

## Towards the Discrimination of Subtle Energies

by

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We may liken conventional scientific understanding of the universe to the visible tip of an iceberg. From our research studies over the past few centuries, we have come to know that exposed tip very well. However, most of Nature is still hidden from us and we know it not. History contains references to and speculation on many aspects of the hidden iceberg and recent research in the psychoenergetics area suggests some important features. From these studies, we appear to be dealing with new energy fields quite separate from those known to us via conventional science and upon which our present technological society is built. These same energies appear to function within our organism and strongly influence our behavior in the physical world. It is time we understood these energies that reach so close to the core of ourselves!

Today is the time for the maturing of these new studies and new ideas and, as we start mining, processing and extending them, we shall develop a new dimensionality to science every bit as concrete, as quantitative and as consistent as our conventional science. On this foundation will be built vast new technologies and new personal philosophies of man's relationship to each other, to the earth and to the universe at large.

As a step along the path, in this introduction I wish to outline some experimental data that violates our present World Picture and suggests some directions of needed change. The subsequent chapters of this fine book by Dr. Motoyama take us a good piece further down the path.

### Cracks in Our World Picture

Up to the present, medicine, biology, and agriculture have largely viewed living organisms as operating via the following sequence of reactions:

$$\text{function} \begin{matrix} \rightarrow \\ \leftarrow \end{matrix} \text{structure} \begin{matrix} \rightarrow \\ \leftarrow \end{matrix} \text{chemistry} \begin{matrix} \rightarrow \\ \leftarrow \end{matrix} \quad (1)$$

As a modification of eq. 1, there is some growing awareness of the interaction between chemical states and electromagnetic fields as the next component on the right in eq. 1.

Generally, flaws in the function area have been traced to structural defects in the system that arose out of certain chemical imbalances. The rectification procedure was usually via an adjustment of the chemical environment with more and more sophisticated chemical complexes being utilized to trigger the organism's defense and repair mechanisms. The dilemma that arises is that both the organism and the threatening invaders adapt to the new chemical complex becoming progressively less sensitive to it and so the escalation of potency must continue. One very deleterious aspect of this procedure is that the unnatural chemical content of the organism increases and begins to influence other levels of functioning of the organism than the one being corrected. The effect is particularly serious in the

agricultural area where the method of application of the chemicals is via the soil so that a chemical equilibration develops between the plants and the soil, percolation of water through the system spreads the chemicals over a large area and the whole ecosystem begins to suffer from chemical pollution. Clearly, mankind must find a better way of understanding and dealing with flaws of function in living organisms. However, so long as he continues to view living organisms via eq. 1, he is stuck with his present methods.

In searching out alternative procedures for influencing the well-being of living organisms, one must first question the validity or completeness of eq. 1. Are there effective physical, as distinct from chemical, techniques for modifying organismic functioning? Are there potential techniques for doing likewise in the domain of what would presently be called nonphysical energies? Let us look at a number of observations that reveal the total inadequacy of eq. 1.

The most obvious discrepancy is the neglect of applied electromagnetic fields on the influence of muscles and organs in the human body. Everyone is familiar with the use of x-rays for tumor treatment and of diathermy for muscle relaxation, and we know that osteopathic physical manipulation techniques have had great success with improving human functioning for the past hundred years. In addition, from the field of neuropsychiatry, we have found that small electric currents between certain specific points in the brain give rise to the same behavioral changes that are observed with certain specific brain stimulating chemical intakes<sup>(1)</sup>. More recently, Becker has shown that small D.C. electric currents ( $1 \mu\text{A}/\text{mm}^2$  to  $1000 \mu\text{A}/\text{mm}^2$ )

cause cell regeneration, tissue repair and fracture rehealing, whereas D.C. currents greater than  $10,000 \mu\text{A}/\text{mm}^2$  cause cell degeneration<sup>(2)</sup>. Thus, the first step in modifying eq. 1 is

$$\text{function} \begin{matrix} \rightarrow \\ \leftarrow \end{matrix} \text{structure} \begin{matrix} \rightarrow \\ \leftarrow \end{matrix} \text{chemistry} \begin{matrix} \rightarrow \\ \leftarrow \end{matrix} \begin{matrix} \text{electromagnetic} \\ \text{energy fields} \end{matrix} \begin{matrix} \rightarrow \\ \leftarrow \end{matrix} \quad (2)$$

Going further, under hypnosis, the human body has been found to exhibit truly remarkable feats of strength and endurance attesting to a mind/structure link. In Aikido, Zen or Yoga disciplines, we see a conscious rather than a subconscious link between mind, structure and function. On another front, modern psychotherapy shows us that certain chemical treatments influence mental states and certain mental treatments influence chemical states<sup>(3)</sup>. Recent studies have indicated that human acupuncture points, of ancient oriental description, have different electrical characteristics than the surrounding skin<sup>(4)</sup>. It is very easy to show that significant changes occur in the skin electrical potential and impedance between waking, drowsy and sleep states as well as other hypnagogic states<sup>(5)</sup>. In fact, some Soviet investigators utilize concentration techniques to enhance the "effective" voltage difference between two acupuncture points from ~ 50 mV to ~ 500 mV as a training technique for developing psychokinetic abilities<sup>(6)</sup>. Finally, the recent development of biofeedback techniques<sup>(7,8)</sup> shows us that the directed use of mind can not only allow us to exercise control over a variety of autonomic body functions like skin temperature, pain, etc., but also to effect considerable repair of the vehicle. Certainly the experiments with Jack Schwartz thrusting needles through his body and mentally controlling



and one study<sup>(12)</sup> has even noted a change in the electrical impedance of specific acupuncture points on both the patient and the healer as a result of a laying-on-of-hands type of treatment.

Motoyama placed a person who showed psi-ability and a second, ordinary person, in separate rooms shielded by concrete walls lined with lead. The subject possessing psi-ability concentrated his mind on the other individual while Motoyama made measurements to determine if any changes in bodily functions occurred in the second (ordinary) person<sup>(13)</sup>. Motoyama found that remarkable changes in the pulse and respiratory rate of the ordinary person were evident during this concentration period. Since the two rooms were shielded against physical energy, he deduced that the psi-ability responsible for bringing about modifications was essentially nonphysical in nature.

From experiments directed towards man-plant communication, we gain more support for the interaction between nonphysical energies and physical energies. One of the most remarkable experiments is taking place in Findhorn, Scotland<sup>(14)</sup>, where, in barren sandy soil and with a hostile climate, the small community has succeeded in producing dozens of vegetables, flowers and trees in unexcelled size and beauty. Everything is based on the philosophy that views plants, soil, the natural forces of sun, rain and wind, plus people, as collective parts of the community of life. Via community meditation, talking to and expressing love and thanks to the plants themselves and via invocation of the aid of elemental nature spirits, the people have created agricultural products which defy conventional explanation. Backster's initial work<sup>(15)</sup> and that of Vogel<sup>(16)</sup> indicate that an electrical response can be obtained from a plant consistent with the experimenter

focusing his mind to project (a) the acts of damaging another plant, (b) the destruction of another life form or (c) a thought form of love, healing, etc. Backster postulated the existence of primary perception as a signal linkage between cellular plant life. However, Vogel postulated that the plants must be charged or sensitized by the experimenter's mind energies before being receptive to thoughts and emotions. Since a recent study<sup>(17)</sup> showed an inability to reproduce the Backster Effect without a plant sensitization step in the protocol, the Vogel approach may be the more relevant one. Finally, to see our connection to the earth, we note that the Schumann resonance<sup>(18)</sup> of the global capacitor between the earth and the ionosphere is in the 3 to 14 Hertz range which encompasses the  $\alpha$ ,  $\beta$ ,  $\delta$  and  $\theta$  ranges of the dominant human brain wave patterns. Recent studies have revealed that 10 Hz electric fields control the human circadian rhythms and that human reaction times are strongly dependent on the specific ELF (extreme low frequency) field being propagated in the local earth environment<sup>(19)</sup>. In this series of experiments, we see a connectedness developing between living things at more subtle levels of energy than those associated with our physical chemistry.

Turning to the area of psychokineses (movement of objects with the mind), we find an even greater confrontation for our present world picture. This author observed, first hand, psychokinetic demonstrations in the Soviet Union by two different people<sup>(20)</sup>. Swann performed two significant experiments in this area<sup>(21)</sup>: (1) the first, where he mentally altered the temperature of a thermister, located at a fixed distance from his body, in a pattern consistent with a prescribed coding of hot, cool, neutral, etc., and

(2) in the second, he seemingly influenced the decay rate of a very sensitive magnetic field detector at Stanford University which was located behind vast metallic and concrete shielding. The psychokinetic experiments of Forwald<sup>(22)</sup>, conducted over a 15-20 year period on small wooden cubes containing coatings of different materials of different thicknesses, showed an exponential dependence between psychokinetic force and coating thickness plus a proportionality to the neutron number of the coating material. Most recently, the demonstrations of Uri Geller have brought forth groups of children in England, Germany, Switzerland, Japan, etc., who possess similar and perhaps even greater abilities. Taylor<sup>(23)</sup> has recently described the experiments he has conducted with the young children in England. Perhaps most striking is their ability to mentally bend aluminum bars placed inside sealed transparent perspex tubes. The 1-foot long straight bars are seen to change into an S-shaped pattern filling the cross section of the 1" diameter perspex tubes without the end cap seals having been broken. Clearly, the mind forces can not only be used to influence living systems but inanimate ones as well.

Recent experiments on "remote viewing"<sup>(21,24)</sup> have shown that an individual can (a) perceive and accurately describe objects placed at a removed location from the perceiver and his line of sight, (b) be given the longitude and latitude coordinates of a location on the earth and accurately describe the terrain of that location even though it is thousands of miles away and (c) tune in on a specific individual and view a remote locality through the individual's eyes. Interestingly enough, the sensitive individual sometimes perceives the scene before the target individual actually

arrives on the scene. The reverse of this process, wherein one chooses a particular target, like a potential oil well, and seeks to know the specific earth coordinates, has also been accomplished. When one uses instrumental assistance, the technique falls in the category of "Radionics"<sup>(25,26)</sup> and the specific sub-category is called "map dowsing." Radionics is an instrumental form of radiesthesia (defined as sensitivity to radiations covering the whole field of radiations, physical and nonphysical, from any source either living or inert) and, as such, deals with the interaction of mind and matter and with the complete interrelationship of all things<sup>(27)</sup>.

Conventional dowsing studies, wherein a type of wand is used and one walks over the ground being scanned, have shown<sup>(28)</sup> that the dowsing response is a muscular action connected via a sequence of biological processes to the cause which, in many cases, is a magnetic field gradient. One individual has shown himself to be sufficiently sensitive to respond to a 1 microamp current flowing in a wire, imbedded several feet in the ground, as he walks across the wire's location with the magnetic field at the wand level being about  $10^{-10}$  gauss (earth field strength is 0.5 gauss). The seat of the sensing ability in the body appears to be the adrenal glands<sup>(28)</sup>. More recently, a number of U.S. osteopathic practitioners, investigating a subject, "kineseology," have shown that specific body muscle tonus changes occur from specific minerals or chemicals merely held in the left hand or merely placed on the stomach (the ingredients may be in a glass container). This is a very similar result to that which this author has found using a type of dowsing wand called a biomechanical transducer<sup>(29)</sup>.

Many studies have been carried out in the areas of telepathy and

clairvoyance<sup>(24,30)</sup> attesting to their state of function in the human being and in animals. Karagulla<sup>(31)</sup> has utilized subjects with clairvoyant abilities to observe the "auric" fields around patients and thence describe their state of physical and mental health. These auric fields are perceived as patterns of light of different colors extending outwards from the body. With some subjects, the patterns can be viewed with the eyes closed or in total darkness.

Studies of precognitive awareness are also widespread and a precognition teaching machine has been developed<sup>(32)</sup> which allows one to train this ability into subjects or, rather, to enhance the present operating level of this human capacity. Experiments being conducted with pyramids of specific shape suggest that they are useful for preserving cellular tissue and to enhance the healthy growth of plants, even in total darkness<sup>(30,33)</sup>. Combinations of specific shapes and specific materials in a unique fashion have been shown to produce devices called "psychotronic" generators<sup>(3)</sup> which can be charged with biological energy and perform an array of functions that confound conventional understanding. This author has directly observed such devices in operation and accepts that they most probably respond to a "New Physics."

The foregoing list could be made much longer; however, the point has hopefully been made that eqs. 1 and 2 are inadequate to account for a variety of new (and old) experiences that have occurred in the family of man. Acceptance of this work is difficult for those who have had no experiential awareness of these "other" energies of nature, and it is somewhat understandable that it is vehemently rejected in many quarters as violating our collective

picture of the universe. Some of the natural criticism about sloppy experimental procedures is justified in specific cases because it is extremely difficult to develop a completely "clean" protocol for these experiments. In addition, one may be justified in quibbling about the quality of a particular experiment or about the veracity of a given experimenter; however, the body of experimental data of this type is so vast and growing so rapidly that it cannot be denied much longer. The evidence is becoming so strong that it definitely merits a wise person's reflection.

Incorporating the foregoing experimental results, we are led to a human reaction equation of the following form:

$$\begin{array}{ccccccc}
 \text{function} & \rightleftarrows & \text{structure} & \rightleftarrows & \text{chemistry} & \rightleftarrows & \\
 & & & & & & \\
 & & \text{positive} & & \text{negative} & & \\
 & & \text{space-time energies} & \rightleftarrows & \text{space-time energies} & \rightleftarrows & (4) \\
 & & & & & & \\
 & & \text{Mind} & \rightleftarrows & \text{Spirit} & \rightleftarrows & \text{Divine}
 \end{array}$$

where the conventional space-time energies function in a reference frame which I have denoted positive space-time and the unconventional space-time energies function in the negative space-time frame.

From the foregoing, we can gain the idea that man is a multidimensional Being, functioning on many different levels of Nature simultaneously. He is mostly unaware of these levels of self and cannot grasp the visualization that he has an extended energy structure that interconnects and integrates

his Beingness with seemingly separate localizations of Beingness. We are so chained to our view of reality as perceived by the five physical senses that we are unable to give credence to our true nature. We must come to realize the potential of man as expressed by eq. 4 and to recognize that, if man's energy structure is perturbed at any one of the indicated levels, ripples of effect flow out in all directions to produce corresponding perturbations at all other levels. However, the magnitude of the effect and the time of manifestation of the effect at another level will depend upon things like the intensity of the original signal, the conductivity of the medium of the original signal and the degree of coherence of wave structures at the boundaries between levels.

A body structure at the physical level is stable and sustained by a type of chemical homeostasis or chemical pattern which, in turn, is maintained stable by a pattern of electrostatic potential and other specific positive space-time patterns of potential. The positive space-time patterns of energy are maintained stable by specific negative space-time patterns of potential which are themselves maintained stable by patterns at the mind level of the universe. At this point, it is useful to recall Wolf's law of bone structure which tells us that if a nonuniform stress is applied to a bone by the body for an extended period, the bone will grow new trabeculae (a type of bone girder) in the exact locations needed to support this nonuniform stress distribution. The process probably occurs by the physical strain field interacting with the electrostatic field of the system producing changes there and these changes cause ions and

molecules to be transported to specific locations agglomerating into specific tissues and structures that comprise the trabeculae. These changes probably all occur as a response to the strain energy contribution (pressure/volume factor) influencing the electrochemical potential,  $\mu^j$ , of molecules in the physical tissues.

Carrying this idea further, mental field patterns can be thought to act like a stress influencing the field term of the magnetochemical potential of molecules,  $\mu'^j$ , at the negative space-time level. In turn, via a special coupling, this pattern produces the required correlate at the positive space-time level in the  $\mu^j$  and thus in the structure of the physical body.

We must note that the removal of the body stress that created a certain pattern of trabeculae in a bone does not lead to the instantaneous dissolution of these trabeculae. Rather, they may disintegrate or dissolve very slowly (under the proper exercise) because of the molecular kinetics involved and they may maintain the body in a distorted shape for a very long time even though the initial physical cause is removed. The same situation occurs for physical structures generated by emotional or mental stress patterns. Further, since these unharmonious patterns scatter energy from the main flow stream at the various levels already discussed, the removal of the anchoring patterns at the two ends of the chain will release the intervening pattern links and more energy will be available for the organism's functioning.

All this leads quite naturally to a perspective on healing; i.e.,

that pathology can develop at a number of levels and that healing is needed at all of them to restore the system to a state of harmony. The initial pathology begins at the level of Mind and propagates effects to both the negative space-time and the positive space-time levels. We then perceive what we call disease or malfunction at these levels and try to remove the effects by a variety of healing techniques. The best healing mode is to help the individual remove the pathology at the cause level and bring about the correction by a return to "right thinking." The next best healing mode is to effect repair of the structure at the negative space-time level. The third best level of healing is that which medicine practices today, wherein they effect repair of the structure at the positive space-time level.

Since the energy structures at these different levels are coupled, repair at a lower level will still produce some feedback modification of energy structure at a higher level. However, if harmony is not restored at the higher level, then a force will continue to exist for pathological development in the energy structure at a lower level. Of course, this force is basically like a thermodynamic potential to produce change so that the effects may be manifested or materialized in very different forms, depending upon what alterations have already been made to the energy structures of the positive and negative space-time frames. The closest analogy to this can be found in the field of "phase equilibria" of materials. If you heat a complex alloy containing a number of chemical constituents to a high temperature so that it melts, then by cooling it again you produce a thermodynamic driving force for a phase change; i.e., to one of several

possible solid forms. By making very slight but specific modifications to the chemistry or cooling rate or other variables in the process, it is possible to change the type of solid phase that initially develops and the crystalline form that results. However, so long as the potential exists, some solid phase will form.

What we can see developing here is a subjective science on an equal footing with present objective science. A common misconception is that the "scientific method" requires the experimenter to be coldly and distantly objective during the performance of an experiment. Instead it really only requires a complete description of the necessary and sufficient conditions of protocol for anyone to reproduce the experimental result at any physical location. If this requires setting a mental and an emotional field at certain strengths, then so be it. If these are to provide a positive, negative or neutral bias, then so be it. However, we must, of course, invent the measuring instruments with which to set and reproduce these field strengths. That is our problem today--we don't yet know enough to design the correct instruments; we only know enough to recognize a significant influence and to realize that it is not easily controlled. This recognition and its incorporation into the scientific method forms the basis for our "subjective science," which is of profound importance for understanding and guiding the transformation of humankind towards higher levels of integration.

There is a truly great need for reliable experimental devices for monitoring body energies on successively more and more subtle levels. Measurements with such devices will help to forge the bridge between our present

chemical medicine and our future energy medicine. The studies discussed in the subsequent chapters of this book are a great step forward towards that goal!

### References

1. D. E. Woolridge, The Machinery of the Brain (McGraw-Hill Book Co., Inc., New York, 1963).
2. R. D. Becker and D. G. Murray, "The Electrical Control System Regulating Fracture Healing in Amphibians," Clin. Orthop. and Rel. Res. 75, 169 (1970).
3. D. Hawkins and L. Pauling, Orthomolecular Psychiatry (W. H. Freeman and Co., San Francisco, 1973).
4. M. Reichmanis, A. A. Marino and R. O. Becker, "Electrical Correlates of Acupuncture Points," To be published in IEEE, Trans. on Biomed. Eng., 1975.
5. W. A. Tiller, "Some Physical Network Characteristics of Acupuncture Points and Meridians," Academy of Parapsychology and Medicine, Acupuncture Symposium, Stanford University, California, June 1972.
6. V. Adamenko, Private Communication, Soviet Union, September 1971.
7. E. Green, "Biofeedback for Mind-Body Self Regulation: Healing and Creativity," Academy of Parapsychology and Medicine, Varieties of Healing Experience Symposium, De Anza College, California, Oct. 1971.
8. B. B. Brown, New Mind, New Body--Biofeedback: New Directions for the Mind (Harper and Row, New York, 1975).
9. Sister Justa-Smith, "The Influence of Enzyme Growth by the 'Laying-On-of-Hands'," Academy of Parapsychology and Medicine, Dimensions of Healing Symposium Proceedings, Los Altos, California, 1972.
10. R. N. Miller, P. B. Reinhart and A. Kern, Thought as Energy, ed. W. Kinnear (Science of Mind Publications, Los Angeles, California, 1975).
11. A. Puharich, "The Search For a Common Denominator in Medicine and Healing," Academy of Parapsychology and Medicine, Dimensions of

11. (cont'd.)

Healing Symposium Proceedings, Los Altos, California, 1972.

12. W. A. Tiller, "Some Psychoenergetic Devices," *A.R.E. Journal* 7, 81 (1972). (A.R.E.  $\equiv$  Association For Research and Enlightenment, Virginia Beach, Va.)

13. H. Motoyama, "The Mechanism by which PSI-Ability Manifests Itself," *Impact of Science on Society* 24, 321 (1974).

14. P. Tompkins and C. Bird, The Secret Life of Plants (Harper and Row, New York, 1972).

15. C. Backster, "Evidence of Primary Perception in Plant Life," *International Journal of Parapsychology*, 10:6 (Winter, 1968).

16. M. Vogel, "Man-Plant Communication," in Psychic Exploration, editors E. D. Mitchell and J. White (G. P. Putnam's Sons, New York, 1974).

17. K. A. Horowitz, D. C. Lewis and E. L. Gasteiger, "Plant 'Primary Perception': Electrophysiological Unresponsiveness to Brine Shrimp Killing," *Science* 189, 478 (1975).

18. W. O. Schumann, "Über die Strahlungslosen Eigenschwingungen einer leitenden Kugel die von einer Luftschicht und einer Ionosphärenhülle umgeben ist," *Z. Naturforsch* 7a, 149 (1952).

19. H. König, "Biological Effects of Extremely Low Frequency (ELF) Electrical Phenomena in the Atmosphere," *J. Interdiscipl. Cycle Res.* 2, no. 3, 317 (1971).

20. W. A. Tiller, "A.R.E. Fact Finding Trip to the Soviet Union," *A.R.E. Journal* 7, 68 (1972).

21. I. Swann, To Kiss Earth Good-bye (Hawthorne Books, Inc., New York, 1975).

22. H. Forwald, Mind, Matter and Gravitation (Parapsychology Foundation, New York, 1969).
23. J. Taylor, Superminds (Macmillan, London, 1975).
24. R. Targ and H. Puthoff, "Information Transmission Under Conditions of Sensory Shielding," Nature 252, 602 (1974).
25. L. Day and G. de la Warr, New Worlds Beyond the Atom (Vincent Stuart, London, 1958).
26. L. Day and G. de la Warr, Matter in the Making (Vincent Stuart, London, 1966).
27. W. A. Tiller, "Radionics, Radiesthesia and Physics," Academy of Parapsychology and Medicine, The Varieties of Healing Experience Symposium Proceedings, Los Altos, California, 1972.
28. Z. V. Harvalik, "Sensitivity Tests on a Dowser Exposed to Artificial D.C. Magnetic Fields," American Dowser 13:3, 85 (1973). Ibid 14:1, 4 (1974).
29. W. A. Tiller and W. Cook, "Psychoenergetic Field Studies Using a Biomechanical Transducer," Proceedings of A.R.E. Medical Symposium on New Horizons in Healing, Phoenix, Arizona, January 1974.
30. S. Ostrander and L. Schroeder, Psychic Discoveries Behind the Iron Curtain (Prentice Hall, New York, 1970).
31. S. Karagulla, Breakthrough to Creativity (De Vorss and Co., Inc., Los Angeles, 1967).
32. H. Puthoff and R. Targ, "Psychic Research and Modern Physics," in Psychic Explorations, editors E. D. Mitchell and J. White (Putnam's Sons, New York, 1974).
33. G. Milne, The Pyramid Guide 18, 5 (1975).