is a remarkable finding. It ties in with the defense mechanisms found by psychologists, defense mechanisms which keep us from a knowledge of ourselves. This is a finding which also echoes Saint Paul’s remarks about a “carnal mind” which is “enmity against God.” If we want to go a more anthropomorphic route we can think in terms of a physical devil, but we must keep in mind that we are dealing here with mental action and reaction. However, that’s nothing new. Good and evil have always found their homes in the minds of each of us.
Well, I've told you a very little bit about where we began, who we are, how we did what we did, and what we've discovered. Rather than trying to cover more ground by my just talking, let's go to questions and answers. It's a wonderful new field of discovery and, quite frankly, I'm as interested in what you think of it as, hopefully, you have been interested in the new ideas.
THE WORLD OF THOUGHT:
ITS FOUR RATIOS, AS SEEN IN TESTS WITH GERMINATING SEEDS

Samantha Fairfax

How do we conceive of thought? We shake our fist, eat an ice cream cone, kiss a baby because we first form the intention to do so. Don’t we usually think of thought as mental will? That’s the way it’s generally viewed: as volitional or intentional. So naturally parapsychologists, who study the action of thought unmediated by anything physical, see it that way too. They see it as pushing in the direction mapped out by will.

But at Spindrift, as spiritual healers, we think of that specific form of thought which is prayer in another way. We see it as working in whatever way supports the identity of an individual. Rather than moving toward one specific end, it upholds those norms that enhance the individual. There are many norms in any organic system. These make up a pattern, which is the visible dimension of identity. Prayer maintains the order or pattern which best characterizes well-being for that individual. If temperature is too high, prayer reduces it. If temperature is too low, prayer elevates it. We call this form of thought the patterning power.

We acknowledge the presence of volitional thought too, however. We see it as working toward its own ends, as pushing toward an object of faith or mental image created by belief. It remains indifferent to order or identity. It is at odds with the patterning power. This means that two different strains of thought are always interacting. In other words, it’s our assumption that the world of thought is actually a kind of mental “field.”

This assumption flows from the description of what might be called a mental field implied in the Christian tradition. Jesus spoke of a "kingdom," “within you.” His healing works illustrated that the order of this kingdom wasn’t just an idyllic afterlife but was available in human experience to bring harmony. On the other hand, the Apostle Paul spoke of the "carnal mind" (characteristics such as hate, fear, and will) as "enmity against God"—as that in human experience which works against order. These are two opposite mental characteristics: the "mind of Christ," as illustrated by Jesus on the one hand and fleshly propensities on the other. One orders; the other disorders. It’s these two strains of thought that we call patterning power on the one hand and volitional/intentional thought on the other hand.

At one time the concept of such a mental field would have been totally alien to the views put forth by science. Several centuries ago Newton thought the world worked like a great machine with forces acting across space in some unknown manner. When an apple fell to the ground, it was thought to be pulled by gravity located in some mysterious way in the center of the earth.

But toward the end of the last century that view was replaced by the concept that the world is a field of force. Electricity and magnetism were seen as variables of a single field— that field we see when we put a magnet under iron shavings. Einstein went even farther, explaining time, space, matter, and energy as a single field. He saw the entire world as spun on the loom of a force field.

Yet even that field, though far less concrete than the discarded mechanical view of the world, had no place for something every individual knows exists: consciousness. Where in the world is a place for thought? Our assumption is that at its deepest level, the whole world is a field of thought. Thought—the qualitative patterning element interacting with the volitional non-qualitative mode of thought—may underlie all the physical structures we see.
We assumed that it is possible to see the pattern-mending mode of consciousness with the experimental test. Even though identity itself in our view is non-material, it has a physical dimension and that can be measured. As we’ve already said, we maintain that prayer develops and sustains pattern. Therefore prayer could be seen as a patterning effect, as the restoration of an organism to its norms when some form of stress has moved it away from those norms. We found that germinating seeds were a good organism to study because they are sensitive to this patterning power, especially in the early germination stage.

We went on to postulate that the mental field would consist of relationships that could be represented mathematically. In particular, we assumed that the patterning power would vary with the quality of thought (with the holiness that allows the patterning power to emerge), the quantity of thought, the degree to which thought was linked with the organism being studied, and with the resistance under which the organism was placed.

This gave us four ratios: \( E = kQ \), \( E = kq \), \( E = ka \), and \( E = kr \). \( E \) represents measurable effect, \( Q \) represents quality of thought, \( q \) represents quantity of thought, \( a \) represents degree of associational linkage, \( r \) represents degree of deviation from norm, and \( k \) represents the appropriate constant.

Tests previously done by parapsychologists in which healers prayed for seed or plants began with a concept of thought as volitional. They assumed that such thought would produce faster growth in the plants and that is what they found. (Although it must be added that this result could not always be easily reproduced).

But we believed that a pattern-mending power does not enact a preconceived goal but maintains a system’s norms. That is, it would increase the germination rate of seeds in growth-retarding conditions but decrease the growth of seeds in hothouse conditions. In order for the patterning power to be seen, the organism would have to have departed from its norms. It would have to be placed under some form of stress.

This means that our measurements are different from previous tests done with seeds. When studying volitional thought a system can be compared before and after mental input. But our tests of the pattern-mending power compare closeness to a norm after a study to closeness to a norm before the study.

Just what is the holy thought that allows the patterning power to appear? Although as individuals we are religious people, our research maintains no denominational posture. We don’t wish to identify the patterning power with any mental or spiritual discipline. So we’ve defined holy thought or qualitatively-rich consciousness, in somewhat circular terms, simply as that mode of consciousness that produces a patterned response. We feel it’s available to all and that the disciplines that best produce it will become evident in time.

As we said, it’s our premise that the patterning power only appears when an organism is under stress, just as healing through prayer is visible only when a sick patient becomes well. So our studies begin with seeds in a state of stress—or subject to resistance.

**Measurable Effect of the Patterning Power is in Proportion to Resistance, or** \( E = kr \)

There are various kinds of stress under which seeds can be placed. We often soaked or watered seeds with salt water. But we also noted in a cookbook that freezing soybeans shortens their cooking time. We assumed it put them under stress. So in one of our tests we froze beans for 24 hours and then soaked them overnight. We put them in two containers, weighed them, and treated one of the two groups once a day for several days. When we measured weight gain we found that the treated seeds
had gained 35% more weight than the control. This seems to indicate the presence of a patterning power.

Then we studied the premise that measurable response to holy thought rises as stress rises. We sowed seven batches of rye grass seeds on vermiculite and watered each batch with increasing amounts of salt solution. We placed a string down the middle of each tray and treated the seeds on one side of the tray with holy thought. We then compared the numbers of treated seeds that had sprouted (that had a root and a shoot) to the number of control seeds that had sprouted at each stress level. In each category more treated than control seeds had sprouted. But we found that the treated seeds had increasingly more sprouts than control as the intensity of the salt solution increased. This seems to bear out the premise that patterning power appears in proportion to resistance.

We also showed that this same relationship could be seen through time. That is, we weighed beans (soaked in a salt solution) at successive stages of growth. We wanted to observe the effect of treatment as the seedlings moved from the early period when the stress of the salt soaking would have been most intense to the less stressful conditions of later growth. As predicted, we found that the treated seeds gained more weight compared to control during the early high stress period. The amount of increase lessened as the stress lessened.

From these tests we can see evidence that holy thought appears to be proportional to the stress under which an organism is placed.

**Measurable Effect of the Patterning Power is in Proportion to Associational Linkage of the Healer’s Thought with the System, or E = ka**

We then turned our attention to the effect of the strength of associational linkage. When a practitioner treats a patient under ordinary circumstances the patient is clearly defined. But in our tests the treated group is as similar as possible to the control group. This means the healer distinguishes it only by its position or by some marking.

We assumed that the measurable effect would depend on the strength of this associational linkage. One test compared the measurable effect when the treated container of seeds was directly visible to the healer with the effect when associational linkage was reduced--when a container was identified only by a symbolic marking unknown to the healer.

To prepare soybeans for these studies we soaked them in salt water, sorted viable sprouts into control and treated groups, and placed them in containers on a balance. First we did runs in which the treated container was directly visible. We treated the seeds daily and weighed them daily. Then we did several runs under conditions of reduced associational linkage.

Instead of looking directly at the container he consciously knew he was treating, the healer treated that container marked with a hidden symbol. The hidden symbol was established in this way. The two containers were marked with an X and an O respectively. These symbols were also written on pieces of paper which were put into two envelopes that were shuffled in a dark room. One envelope was destroyed and the other was taped to the side of the tray. Treatment was given to the soybeans in the container whose marking corresponded to the marking hidden in the envelope.

Both directly and indirectly treated sprouts gained more weight than their respective controls. But the directly treated sprouts gained 7.1% over control while the indirectly treated sprouts gained only 5.8%. This suggests that a reduced associational linkage results in a reduced patterning effect.

We did a number of tests like these, which we called hidden target tests. Containers of seeds
were marked to correspond with heads or tails of a penny, a playing card, one of several denominations of monetary bills, or the faces of a die. These were shuffled in a darkened room (or shaken in a closed box in the case of the die). Then the container corresponding to the hidden target was treated. It was possible to predict, by observing the marking on the container that contained more growth or germinating sprouts, what the hidden target was. In other words, holy thought flowed through a symbolic linkage even though that symbol was not consciously known.

It’s interesting that many hidden target tests have been done by parapsychologists in which participants tried to guess hidden symbols on cards. The results, while sometimes spectacular, were limited to certain personalities, sometimes were enhanced by drug use, and they often faded in time. Of course our studies were basically designed to show that even with reduced associational linkage the patterning effect appears. But they also show that a hidden target can be accurately and consistently predicted through tests such as these. This suggests that holy thought, unlike goal-directed thought, is reliably aware of its surroundings.

We did find that there is a limit to the mind’s capacity to follow involved associational links. We created a rather complex linkage in which quadrants of trays of seeds were marked to correspond to playing cards. Just one card (unseen) was drawn from the group of four cards used to mark a tray. We eventually had a small deck of unseen cards, one corresponding to each tray of seeds. Seeds soaked in salt water were planted in each quadrant. We treated those quadrants that corresponded to the hidden cards each day. When we compared quadrants with greater growth to the hidden cards, we found that only 2/3 of the calls were correct. It seemed that the complexity of the linkage was too great for the mind to follow in each case.

**Measurable Effect is Proportional to the Quantity of Holy Thought, or \( E = kq \)**

We now considered the effect of quantity of holy thought, spiritualized consciousness. We found that the growth of treated seeds did appear to be proportional to the quantity of treatment. The way we did this was to establish three groups of seeds, the first two of which we treated separately every 12 hours. When either of the first two groups was being treated the sprouts from the third (double-treated) group was included with them.

To set up the test we soaked soybeans in a salt solution and then put them in baskets inside plastic containers with lids (actually children’s wading pools with a second set of pools covering them). We weighed the sprouts twice a day, rinsed them twice a day, and treated them every 12 hours for several weeks. The double-treated group received double the treatment (quality and quantity of prayer) that each of the two single-treated groups received.

We found that the first single treated group was 5.9% above control, the second treated group was 3.7% above control; but the double treated group was 9.5% above control. The two percentages of treated growth over control growth of the single-treated sprouts, combined, were approximately equal to the percentage of treated growth over control growth of the double treated sprouts. This indicated that the quantity of treatment was proportional to the effect.

**Measurable Effect is Proportional to Quality of Thought or \( E = kQ \)**

In addition, we found through other studies in which treatment by several different practitioners was given that the more experienced practitioner had a greater measurable effect. So we have some rudimentary support for the assumption that the effect is also in proportion to the quality of thought.

In these seed tests we’ve asked the question, "How would the mental state of non-goal-directed
thought, or prayer, be manifest under experimental conditions?" and then provided an answer that flows from our assumptions that the world is indeed a mental field. Our studies suggest that a healing or pattern-mending mode of consciousness does exist and can be fairly easily demonstrated with simple equipment. This patterning power isn't guided by a target but by field characteristics. That is, it appears in proportion to quality of thought, quantity of thought, amount of resistance, and strength of mental association. Thus we do have some modest support for our premise that the world of thought is indeed a field. It may eventually be found that instead of being spun on the loom of a force field, the world is spun on the loom of a field of thought.
FROM CHICKEN SOUP TO PSI:

HOW CAN WE TELL WHAT IS BELIEF AND EXPERIMENTER EFFECT?

*Samantha Fairfax*

We all know that belief can be powerful. For instance, maybe you’ve experienced the age-old curative effect of chicken soup. Some other things people took centuries ago were crocodile dung, ground mummy, and frog sperm. They often got well too.

Did this happen only in prescientific times?

Not really. The placebo effect is simply scientific language for the legendary power of belief. Some patients who take a sugar pill respond just as do those who take an active drug (about one in three). The power of belief also appears in faith healing in the religious arena, and in experimenter effect in the laboratories of those who study psi.

The power of belief is usually thought to be rather minor. However, those researchers who have examined the entire literature of the placebo effect have speculated that it may account for more medical cures than believed. They have even compared it to the large green ocean on which a few ships of curative drugs have sailed. In other words, they suggest much healing results from belief.

In parapsychology, it’s especially hard to separate the thought being studied from the beliefs of the experimenters. Those parapsychologists who have examined experimenter effect closely have also suggested that the history of parapsychology is simply the history of experimenter effect. The mental belief appears as outward evidence.

We at Spindrift think these are provocative observations. We would not suggest that all healing results from belief or that all psi is experimenter effect. We affirm that something other than fluctuating belief underlies the world. If this were not so there would be only chaos. But we do think that tests conducted in today’s conventional worldview can’t distinguish placebo power from healing power, or experimenter effect from the form of psi being tested.

Why is this? Well let’s look at this prevailing worldview. It’s often called scientific materialism, and it presumes that the world is wholly matter. Even mind is a by-product of the brain. Thought unmediated by matter (when it is admitted to exist) is seen as directed will-power. For example, PK often consists of the volitional altering of random events in a given direction. Experimenter effect is also volitional. That is, it is thought directed toward the goal believed in. We would consider these two forms of the same kind of thought. Thus there is no conclusive means of distinguishing one from the other.

However, we have presumed an alternate worldview. We assume that the world may be a mental field in which two strains of thought interact. One of these is indeed a goal-directed mental power. But the other we call holy thought. We derived this view from the Christian tradition in which the power of holiness is contrasted to the drive of the carnal mind. God-inspired thought, thought embodying those holy qualities derived from obedience to the Sermon on the Mount, we assume, sustains and enhances identity. We attribute the healing evidenced in the Christian tradition to this form of thought that underlies prayer. Put in more scientific terms, we might say that such thought mends identity. We can measure its effects in the normal pattern of the organism, which constitutes the visible aspect of identity.
We design our tests in accord with this worldview, and we set them up in ways that distinguish between these two strains of thought, which have different signatures. Holy thought works to sustain identity. This means it provides that balance that most enhances an organism. It returns an organism that is under stress to its norms. Volitional thought pushes toward its own ends and is indifferent to identity and its norms.

However, in one set of tests, we inadvertently produced experimenter effect (as we ultimately found) on a substantial scale. We temporarily believed in a promising line of research. While the belief remained, the effect was pronounced. But our worldview and test designs allowed us to identify this experimenter effect as such. That this happened, however, shows how easy it is for the effects of belief to pass as genuine evidence of psi.

Here was the belief system we entertained for a time: We thought it was possible that seeds at the point of germination might respond to the survival instincts of other living things like plants or yogurt. This was not so unusual; given our basic assumption that the world at its deepest level is a field of two mental strains. If this is so, then all living things, including simple organisms and seeds at the point of germination, would be forms of consciousness. It would not be improbable that the structured will of one form of life might affect another.

We tested this by sowing rye grass seeds in trays of vermiculite. One half of each tray was correlated with a small jar of active yogurt. (The other half was a control.) We "promised"—that is, formed the intention—to feed the yogurt a few drops of milk if more seeds germinated in the experimental area than in the control area.

We got a response! The correlated seeds sprouted 8.13% more than the control seeds. We then did a similar run in which we gave healing treatment to the yogurt (the correlated agent). We got an even larger effect! 13.5%

We began to visualize the headlines: "Amazing New Discovery: Survival Instincts of Yogurt Increase Farmland Productivity."

But being sober researchers, we had to ask ourselves what we were really seeing. Were these only random effects? Were they just the effects of our own belief?

How could we tell? By analyzing our results to see if we could find signs of the two elements we believe common to human thought: 1. Holy thought, and 2. goal-directed thought in the form of belief in one's own healing treatment. We've observed these many times in our previous research and consider them to be constants in human thought.

Of course a healer, especially if he is also a researcher, may possess other forms of goal-directed thought. He would be just as capable of producing experimenter effect as any other parapsychological experimenter. In this case he certainly believed, provisionally at least, that the rudimental willpower of yogurt was increasing seed germination.

If our analysis showed that the above mentioned elements of thought were present, it would not be illogical to presume that the researcher's goal-directed belief in the survival instincts of yogurt was causing more seeds to sprout in the correlated areas.

First we looked for the effect of holy thought. The holy element in human consciousness produces what we call a norm-referenced signature. This is fully described in my earlier article on the seed tests, "World of Thought." Since God-like thought supports identity, it returns an organism under stress to its norms. And the degree to which it does this is in proportion to the amount of stress, or
departure from norms, under which the organism has been placed.

Such analysis was possible because during this time, we had also done runs in which the seeds were directly treated under the same climatic conditions. We could compare them to see if the runs involving correlated agents showed a norm-referenced pattern similar to the directly treated seeds.

We first broke the data down by stress range, since the holy, or patterning, identity-sustaining effect is in proportion to stress. Often we ourselves produced the stress mentioned above by soaking the seeds with salt water, but in this case we just accepted nature’s own stress in terms of temperature and humidity. We could tell which days were more stressful by noting the number of control seeds that sprouted out of the number sown. We created five categories ranging from high to low stress.

The norm-referenced signature appeared in the directly treated seeds. That is, more seeds in the treated group sprouted than in the control group and this occurred in proportion to the stress level. The norm-referenced signature also appeared to some degree in the runs made with correlated agents. We should point out here that it was the agents, not the seeds, that were treated. Presumably the greatest effect of holy thought went to the agent, although we were not set up to measure any effect from that. Nevertheless, some patterning effect was still measurable in the seed germination. This implied that it was the healer’s thought that was producing the effect, not sheer randomness or the survival instincts of yogurt.

The second thing that indicated that we were seeing the effects of our own thought was that we found a steady ratio between the treated and untreated correlated agent runs in a variety of experiments designed along the lines of the one mentioned above. What did this mean? Treatment always includes not only holy thought but also belief in the effectiveness of that prayer. We speculated that in experiments with correlated agents, what we saw in the treated runs might be this belief/faitheffect interacting with our own pre-existing belief in our “survival-instincts” hypothesis, that this belief/faitheffect would probably be fairly steady. If this were so, then it would appear in the same ratio in every test that we did. This proved to be the case. We tended, therefore, to feel that we were seeing the effects of our own belief.

One of the variant tests involved using randomness instead of seed germination to register the influence of another living thing. We formed the intention to feed plants additional amounts of food if more pluses (or minuses) came up on throws of dice. We found that 1.14% more pluses did occur. When we treated the influencing agent we found that .39% more pluses came up.

We also used nonliving systems as a correlated agent. Behind this was the assumption that, since the world is made of two mental strains, a useful object would include as an unconscious thought-form the purpose or will of the maker. Thus if it were made imperfect (disassembled in some way) the intention to make it complete again might act as an influencing agent on seed germination. We took a drawer out of a handmade dresser with the intention to replace it unless a certain percentage of seed germination was achieved in the correlated areas of the seed trays as compared to the control areas. In this study we found that .54% fewer pluses came up. When the agent was treated we found that .15% fewer pluses came up.

As you will notice, the belief/faitheffect in treatment sometimes decreased the effect and at other times heightened the effect. We believe this to be not highly significant. The important thing is that when we compared the ratios of treated and untreated agent runs, we found a similarity. The ratio in each case was about 65%. We concluded that this represents our original goal-directed thought or belief in the effect of “survival instincts” of living things (or the supposed rudimental will of non-living things) on increased seed germination (or effect on the roll of dice) as modified by the researchers’ belief/faitheffect in the effectiveness of the treatment.
Now we return to the original question. Is the study of psi largely the study of experimenter effect, as some have suggested? Is more of medical healing due to the placebo effect than generally believed? (Some have suggested that the reason dosage of some medicines has had to be increased as time goes by is that the effect of the drugs rested more on belief than supposed. They have even suggested that belief, in the form of strong hopes for a medicine’s success, may sweep over the double-blind experimental design, accounting for the drugs that test well but gradually diminish in effectiveness.)

We would never say that either all curative methods or all psi effects are belief. We believe that mental power unmediated by matter not only exists but supports and heals. However, we aver that such a power can only be distinguished from goal-directed belief by proper experimental design.

We saw how easy it was to believe in an hypothesis—the possibility that the will of a simple organism could impel seed germination—and to see such results in the evidence. However, because of our experimental design, we could identify holy thought as well as belief/faith in our treatment. We could separate these two parts of the mental effect. This made it probable that what we were seeing in our original study was simply our own belief, or experimenter effect.

For this reason, Spindrift’s research holds great promise. It provides a way of designing tests that can separate a lawful patterning, identity-sustaining mental power from belief and experimenter effect.
TOWARD THE WASTELAND'S END?

SEED TESTS IMPLYING AN ETHICAL UNIVERSE

Samantha Fairfax

People have often mourned the fact that we've been living in a cultural wasteland in this century. Daniel Ell, elder statesman of sociology, describes the U.S. intellectual community's as proceeding "into the 21st century, bleakly." Scientific materialism has described our world as organized matter in which mind is seen as nothing but a by-product of the brain. Artistic genius is but a minor embellishment on a value-neutral universe. Morals and ethics aren't anchored in the cosmos. Spiritual intuitions are but superstition.

At the beginning of the twentieth century the British philosopher Bertrand Russell helpfully explained how to cope with the bleakness then emerging:

"that man is the product of causes which had no provision of the end they were achieving; that his origins, his growth, his hopes and fears, his loves and beliefs are but the outcome of accidental collocations of atoms,...that all the labors of the ages, all the devotion...all the noonday brightness of human genius are destined to extinction...all these things, if not quite beyond dispute, are yet so nearly certain, that no philosophy which rejects them can hope to stand. Only within the scaffolding of these truths, only on the firm foundation of unyielding despair, can the soul's habitation henceforth be safely built."

We at Spindrift would like to set aside that scaffolding of despair for a moment and entertain the possibility that the world is something other than coldly material. Since Russell wrote, there have been developments in physics, neuroscience, psychology, and cosmology that have indicated that mind does indeed exist, and that it is far more than a mere ghost in the machine of the brain.

We go a step farther, however, and assume that the world at its deepest level is a mental field. This is not an idea as remote from concepts at the leading edge of science as once might have been supposed. Einstein portrayed the world as a field of energy, of which time, space, and matter are variants.

We derive our view of a mental field from the Christian tradition in which the power of holiness is contrasted with the force of the carnal mind. We call this spiritual power holy thought. It is cultivated by obedience to the Decalogue and the Sermon on the Mount. We attribute the healing in the Christian tradition to this mode of thought. Since will is the driving force of the carnal mind, we call this opposing mental power volitional thought.

We design our tests in accord with this worldview. Since holiness, is associated with healing, we assume that it upholds identity. It maintains the norms that best support an organism. In contrast, volitional thought pushes toward a goal of its own and is indifferent to identity.

We work with seeds because we found that seed germination is sensitive to thought. Our tests done with simple organisms eliminate many of the mental and physical variables possessed by more complex living things.

However, in the course of working with seeds, we decided to ask a question about one specific
kind of seed. We wanted to know if seed strains created by biotechnology were a moral or an immoral development.

This is a question with some relevance today. The long-term usefulness of biotechnology is being examined. In recent years it has created new crop varieties that have been uniform, have produced a high yield, and have been resistant to crop diseases and pests. But Al Gore notes in his bestselling book *Earth in the Balance* that such artificially engineered strains are not long-lived. He quotes the observation that “the average life of a new crop variety is now roughly equivalent to the life of a new pop record.”

Why? He explains that these new strains are not based on an overall genetic resilience. Plants in the wild develop high resistance to pests and blights evolve quickly, developing lethal traits that can overcome a new plant strain with no extensive evolution of defenses.

How is it possible to ask if biotechnology is or is not moral? We assume at the outset, as mentioned above, that the universe is ethical. Our view is that it is partly made of volitional thought, which is arbitrary and amoral. But its order and lawfulness are upheld by holy thought. It is holy thought that supports identity, as many of our tests have demonstrated. So we wondered if the quick demise of bioengineered plant strains might not be related at its deepest level to the fact that holy thought, the lawfulness of the universe, does not support such artificially created organisms.

Many of our tests appear to confirm our premise that the laws of the universe are ethical. In response to holy thought organisms under stress are returned to normal. And a health-giving, pattern-restoring power is somewhat self-evidently good, or ethical. But even stronger support for the premise that the universe is ethical may be found in one particular test of ours. If a healer is working in circumstances where organisms have been placed under several different kinds of stress, then healing would involve different physical effects in each case. If the same treatment produces different outcomes in each case, yet both move in the direction of normality, this seems to imply even more clearly an ethical intelligence at work. It is a power that supports each identity intelligently and benevolently.

One of our tests with seeds did just this. The same treatment produced opposite results in two groups of seeds, each of which had a different need. That is, it moved both oversoaked and undersoaked soybeans toward normality.

When soybeans are thoroughly soaked, they more than double in weight. Then they release some of this moisture after they're taken out of the water. This means that if they've been oversoaked, treatment should help them release water. If they've been undersoaked, treatment should help them retain water.

We put soybeans in mesh bags. We soaked one-third of them nine hours, one-third of them twelve hours, and one-third of them eighteen hours. Then we drained them. We treated them in the next twelve hour period and then again in the following twelve hour period. The overall effect was different in these two periods. (There was net loss of weight in the first period and net gain of weight in the second period.) However, the treated beans moved in the direction of normality in both periods. And they did so according to their specific needs.

For example, during the first period of treatment the eighteen hour (oversoaked) and twelve hour treated beans had lost 7.5% and 10.3% respectively more water than their controls. The nine hour (undersoaked) treated beans, however, had retained 13% more water than control. In the second period the eighteen hour beans were still ridding themselves of water (they gained 11.3% less than control).
The twelve hour beans were beginning to put on weight (gained 1.8% more than control). The nine hour beans had a strong weight increase (7% more than control).

Using the twelve hour beans as a norm, we could compare the movement of the other two groups toward that norm. It was obvious that the treated seeds were drawn closer to the norm than the control seeds. This seemed to provide evidence in support of our assumption that the underlying laws of the universe are ethical.

All our previous tests had demonstrated that holy thought enhances seed germination; it supported identity. But what about a seed created by methods now believed by some environmentalists to be dubious? In recent decades, scientists have crossed strains of wheat and rye to form triticale. This was done through a genetic accident coupled with the application of an alkaloid derived from the autumn crocus and the techniques of embryo culture.

If, as we believe, the structure of the universe is ethical, then it would be possible to ask if it regards such biological engineering as moral or immoral. That is, we can plant triticale seeds, divide them into two groups and treat one group with holy, God-inspired thought. If the ratio between the treated sprouts and control sprouts is positive, we could infer that the moral structure of the universe approves of the new strain, but if the ratio is negative, then the moral structure does not approve of triticale.

We planted about 1500 triticale seeds (divided into control and treated groups) on layers of paper towels that we placed on sponges. The sponges rested in plastic trays with an evenly maintained water table. We didn’t use any temperature or humidity control; we simply didn’t do tests on hot humid days. Thus germinating conditions were always growth-retarding. (Holy thought will measurably support seed germination only under stressful conditions, as you recall.)

Even though our data base wasn’t large, the results were provocative. The percentage of treated seeds that sprouted was 97.6% lower than the control group after the first six days. After nine days it was 55.2% lower than control, and after twelve days it was 15.6% lower than control. (Since this test looks only at the number of germinating seeds and not at the health and vigor of the seeds, the measurement index falls as days pass. The control seeds begin to catch up to the treated seeds.)

Then we decided to pray for germinating triticale seeds and wheat seeds as a unit in order to compare the effect that holy thought had on each group. The difference was pronounced. For instance, on the fifth day, 76.6% fewer of the treated triticale seeds had sprouted than control, while 94.4% more treated wheat seeds than control had sprouted. (As we noted above, the control seeds catch up to treated seeds as time passes.) By the tenth day 26.6% fewer triticale seeds had sprouted than control; 16.9% more treated wheat seeds had sprouted than control.

We did the same test with rye seeds. The results were not as large as with the wheat seeds but were again provocative. (Rye is a hardier grain than wheat and therefore the stress on the rye seeds is less than on the wheat seeds.) On the fifth day 14.1% fewer triticale seeds than control had sprouted vs. 30.6% more treated rye seeds than control. On the tenth day 3.8% fewer treated triticale seeds than control had sprouted, vs. 1.6% more treated rye seeds than control.

It appears from our modest studies that there may be some basis for believing that the moral structure of the universe does not support the creation of triticale. This tends to coincide with common sense observations of the results of biotechnology. It has created problems not always foreseen at the outset. (For instance, chemical companies tend to market new plant varieties that are compatible with their pesticides and fertilizers. These in turn damage the environment.) This means our high yields may
be at the expense of future productivity. Some observers believe it is practices such as this that lead to the literal wastelands we see in various parts of the world.

A case can be made that the literal wastelands of contemporary living can be traced ultimately to the mental wasteland of materialism. Materialism sees solutions to problems of human living as technological. Gore has expressed the view that the solutions to problems such as food production ultimately have more to do with attitudes and values than with technology.

We must, of course, restate the fact that we interpret our findings in light of the ethical universe we postulated from the outset. Yet the evidence also tends to lend support to the original assumption. The same qualitative or holy treatment suppressed triticale seed germination but boosted both wheat and rye seed germination. This implies a difference in the two strains for which some explanation must be found. We believe that explanation coincides with our original premise of an ethical universe.

If evidence continues to support this premise, then the end of our twentieth century wasteland may at least be on the horizon. It may be possible to increasingly demonstrate that ethics are not just pleasantries to obey or discount but demands inherent in cosmic law. Eventually humankind can forsake the scaffolding of despair for a new view of the world in which humane values and spiritual qualities can flourish because they are anchored in the structure of the universe itself.
IMAGINED WARRIOR CELLS OR SPIRITUAL HEALING?

EXPERIMENTER EFFECT VS. INTRINSIC HEALING POWER

Samantha Fairfax

Healing isn’t just a matter of tinkering chemically and surgically with a biological machine anymore. Sometimes it’s a matter of visualizing white cells as warriors fighting off malignancy. Sometimes it’s a matter of laying on of hands. Sometimes it’s a matter of deciding to “take charge” of one’s own health. And sometimes it’s a matter of spiritual power.

The bodily repair that may result from any of these methods can be attributed to mental power. But we’ve become highly aware of the effect of suggestion in this century. We call it the placebo effect in medical circles, and we know that it can simulate the effect of a drug. This leads us to wonder if belief might not also often mimic a mental healing power that is more fundamental—that is in fact intrinsic.

Those studying bio-PK sometimes regard belief in the form of the placebo effect as working only through the patient’s autonomic system. So several studies done in the sixties attempted to eliminate belief by working with simple organisms in which the placebo effect wasn’t a factor.

In these a healer prayed for wounded mice, anesthetized mice, and for stunted plants. Wounded mice given treatment healed more quickly than those not treated. Anesthetized mice given treatment revived more rapidly than others not treated. Plants watered with salt solution (stunting to the plant) treated by a healer grew taller than those watered with untreated salt solution. These studies indicated that there’s a mental healing power other than the placebo effect as it’s commonly understood.

A study by William Braud published in 1990 in *The Journal of the American Society of Psychical Research* also indicates the presence of a mental healing power other than the placebo effect as it’s conventionally understood. It shows that individuals are able to slow the destruction of their own in vitro red blood cells subjected to saline solution. (The salt solution slowly destroys the blood cells.) A nurse drew blood from the participant and placed it in test tubes containing a saline solution. Then the individual tried to “influence” the cells, to slow down their rate of destruction during designated time periods. The breakdown of blood cells was monitored with a spectrophotometer connected to a computer, and the destruction rates for the periods of influencing were compared statistically with those of interspersed control periods. When the “influencer” was treating the blood-cells, the rate of breakdown was significantly retarded as compared with the control periods.

This is provocative evidence of a non-placebo mental healing power since the influencer’s effect wasn’t mediated by the autonomic system. But parapsychologists have noted that it is almost impossible to tell a psi effect from belief which they call experimenter effect. For example, G. F. Solfvin noted in *The European Journal of Parapsychology* (1982) “The inescapable conclusion that obtains for psychic healing research is that we cannot, with any degree of certainty, attribute the outcome of a successful psychic healing study to the treatment per se….We are inferring some invisible process as the cause of the result. This unseen effector could as likely originate in the experimenter or in some personal quality of the healer as in the treatment per se….For psychic healing research this means that we are currently incapable of establishing a causal link between the healing treatment and the observed outcome.”
In other words, even mental healing that eliminates the placebo effect could nevertheless still be mingled with experimenter effect—with effects of belief unmediated by the autonomic system. The problem with the above-mentioned studies is that no basis on which to distinguish between the effect of intrinsic healing and elements of belief that may mimic it exists. However, we believe such a distinction can be made, and we postulate a worldview in which the issue can begin to be addressed.

We view the world at its deepest level as a mental field in which two kinds of thought interact. One is holy thought, which orders and is lawful. The other is volitional thought which is indifferent to order and pushes toward its own ends. We derive this worldview from the Christian tradition in which holiness or the mind of Christ is contrasted with the carnal mind or amoral will.

We assume that heavenly inspiration, or what we call holy thought, supports identity and thus brings healing to the measurable aspect of identity which is the body. Volitional thought, on the other hand, produces whatever effect it chooses. Under ordinary circumstances goal-directed thought and holy thought mingle. In mental healing involving human patients the goal toward which volitional thought works generally tends to coincide with the normal condition of the body. Thus its effect is indistinguishable from what we presume to be intrinsic healing power.

We proposed to design a study that would allow experimenter effect to appear as distinct from a more basic healing power. That meant we had to design our tests in such a way that what we presumed to be the goal toward which belief would move was different from the effects associated with holy thought. We assumed that a common goal toward which belief might move was one which would produce a larger or faster effect. This is because a tacit tenet of modern culture is that bigger and faster is also better. Holy thought, on the other hand, restores and enhances identity, producing whatever effect most enhances the organism.

This meant we needed to design a test in which a larger or faster effect is opposed to what has been determined to be in the best interests of the seeds. Our first step was to find a phase of seed germination in which "less," was in the best interest of the seeds. Then, we presumed, experimenter effect would influence the seeds in the direction of "more," while holy thought would bring about a state of "less."

In this series of tests we had been working with seeds, which in a germinating state we have found to be sensitive to thought. We believed it might be possible to find a stage of seed development in which moisture loss (as registered in sprout weight loss) was in the best interests of the plants. Since we had found from our previous studies that holy thought moves an organism toward those norms that best support it, we had the practitioner pray for sprouts in different stages of germination. In due course we came across a stage of seed development in which holy thought did reduce sprout weight. (We don’t have a knowledge of the internal chemistry of the sprouts at various stages of development so we can only speculate on the reason for this. It’s possible that giving off more moisture in a period of intense heat might enhance the prospects for survival of sprouts in this stage.)

How could we identify experimenter effect? This test involves weighing control and treated seeds. We put the two groups on two balances connected to a computer. In runs where holy thought is applied, the practitioner prays for one group of seeds. We’ve observed that the thought of the healer develops an associational link with respect to the balance on which the seeds to be treated are placed. Even when no treatment is given, the healer’s unconscious thought still has some association with that balance on which seeds to be treated were located. Thus unconscious volitional thought resting on the test—or experimenter effect—registers on that balance.
We therefore planned to do two kinds of runs. One involved weighing control and treated seeds to record the effect holy thought had on seeds at this particular stage of germination. The other involved weighing two groups of seeds that we call control/control and control/treated position seeds. It is on the control/treated position balance that experimenter effect appears in the untreated runs.

We prepared the seeds in such a way as to produce fairly moist sprouts and under conditions that were less than ideal for sprouting. This was because we presumed that holy thought would increase moisture loss at this specific stage of germination. We needed the excess moisture and the stress to provide the resistance against which the effect of holy thought could be measured. We presoaked 8-10 cups of organically grown, non-chemically treated soybeans for twelve hours. Then we rinsed them and put lids on the trays. The lids were only occasionally removed (about one hour in twelve) over the several days during which germination began. Humidity inside the holding trays was high. During sprouting the trays of soybeans were kept on a heat tape set at 70 degrees.

At the stage of germination we believed appropriate (as determined by our admittedly less than perfect assessment of color and size) we began the test. We distributed the best sprouts into two plastic mesh baskets which rested in plastic trays with no lids. Those trays fit into two other identical plastic trays. The tray holding the seeds to be treated was painted yellow on the sides to clearly identify it for the healer. The trays were placed on two balances connected to a computer. The practitioner treated the appropriate batch of seeds for two hours.

After treatment a hotbox made of styrofoam and containing a hot plate and a thermostat was placed over the seeds. The thermostat ensured that the temperature wouldn’t go over 95 degrees. Then the seeds were left to dry out. Measurements of weight loss of control and treated sprouts (as beans lost moisture) were noted hourly until control seeds lost 50% of their starting weight.

We did thirty runs in which control and treated figures were obtained. We also did thirty runs in which no treatment was given—runs in which we expected to measure experimenter effect. We placed the same setup of seeds in the same positions on the scales and used the same procedure in the latter runs except that no treatment was given.

Although the computer took measurements every hour, for our evaluations we used only the measurements at various stages of weight loss of the control seeds. We used those measurements at which the control seeds had lost 5%, 10%, 15%, 20%, 25%, 30%, 35%, and 40% of their weight. (After this point, the seeds began to die.)

We predicted that the weights of the treated seeds would be smaller than the weights of the control seeds. That is, we assumed that treatment would enhance the moisture reduction the seeds needed at this point in the germination stage, thus making them weigh less than the control seeds. We found this to be so. They weighed 11.20% less than control.

We also predicted that in the wholly untreated runs the weights of the control balance in the treated position would be larger than the weights from the balance in the control position. In this case we expected that the effect of unconscious thought, serving the cultural notion that bigger is better, would increase the weight of the beans in the treated position. The prediction was confirmed. They weighed 3.26% more.

It’s also possible to compare the spread between the control and treated weights in the runs involving treatment, with the spread between the weights in the control position and treated position in untreated runs. In this way we can compare the degree to which treatment altered the treated seeds with the degree to which experimenter effect altered the untreated seeds in the treated position. Our premise is that holy thought makes more variability than experimenter effect because it modifies the
continually changing variables as germination progresses. We found this confirmed by the evidence.

In other words, these tests provide modest support for our thesis that an intrinsic healing power exists that moves an organism toward its norms—and that it differs from experimenter effect, which can be measured under conditions where it moves in a direction other than an organism’s norms.

Envisioned warrior white cells may contribute to bodily self-repair, as may other goal-directed mental methods. But the evidence suggests that healing power associated with holy thought is intrinsic and more effective.
STEP UP, NELLIE, STEP UP!

Robert Owen

On one of the desks and tables where we do our research sits my favorite calendar for the new year, the 1992 Draft Horse Calendar from Mischka Farm, Whitewater, Wisconsin. The internal combustion engine is a recent arrival in doing the work of this world and it is still pleasant to hear the "step up" of the driver as the horses lean into a heavy load.

Fernand Braudel, in his remarkable three-volume series Civilization and Capitalism, 15th - 18th Century, tells us in Volume One The Structure of Everyday Life that:

Roads had to wait for the first upsurge of the industrial revolution before their full potential was developed....tremendous changes taking place in road transport showed what it would have been possible to achieve technically very much earlier....these changes were not the result of any precise technical discovery. They were simply the consequence of large-scale investment, of deliberate systematic improvement....Paul Valery's remark bears repeating to remind us of this ancient and longstanding fact of life: "Napoleon moved no faster than Julius Caesar."

Many of the great advances which help to make human life worth while linger for centuries, not because of lack of technical knowledge but because of the lack of social will to achieve them, the lack of "large-scale investment" and of "deliberate systematic" action. The scientific exploration of the relationship between prayer and healing with its vast potential for good in human life is one of these socially neglected and long overdue advances.

The roads which made possible the stagecoach and the carriage were a development which, fortunately, could come without challenging the structure of society itself. The scientific study of prayer is not so fortunate. Born of Christianity and of science, both parents, organizationally speaking, seek to disown it. No church, Catholic or Protestant, wishes to place its teachings under the possible scrutiny of an outside independent observer. With science, the situation is more complex.

Science has become a religion unto itself, a religion as intolerant as any of the past, yet which has gained its enormous power without the spilling of blood so common to religions of past and present times. On the other hand, it has produced today's weapons of mass destruction. Science is a religion which holds within itself no moral force.

In a bookcase not far from the comfortable draft horse calendar is a somewhat uncomfortable book. It is entitled Alternate Realities: Mathematical Models of Nature and Man (John Wiley and Sons, Inc., 1989). The book's author, John L. Casti, is one of the many priests of the religion of science. His area of interest is mathematical models, a core area of scientific expertise.

Dr. Casti's book is clear and informative, excellent in its way, although incomprehensible to most of us. However, in his concluding chapter he leaves behind the arcane world of mathematical modeling and launches into the defense of his religion (science) with all the emotional fervor of the True Believer. Casti's lucid language etches the mindset Spindrift faces. We will follow a brief look at the position of modern science and hard core modern scientists with a thumbnail sketch of Spindrift's strategy.
In our somewhat specialized review of Casti's book and outlook we note that he sees Western science as "a johnny-come-lately on the reality generation scene, having arisen in the Middle Ages as a response to the inability of the competition to offer a satisfactory explanation of the Black Death."

For those who understand such things, let us note that Casti is no scientific fundamentalist. He recognizes that recent tests of Bell's theorem require science to surrender either the concept of objective reality (horrors!) or the concept of faster-than-light physical phenomena and effects (in practical terms, worse yet!). Casti knows that in order to avoid the paradoxes and problems of acausal effects objective reality must go.

In terms of attitude toward religion Casti tells us that "In the Reality Game, religion has always been science's toughest opponent...."

Casti makes the familiar points that beliefs in religion are presupposed and therefore must "give up any claims to truth," that religious models elicit "self-commitment and a measure of ethical dedication...features completely anathema to the role of models in science" and that scientific paradigms are subject to the constraints of "simplicity, falsification and influence of theory on observation" whereas religious paradigms are not.

We have dwelt long enough on the views of a man and a system which cannot comprehend that because the universe is both qualitative and quantitative, no measurement-based search for truth will ever be the whole story, a system which rejects depth psychology, parapsychology, and all non-mechanistic medical research simply because they seek to understand the mind by means other than dissection of the brain.

Returning now to the time of development of roads and using that event of history as both metaphor and model, we must find ways to develop the "large-scale investment" in and "deliberate systematic" building up of research which will construct highways into the future, mental and moral roads along which mankind can travel to a better destiny than that outlined by the materialism which has gained philosophical and operational control of the science of today.

It is a tenet of present scientific orthodoxy that consciousness cannot influence material action other than through the intervention of the nervous system. What Einstein terms "spooky action at a distance" is not considered possible. Effective prayer, by materialistic definition, falls into this spooky and impossible category. Simple tests, such as Spindrift has developed, show otherwise. However, such tests must be taken seriously, must be evaluated by the scientific community in order to be accepted by that community and by those who rely on that community (almost everyone) to decide what is or is not scientifically correct. Spindrift found, early on, that its chance of being taken seriously by the scientific community was very small indeed.

We pin much of our hope today on a group of tests we refer to collectively as VIUR (Visual Image, Unconscious Response) tests. These tests are simple, powerful, and repeatable. In addition to revealing an ordering force and perceptive power within consciousness they have the interest: feature of revealing a power within consciousness which opposes the ordering and perceptive powers and which acts to conceal their existence from our knowledge and observation.

This opposing power may be conceptualized in anthropomorphized religious terms as the work of the devil, in psychodynamic terms as a defense mechanism, in prophetic terms as "the veil that is spread over all nations" or in whatever terms we wish to use to characterize a power which conceals the perceptive and the patterning (healing) power available to us all.
Step Up, Nellie, Step Up!

The peck-a-boo nature of psi has caused mainline scientists to ridicule parapsychological efforts. The clash of belief systems has entered into this ridicule as well. This same clash of belief systems has caused scientists to consider the relationship between prayer and healing an unworthy subject of scientific attention. The demonstration (through the VIUR tests) of mental modes of concealment hiding mental power (not perfectly but quite adequately for most purposes) mingles a touch of immense irony with the fact of the materialistic intransigence of the scientific outlook of our times.

We believe that as the VIUR tests continue to move, however slowly, from the small circle of those who developed them out into the world great changes of outlook will follow. We know that we at Spindrift cannot provide the "large-scale investment" and "deliberate systematic" development required to construct the necessary roads of mental and spiritual development needed by the world, but we can put a fingerpost at the end of the present highway to show the direction such efforts should take, to show that mental and spiritual development and experimental science can work together hand-in-hand for human good.

I look at the horses on my calendar, think of the road ahead, and almost hear the driver say "Step up, Nellie, step up!".
A BRIGHT AND SHINING PENNY

Robert Owen

A couple of days ago I was paying some bills and happened to rummage through the center drawer of my desk. There, in one of the corners, I found a bright and shining penny, almost as bright as shining as when I put it away some 14 years ago. The date was 1978 and it was from the Denver mint.

I had lacquered the penny before I put it aside. Something of a sentimental thing, I suppose. It's still hard to look at the penny and not feel the thrill of excitement connected with it. In our experimental tests we've come to call this an "associational link." But, first things first. We were working mostly with seeds then and we had the basics down.

We weren't the first people to test the effects of prayer on germinating seeds. Or of other kinds of thought, too, for that matter. Parapsychologists and a few others had done it before us. But, they hadn't approached it in the same way. That was probably because they hadn't thought the matter through from the same beginnings.

If you look at the tests that have been done by others the treated seeds almost always do better than control. Sometimes so much better that you wonder how the seeds ever stood the strain. Spiritual healing isn't like that. Spiritual healing does what's good for the seeds. There's a big difference involved.

For example, if seeds are in growth retarding circumstances what we call qualitative prayer will increase the germination rate. On the other hand, if the seeds are in growth enhancing circumstances, hothouse conditions, qualitative prayer will slow the germination rate. We had never seen any tests that had taken this into account and we wondered about that. We wondered about it enough that we began our work with seeds by doing some simple tests that did take this into account right from the beginning.

It was a simple enough thing to do. We put some vermiculite in a shallow tray and put some small plastic cups with a hole in the bottom at various places in the tray so that we could see how high the water table was. We didn't want to water-soak the seeds, we just wanted to keep them moist. We used rye grass seeds. They grow fast.

We didn't put the seeds in dirt since dirt has food content for the seeds. We used the vermiculite because this forced the seeds to rely on what they had inside themselves and nothing more. Maybe it didn't make any difference but we weren't taking any chances. Then we placed a string down the center of the tray and one of us prayed for the seeds on one side of the string.

When we told some of our religious friends about this test not everybody liked it. "How could you withhold your love from half of those seeds?" some of them said. This was the beginning of a lot of theological arguments which I won't go into here. It's better to just tell the story of the tests and forget all the trouble that comes when people who have their minds made up and know how things should be decide to let you know about it.

Our scientific friends weren't too happy either. People who are deep into science have a religious fervor about that belief system, too, and don't relate well to results that go against the system. But, that too is another story.
We did the seeds in batches, a few thousand at a time. That's because we double checked the counts both when we sowed them on the vermiculite and later when we counted each and every one that sprouted. These things take a lot of time and, besides, for some purposes it's better to do them by batches. This means that no one set of growing conditions is going to prevail over the entire data gathering. There's less chance of something you don't think of, or know about, spoil things.

The testimonial literature of spiritual healing and the literature of what little research there is on the subject show some striking differences. Spiritual healing always brings things back to normal. For instance, if a patient has a fever, prayer will lower the temperature. If a patient has too low a temperature, prayer will raise the temperature. In every case, the effect is to bring the temperature back to its "norm", the "right" or "best" level for the individual. This is different from the action of a drug or from the action of volitional/intentional thought.

Almost all study of the mind presumes that mental action is volitional, intentional. Belief, faith, emotion, suggestion, all forms of will, push whatever they rest on toward the object of faith, emotion, suggestion, or belief. Thus, tests of the effects of thought almost invariably measure the state of a system before someone thinks about it and then measure it again after someone thinks about it. Then, the two measurements are directly compared.

We measured differently. Since the effect of spiritual healing is always to return a system, whether it's a human body or a seed, to the pattern of form and function that's best for it, that defines its identity, we measured in reference to pattern. This was a break from previous practices and made our approach unique. Actually, we did a lot of unique things, but this was the beginning.

Let's explain the idea by thinking of a patient healed through prayer of a cold and a cancer at the same time and by the same prayer. In the case of the cold the measurable effect is smaller than in the case of the cancer. The measurable effect is less for the cold than for the cancer. And, if the patient were perfectly healthy, there would have been no measurable effect at all.

Before we set up our seed testing we had to think these things through. We did this partly by logic and partly from our experience as Christian Science practitioners. We knew that there was a difference between "effect" and "measurable effect." You can't measure all the good that flows from prayer but you can measure its effect on pattern. And, when you're measuring in relationship to pattern, the "measurable effect" will depend on how far the system is from norm (whether, for example, you have a cold or a cancer) and the sign of the measurement (whether, for example, a temperature is raised or lowered) will depend on whether the disfunction is on one side of the norm or the other (whether, for example, a seed is in growth retarding conditions or in hothouse conditions).

In order to test all this out we put some batches of seeds under tougher conditions than other batches. The way we did that was by watering the different batches of seeds with saline solutions of different strengths. Instead of giving the seeds clear water we put salt in the water, more for some batches of seeds than for others.

We reasoned that the more salt there was in the water the less seeds would germinate. We also reasoned that the more salt there was in the water the more the prayed-for seeds would germinate in relation to the control seeds (the unprayed-for seeds). And, we wanted to see if this would really happen. It did. It happened strong and clear.

We used the germination rate of the control seeds as a measurement of the amount of stress on the seeds. We used the percentage of the treated germination rate over control as a measurement of the effect of prayer. When we graphed these figures the curve looked to us like the "upside down" of what you'd probably get if you graphed the effect of the stress on the seeds. So, we supposed it
could be true that the effect of prayer was equal over all stress ranges and that if one had a mathematical function to adjust for the effects of stress on the seeds this proportionality would appear.

It would be easy to check on this if these tests could be done under conditions of controlled temperature and humidity. We didn’t have that kind of equipment or expertise and were happy enough with our results.

After we had done a few tests like this we moved on to another test and we switched to soybeans. Anyone who has ever seen how tiny rye grass seeds are and has had to count them will know why. And, besides that, soybeans have another big advantage. They are large enough so that you can look at them closely as they germinate. Our criterion for rye grass seed germination was whether or not a seed possessed a root and a shoot. With a soybean one can look at it very early on and skin it if need be to get a closer look. Our criterion of germination here was whether or not the sprout had separated from the seed. This was a much more sensitive approach and meant that you could get by with a lot less seeds.

By this time we knew definitely that the more salt there was in the water the larger the measurement would be, short of killing the seeds. We also knew that the earlier in the germination stage you did your counting, the larger the measurements would be. As time goes on the control beans catch up. The beneficial effect of the prayer is probably manifest in other ways, stronger, healthier beans or whatever. We didn’t have equipment or the know-how to measure these more complicated things so we stuck to germination rates.

What we did do was put 500 beans in each of 72 paper cups, each with a small hole in the bottom. That way we could rinse the beans in the cups daily, a control and treated cup simultaneously, equal amounts of rinse water in each of the 72 cups. We put red dots on 18 of the cups and blue dots on 12 of the cups. Then one of the researchers prayed for the cups with the dots on them.

In the previous tests the researcher could easily identify the seeds he was praying for. They were the ones on one side of the tray or the other. In this test the researcher had to identify the soybeans by a symbol which was an intermediary link between the researcher and the seeds. We were weakening the associational link. We were also making things more difficult for the researcher doing the praying.

The test worked just fine. By this we mean that, like the others, it was strongly statistically significant. For those familiar with such things the z-score was 18.5. A one-tailed test could be used since the seeds were in growth retarding circumstances and the direction of effect could be predicted. What color the dots were made no noticeable difference. And now we come to the penny.

I had cashed a check at the bank and had a half-dozen or so new pennies when I came home. As I looked at them a thought began to form. That evening we put a penny in a match box and shook the box well. Then we put 500 mung beans in each of three cups. One cup we marked “C” for control. Another we marked “H” for heads, and the third we marked “T” for tails. Then, the researcher prayed for the beans in the cup corresponding to the upturned but hidden face of the penny in the box.

This was tougher yet for the researcher doing the praying. The “associational link” or identifying characteristic which determined which beans were to get the prayer was something unknown to the conscious mind of the researcher, or to anyone. Could it be done? We didn’t know. We refrained from examining the beans until we were sure that enough had germinated to tell the story.

We counted the beans before we opened the box. We had put plenty of salt in the water in order to get a good result and we counted early because we were eager. There were six sprouted
beans in the control cup, six in the tails cup and twelve in the heads cup. When we opened the box the penny was heads.

Because of the small number of seeds used we had nothing that was statistically impressive. And, although we later did a number of tests like this one and they all told the same story, none of them hit us with the emotional impact this first one did. When we saw that the penny was heads we knew we had something, and that something was the possibility of a whole series of tests that would tell us about associational linkages, about the way prayer was directed, about how the mind works. That's why we laquered the penny and saved it, which also tells us something about how the mind works.

Let's go back for a moment and think about measurable effect. Before we started these tests we knew we had to control variables. In earlier testing by parapsychologists and a few others physical variables were well controlled. In good labs with good equipment the variables were undoubtedly much better controlled than we could ever get them. But nobody was controlling for the mental variables.

We felt that if we were really going to get anywhere we had to control for the mental variables, for quality of treatment (prayer), quantity of treatment, the strength of the associational link, and the distance from norm of the system being used as the measurement vehicle, in this case the seeds.

We decided we needed a simple mathematical formalism to help us in our control of the mental variables and to serve as a provisional guide for our work. We began with the measurement grid. By this we mean we began with the fact that the farther a system was from its norms the greater the measurement would be. We used "E" to represent measurable effect and "r" to represent distance from norm and we used "k" to represent the needed appropriate constant. Then we wrote the necessary equation as E = kr.

What this means is that we provisionally assumed E (measurable effect) to be in direct proportion to r (distance from norm), k represented a constant that would hold for each individual circumstance but would vary with different situations, different seeds, different stages of germination, and so on. And, of course, a function of proportionality, some appropriate adjustment for effect of stress on the seeds, would be needed to make it all work in tidy mathematical fashion. Nevertheless, we had an initial working tool.

The more tests we did the more emotions were aroused by those who heard about them. Using prayer to find out how a penny fell in a box seemed to some like using a Bible to prop up a chair with a broken leg, something that was utterly inappropriate. More thoughtful people often had similar emotions but much more sophisticated reasons for objecting to the new research. Storm clouds gathered and were already beginning to break. But this was nothing compared to the arguments over prayer.

Spindrift, Inc., the organization which was formed to carry on and support the research, has no denominational ties, no theological positions, and asks no one how they pray, not even their own researchers. We have found that prayer, as measured by the results of our tests, is not defined by any denominational ties nor by any verbal formulations, nor by visualizations. The prayer that works seems to be a state of mind which, when "associationally linked" to person, place, or thing, produces the pattern mending result.

What this means is that those who possess this state of mind get results when they think about person, place, or thing. Whatever their thought rests on, or touches, is moved in the direction of better or more perfect pattern.
A Bright and Shining Penny

The most that we can say about this state of mind is that it seems to be an embodiment of those qualities defined by the Ten Commandments and the Sermon on the Mount, those qualities which have traditionally been theologically described as the attributes of God.

We have not attempted to prove that this is true. We have, instead, defined prayer as the ability to get the patterned result as opposed to a volitional/intentional result. It is enough, for now, to establish that a given state of mind does indeed produce an identity developing and identity sustaining effect on whatever it touches.

Because our tests were done by people with a religious background rather than a scientific background, because our tests were done by people from a very small and sometimes controversial part of the Christian spectrum, because our tests were so very successful in terms of magnitude of effect, because our tests were done from a conceptually unorthodox standpoint, and because, in doing the tests, we were, as researchers, at odds with the denominational background from which we had come, there was no constituency with whom we could share the test results.

On the other hand, we had tests which, from the standpoint of established scientific orthodoxy, were "impossible", tests which broke the scientific mold, tests which were repeatable, easy to do, and powerful in their results. We were eager to set up more, and we did.

Whenever I happen to come across this bright and shining penny, I think of those early days. Some of the pleasure and excitement are remembered and some of the years of tedious work and the displeasure we aroused fade in the joy of results achieved and the number of those who, over the years, have been so supportive of what has come out of those early efforts. Those are the things that bright and shining penny brings to mind.
A RANDOM NUMBER GENERATOR

Paul Williams

In some experimental situations there is a need for a source of random numbers, based not on a pseudorandom sequence, but on a non-deterministic mechanism of some sort. This article describes such a source, in the form of an electronic circuit.

First, the theory of operation is described, along with a discussion of the principles of sampling. Then, information for constructing the circuit is presented, including schematic diagrams, parts list, and sources for electronic components. Some additional information discusses the general principals involved in mounting the circuit on a board that can be accessed by a personal computer (PC).

It may be helpful for those unfamiliar with the terms "pseudorandom" and "non-deterministic" to offer a brief discussion of those terms:

A pseudorandom sequence is a sequence of numbers based on a polynomial expression. Pseudorandom sequences can be made as large as desired by choosing an appropriate polynomial, and there is much literature available describing the selection of polynomials. In general, a polynomial of degree "n" can generate a sequence of numbers as long as \( 2^n \) minus 1. For example, a polynomial of degree 16, if carefully chosen, can generate a non-repeating sequence of numbers (called states) 64,363 in length. This polynomial can be represented by a simple electronic digital circuit as a 16-bit shift register with a few taps logically exclusive-or'd and fed back into the first stage of the shift register.

These sequences are so long that they appear to be random but, in actuality, repeat with precision as defined by the polynomial. A pseudorandom sequence is "deterministic" because, given information about the polynomial and the current state, the next state can be predicted. The sequence repeats infinitely. In general, a system will give a finite and known response if it is deterministic.

In contrast, a non-deterministic system does not deliver a predictable response given a known stimulus. For the purpose of this article, this means that the output cannot be predicted based on the current state of the system. In simple terms, this means that the next number to be generated cannot be predicted based on the present number.

THEORY OF OPERATION

The noise-generation circuit described below is in most material aspects similar to or the same as circuits described in the following books and articles:

1) An article entitled Truly Random Numbers, by H.R. Bungay and Robert Martin, Dept. of Chemical and Environmental Engineering, Rensselaer Polytechnic Institute, Troy NY 12181 from the April, 1979 issue of Kilobaud MICROCOMPUTING.
3) Experimenter's Corner from the March, 1980 issue of Popular Electronics (pp. 80-82)

This circuit utilizes noise generated from a reverse-biased base-emitter junction of an NPN transistor, biased beyond the avalanche point. This is a well known method of generating noise in an electronic circuit. The noise is caused by a number of processes, among them random generation and

The noise generated by this reverse-biased junction is at a low level, of the order of plus or minus 150 millivolts, centered about the reverse-bias DC level of approximately -4.3 V (see Point A in Figure 1).

In order to be read by a computer the noise level must be amplified and shifted to proper TTL digital levels. The low-level noise at point A in Figure 1 is directed to a level-shifter circuit that amplifies the noise and limits the voltage swing to nominal 0V and 5V levels. See Points B and C in Figure 1.

The signal at point C in Figure 1 is fed into a buffer to limit the loading on the level shifter output. At the buffer output (Point D in Figure 1), a TTL-level random signal is present. Point D is the fundamental output of the noise generator circuit.

With knowledge of the noise characteristics of the circuit and proper additional circuitry, the noise generator can be accessed by a computer.

In a typical application, the signal at Point D is sampled by some additional circuitry and formatted for use by a computer. The circuit can be constructed on a PC prototype card that fits into an expansion slot in the back of a PC.

**NOISE CHARACTERISTICS, POINT "D" IN FIGURE 1**

It can be seen by observing point D with an oscilloscope or a logic analyzer that the signal changes at a rate of the order of a few microseconds. That is, even though the signal randomly changes levels, it rarely changes more rapidly than once or twice per microsecond, and rarely less rapidly than once every 10 microseconds.

This information is important because it affects the maximum sampling rate that can be used to obtain valid uncorrelated samples if the samples are combined to make random words. For example, if the samples are divided into groups of 8 bits and the sampling rate is too great, instead of seeing a random distribution of numbers between 0 and 255, the distribution will be skewed. It will tend to have mostly 00000000 and 11111111, with nearly all of the rest of the numbers including only one transition (for example, 00111111, or 11111000, etc.).

There are a couple of ways to obtain random samples. The most straightforward method is to sample the signal at Point D using a clock rate that is much less than Point D’s change rate. Since the change rate is of the order of a few microseconds, a sampling circuit with a clock period of 10 microseconds or greater (100 kHz or less) should work fine. This implies that as many as 100,000 uncorrelated samples (100,000 bits) can be received from Point D per second. If random 8-bit words are desired, then about 12,000 (100,000 divided by 8) words per second can be obtained, if no bits of one word are to be present in an adjacent word. See Figure 2.

Another way to obtain samples is to use the signal at Point D as the sample clock itself, and use it to sample a rapidly changing signal, such as a high frequency clock. In this case, the clock being sampled (hereafter called the Input) should be much faster than the rate of change of the sampling clock (Point D for this method). This allows for an equal chance of sampling the Input at either a high or low state, since the Input will have changed state several times before being sampled (at a random time) by Point D. Note that this is an unorthodox method of sampling. Somewhat higher effective sample rates can be obtained with this method, because every time the noise at Point D makes a low-
A Random Number Generator

To-high transition, a new sample is created. In the first method described, a new sample is taken after more than two transitions of Point D, on average. See Figure 3.

Either method will work effectively, but I recommend the first method described for two main reasons:

1) The clock is well-defined, with clean transitions and a known periodic rate. This allows for clean sampling circuit operation. In the second method, the clock has essentially unknown characteristics (such as frequency and pulse width), making the operation affected to some degree by part-to-part variations in the sampling circuit.
2) The first method is easier to understand, in my opinion.

CIRCUIT INFORMATION

This section contains information on constructing a random number generator circuit, including schematic diagram, parts list, and some suggested sources for parts. The information is divided into two sections: the first is information on the noise generation circuit, the second is on one possible circuit for sampling the noise for use by a PC (many variations are possible).

Noise Generator Circuit Information:

Schematic Diagram: See Figure 4.

Parts List:

R1 - 6.8k, 1/4 W
R2 - 68k, 1/4 W
R3 - 1.0k, 1/4 W
R4 - 10k, 1/4 W
C1 - 10uF, at least 25V
C2 - 0.047uF, at least 25V
D1 - 1N4004
Q1 - 2N3904
Q2 - 2N3904
Q3 - 2N3904
U1 - 74LS04 (Hex inverter)

Power Requirements: +12 V, +5 V, -5 V, all at fairly low current (of the order of 10's of milliamps).

Sampling Circuit Information (for use by a PC):

Schematic Diagram: See Figure 5.

Parts List:

U2 - 74LS164
U3 - 74LS244
U4 - 74LS244
U5 - 74LS93
U6 - 74LS93 (U4 and U5 are used only for obtaining a sampling clock by dividing the computer clock. Alternatively, an on-board digital clock generator can be used. Recommended frequency is no more
than 100 kHz).

Prototyping card, such as JDR-PR2 from JDR Microdevices. This card fits into an 8-bit PC expansion slot. See Materials Sources for addresses and phone numbers.

JDR-PR2-PK - Parts kit for JDR-PR2 board, from JDR.
IC sockets for all ICs (not required, but recommended).
Decoupling capacitors. 0.1 uF, quantity One for each IC in the circuit.
U1, from the noise circuit, is used in the sampling circuit.
Hookup wire.
Solder.

Power Requirements: +5 V.

Materials Sources:

All parts and prototyping board JDR-PR2 can be obtained from:

JDR Microdevices
2233 Branham Lane, San Jose, CA 95124.
Phone 800-538-5000.
FAX 408-559-0250.

If desired, a pre-wired and tested prototyping board, the PD200, can be purchased from:

Real Time Devices
P.O. Box 906
State College, PA 16804.
Phone 814-234-8087
FAX 814-234-6864

Note that only the decoding circuitry for the PC interface is pre-wired (functionally equivalent to the parts kit JDR-PR2-PK from JDR Microdevices). The noise generation and sampling circuits must still be wired.

Description of the Sampling Circuit:

The sampling circuit samples Point D from Figure 1 at a rate of no more than 100 kHz. The samples are fed into the 8-bit shift register U2. The sampling clock for U2 is the clock from the PC bus, divided by the U4 and U5 counters. The outputs of U2 are accessed by the computer via the decoding circuitry on the prototype board.

The prototype board has some switches that can be positioned to decode a particular range of addresses, as decided by the user. U3 and U4 select whether a random bit or a random 8-bit word is selected, in this circuit selected by the least significant address bit, A0 (HIGH = select random BIT, LOW = select random 8-bit WORD). The user must write an application program to access the board at the address selected by the user on the prototype board.

Remember that the application program must not read the prototype board more often than it is updated by the sampling circuit.

I hope that this information is useful for those readers who wish to conduct experiments using a random number generator circuit.
Figure 2

Figure 3

Clock, no greater than 100kHz

Clock, no less than 50kHz
MECHANISMS, MODELS, AND MATHEMATICS

Robert Owen

Unless thought is amenable to our mathematics, thought cannot be apprehended by our science. Thus thought, or at the very least, the effects of thought, must be amenable to quantification and these quantifications must manifest regularity of pattern.

When the regularities of pattern of the clockwork world of Newtonian physics gave way to the probabilistic world of quantum mechanics, Einstein was among those who felt science itself was in danger of being lost. Granted, mechanistic action still had a semblance of power, but this power had become loose-jointed. The full explanatory power of causal sequences was diluted. And, without undiluted causal sequences there was no undiluted science.

While Einstein turned his attention to the philosophical fundamentals of his calling, others noted that the appearance of full mechanistic action and the predictability of this appearance continued unabated. correspondence with mathematical manipulation still continued, and, if necessary, mathematics could cope with probabilistic actions, if needed. Science went on as before.

Our tests have demonstrated that thought is capable of affecting, and perhaps even controlling, apparent energetic causation. An enormous amount of work remains to be done before it can be determined whether or not energetic constraints on the mind/matter relationship exist or whether energy/mass is a mode of consciousness itself. As a provisional working hypothesis we have argued for the latter outlook. If such should prove to be the case, the Einsteinian doubts about the validity of an ultimate natural science are reawakened. The operative question, however, is whether or not our mathematics continues to serve us in a useful way as we seek to define a whole new area of experimental inquiry.

A patterning form of consciousness is, by definition, a form of conscious which manifests itself in quantifiable elements existing in a patterned relationship. Conscious or unconscious volitional disruptions of pattern also occur with reference to pattern, manifesting themselves as disruptions of pattern. Thus, as in the transition from nineteenth to twentieth century science, the transition from twentieth century science to twenty-first century science will not require us to abandon either experimental methodology or mathematical evaluation.

If it turns out that mass/energy is subjective and objective in consciousness then mechanistic causal sequences lose ultimate explanatory power and the Einsteinian philosophical concerns become fully justified. The natural world becomes appearance only, an appearance which is wholly a reflection of the nature and power of opposing (pattern-referenced and pattern-indifferent, and thus pattern-opposed) modes of consciousness.

The death of mechanism as ultimate explanatory power is not the death of mechanism as a useful descriptive power. Although Newtonian physics cannot deal with relativistic effects it can take a rocket to the moon. In essence, mechanism becomes model, a model capable of being refined as additional variables affecting the model are understood and accounted for.
In working with random binary sequences we had, as a basis for reference, a pattern defined by easily calculated expected values. A shift of this pattern toward greater order was easily measurable. The mathematical characteristics of this shift could easily be traced in the data. In addition, actions to conceal or obscure this shift operating -- as they had to -- in measurable relationship to the pattern, could also be easily traced in the data.

We cannot ascribe causal significance to these thought-induced shifts of pattern. Cause lies in the mental realm, quite obviously in this case. We can say that the characteristics of the mathematically articulated conceptual structure which led us to the test provided a model for the interaction of opposing modes of thought under these circumstances.

A truly random binary sequence will, no matter how it is measured, develop under certain mathematical constraints. In Spindrift's Automatic Psi Test we chose to evaluate (1) by groups-of-twelve. We then looked at a sequence formed from elements of these groups-of-twelve evaluated (2) by groups-of-four. Before leaving the second stage of our analysis we (3) looked at the distribution of one element of these groups-of-four.

We had learned from earlier testing that the defense mechanism: (1) is preoccupied with conserving power, (2) acts with full force to preserve expected values for numbers of occurrences of each element of the sequence, to preserve expected values of numbers of the various types of pairs in the sequence, and (3) uses various strategies to maintain the illusion of expected values in other areas.

As mathematical analysis looks more and more deeply into the structure of the binary sequence a "falling domino" effect of defense mechanism strategies increasingly appears. Each layer of cover-up makes the next stage of cover-up more difficult. The traditional pattern of telling a lie and getting deeper and deeper into trouble as the lie is explored begins to surface.

In the first layer of evaluation (groups-of-twelve) it becomes clear that something is amiss. In the second layer of evaluation (groups-of-four) the pattern of deception stands forth clearly. Not only the fact, but the manner of attempted deception is apparent.

To those of us who earn our livings in the work of spiritual healing the "web of expected values" is metaphor for the model (but not the mechanism) of the modus operandi of spiritual healing. The "norms" (theoretically measurable characteristics of optimal form and function) of an individual constitute a "web", or patterned relationship of reference points which delineate a pattern associated with identity. Early in our research we used the term "identity field" for the "web" or measurement grid, this pattern formed.

A disruption of these "norms" by physical or mental means is, by definition, illness or injury. A movement toward these norms is, by definition, healing. To the extent the amount of holy (patterning) thought associationally linked to the patient prevails over the emotions, beliefs, and other conscious and unconscious volitional defenses of the individual (and those thoughts resting on the individual) healing occurs. The model is infinitely more complex than that of a random binary sequence but the principle is the same.
Mechanisms, Models, and Mathematics

To the extent thought molds and shapes the natural world, including man, mechanism becomes model. In this transition from one paradigm to another, mathematics gains in importance insofar as the procedures of scientific inquiry are concerned. The theoretical shift is in the way mass/energy relationships are viewed. Energetic causation fades as an explanatory mechanism and become model for those modes of consciousness to which we are accustomed, modes of consciousness which, however, can change according to laws which can be understood (mathematically expressed) by our science.

Such, at least, is the current working hypothesis of those of us who developed Spindrift's tests. Such an outlook explicitly sees the world more as a great thought than as a great machine. Such an outlook sees meaning, identity, pattern as central to science; energetic causation is model, not mechanism, a model responsive to the "hidden variables" of thought.

In this view the Einsteinian fears of loss of science are not fulfilled: the science which seems diluted as mechanism causal sequences are weakened simply reappears in the context of a wider and deeper vision of reality.