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CERTAIN PROBLEMS IN BIOLOGICAL ELECTRODYNAMICS AND PSYCHOENERGETICS

by

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Introduction

Living matter, in the thermodynamic sense, is not governed by the physical law that is valid for inorganic matter [1]. The antientropicity of psychic processes [2], which are the highest manifestation of life, in the general case, serves as a proof of the fact that the thermodynamics of living systems cannot be reduced to classical thermodynamics, while living matter has, in comparison with inorganic matter, certain new properties.

That which is valid for matter may turn out likewise to be valid for the fields of living organisms as well. Actually, if living molecules differ qualitatively from inorganic molecules, why cannot such a difference exist between "living" and "technical" fields? In case such a statement of this problem is valid, the electrodynamics of living systems must differ from technical electrodynamics. It is accurate to say that technical electrodynamics may be a valid case of biological electrodynamics. This means that in studying living organisms by technical means certain properties of bioelectric fields are difficult to register. One example may be found in the

so-called "healing by laying on of hands." An electric field was detected between the patient and the "healer" [Kirlian, 1966], but one cannot successfully product the same subjective sensations (the subjective sensation of heat, etc.) by means of a "technical" electric field as those which are experienced by the patient under the "laying on of hands."

If a specific field inherent solely in living organisms, then a corresponding form of energy must also exist. But psychic or biological energy cannot be reduced to other forms of energy, just as electrical energy cannot be reduced to mechanical energy. As numerous experimental data demonstrate, psychic energy may be manifested via electric and magnetic fields, heat, or mechanical motion. Therefore, it makes sense to use electrical energy, electromechanical energy and other equivalents to estimate the magnitude of psychic energy.

An approximate scheme for the interaction of a psychic field and matter may have the following form: display RV 22A. One may draw a certain analogy between the laws of electromagnetic and psychic fields. Probably, just as an electric field, a ψ field must have sources (man); the analog of induction may be suggestion, and the analog of self-induction may be self-suggestion. Just as in Ohm's law, psychic tension must be proportional to psychic resistance. From this point of view, the brain (and, in general, a living cell) is conveniently treated as a transformer of ψ-field energy into other forms of energy and back again.

BIOELECTRIC INDUCTION

If a living cell is considered to be an energy converter, then the following may be said of at least two phenomena which are analogous to those which form the basis of technical electrodynamics:

1. The action of an electric field causes a mechanical contraction of the neuromuscular organs of living objects.

2. The neuromuscular tension (specifically the will) tension may create an electric field around living organisms as a consequence of which electric charges may be induced in surrounding objects.

The validity of the first part of the law of bioelectric induction was proved by Luigi Galvani, who discovered that at a certain distance from the spark of an electrical machine, the muscles in a neuromuscular specimen taken from a frog contract. An analysis of experimental data [3,4,5,6,7] demonstrates that the second part of the law of bioelectric induction likewise may be valid. As an example, let us consider the results of three experiments: electrical telekinesis, electrical properties of acupuncture points, the Kirlian effect.

Electrical telekinesis. The tested subjects induced a charge in a dielectric cube having an edge 0.5 m long and moved various objects weighing 10 to 100 g along its surface. A successful performance of the experiment requires not only the presence of a charge on the surface of the dielectric cube and the preservation of it for a specified time, but also a corresponding distribution of the electrostatic field. In a plane capacitor the field is concentrated between the plates, and therefore no motor forces are manifested at the outer side of the plates. The electrostatic field of the charged plane has an

approximately identical intensity on both sides. If some small object is placed on the charged dielectric surface, then one may cause its movement by means of electrostatic forces. As a rule, the charge on the object is negative, but this charge cannot compensate the charge of the entire dielectric because, as is well-known, the electrons and ions cannot move along its surface. Consequently, Coulomb attraction forces will act between the object and that region of the dielectric where the positive electric charges have concentrated. If these forces are larger than the friction force that restrains the object, it will move from its place. But usually the friction force is greater, and the object is in a state of unstable equilibrium. If a person brings his hand close to the object from the direction opposite to the direction in which the electrostatic attractive forces between the object and the positive charges on the dielectric surface act, then electrostatic repulsion forces develop between the person's hand and the object (the person is charged negatively). These additional repulsion forces may cause movement of the object if the charge of the electrified surface is sufficiently great. However, if the charge is not very great, then the object begins to move only as a result of a willed tension of the hand muscles (or the muscles of some other part of the body) of a trained tested subject. The appearance of an additional electric field as a result of an emotionally willed tension evidently confirms the validity of the second part of the law of bioelectric induction. It may be noted that the functioning of this simple device for moving objects by a human subject recalls the operation of a Geiger counter which records small amounts of energy transported by individual particles. Actually, an electric field of high intensity is created in

the working volume of a Geiger counter. A particle entering the volume produces additional ionization, as a consequence of which an electrical discharge occurs. In the device described above the role of the particle is played by the additional energy which is generated by the person and causes movement of the object.

When objects are moved by a subject, the force of sliding friction sometimes decreases so much that the objects, as it were, "swim" in the air. The cause of this probably resides in the following: In the absence of an electric field the air molecules have six degrees of freedom, while in a strong electric field they are polarized; as a consequence of the polarization the number of degrees of freedom decreases to two, and if the field is uniform, then the aerostatic pressure of the directed stream of molecules is compensated by the pressure of the opposite stream; however, if the field is nonuniform, then the pressure of the air molecules in one direction will be greater than in the other (i.e., an "electrical" wind will develop) and the objects will lose their weight; this effect may be interpreted formally as an increase in air density, the pseudodensity of the air medium becoming greater as the nonuniformity of the field increases.

For a correct performance of experiment on electrical telekinesis, one requires identical physical conditions. It is precisely for such a setup for the experiments that it was discovered that the psychophysiological state of the tested subjects has a considerably stronger effect on the success of the experiment than, for example, atmospheric conditions do. Under hypnosis the capabilities of those subjects which are susceptible to hypnosis improve.

An investigation of the psychic component of telekinesis demonstrated that the phenomenon is amenable to training. At the beginning of the training

process the subjects usually are charged up by rubbing their hands against the surface of a dielectric cube. Gradually, the subjects become used to working without such charging up. The development of abilities for telekinesis is facilitated by psychic stimulation. In a very good psychophysiological state there is no need at all to create additional charges on the surface of a cube by friction, since the dielectric surface accumulates energy generated by the subject. After psychic training over a period of several months, certain subjects induced a charge in the cube that was so great that any person coming along after they had worked with the cube could move objects on it without contact. The impression was created that the subjects were transferring their ability to perform telekinesis to other people for a short time. Actually, during the work with the object an accumulation of energy in the dielectric cube takes place solely due to the trained subject. As a rule, when other persons move the objects, they discharge the dielectric which has undergone preliminary charging by the subject, and thus they are really using his energy which has accumulated in the cube.

A rough calculation of the energy expenditures that accompany telekinesis shows that an electrostatic field energy of $E^2/8\pi$ is insufficient to move objects of a specified weight. Under stimulation by success (biological feedback) the magnitude of the charge induced by the subject increases, but the difference between the overall energy generated by the subject and the electrostatic field energy likewise increases.

Electrical properties of acupuncture points. A correlation exists between the psychic state of a person and the electrical characteristics of acupuncture points [8]. An emotionally willed effort may be used to change the conductivity of active points. This change in conductivity is specifically associated with muscle tension. Taking account of the second part of the law of bioelectric induction, it may be assumed that the change in the conductivity of the points as a result of emotionally willed effort is associated with the induction of a charge. However, one can reliably record a change in the psychic state of a person by measuring the conductivity of the active points only by means of an electronic amplifier having a characteristic with a steep slope. This fact is probably evidence of small changes in the electrical properties of active points during the transformation of psychic energy to electrical energy.

In training subjects to develop their capabilities for performing telekinesis, an electronic amplifier with a steep characteristic and a meter at the output was used. The subjects, which had the active points on their skin connected to electrodes that were in turn connected to an electronic amplifier, caused the movement of the pointer on the meter by means of an effort of will. Thus, control of the field during telekinesis may be accomplished not only by moving the hand of the subject in space, but also as a result of a directional change in the conductivity of the skin at the active points. In a special series of experiments the hands of the subjects were kept motionless and near an object lying on a charged dielectric surface. The subjects caused the object to move by means of a volitional effort.

The Kirlian effect. Obtaining images in the field of a high frequency discharge is based on the phenomenon of autoelectronic emission [6]. Different sectors of a person's skin, which have been photographed in a field of high frequency currents, register an explicit dependence of the structure and color of the images on the psychic state of the person. Such results are obtained best when live objects are situtated in a high frequency electric field of very high intensity. But, as is well-known, the current due to the cold emission of electrons increases according to an exponential law, and this provides the basis for assuming that even in the case given the change in the structure and color of the images is associated with the second part of the law of bioelectric induction. In order to check this proposition the following test was performed: A unipolar pulse generator designed by engineer V. Vontorevich was used to obtain high frequency images of inorganic objects and plant leaves without any additional electrical bias applied to the photographed object, as well as with an additional bias; the change in the structure of the images when an additional direct voltage was applied suggests that the dependence of the structure and color of the image on the psychic state of the person is associated with the generation of an additional field by the person; actually, it is precisely the distribution of the electric field intensity on the surface of the objects that is registered on high frequency photographs.

The same pulse generator was used to obtain the images of the fingers on the hands of the subjects in the conventional state and at that instant when they concentrated their attention on telekinesis (not actually moving the object but mentally imagining its movement). The change in the structure and color of

contactless movement of an object by a person is analogous to the principle by which a Geiger counter works: the direct current amplifier used to record the psychophysical state according to the variation of the conductivity of active points on the skin must have a steep characteristic; obtaining high quality images registering the psychic state of a person is based on cold emission of electrons, and the dependence of autoelectronic current on the electric field intensity is exponential. Thus, in order to transform psychic energy into electrical energy one requires systems in a state of unstable equilibrium.

Probably, the transformation of psychic energy may be accomplished not only at the level of mechanical, electrical and light phenomena but also at the level of radioactivity, magnetic and electromagnetic fields, sound and gravitation. Thus, one can design psychotronic instruments whose principle of operation is based on utilizing a state of unstable equilibrium (lasers with preliminary pumping up to the level of "cutoff" of lasing, gyroscopes, tape recorders with tape that is unmagnetized relative to a certain specified level, etc.). It is possible that new forms of energy that are unknown today will be discovered into which psychic energy may be transformed.

The hypothesis of a ψ-field leads to the necessity of analyzing not only the informational but also the energy aspects in investigating psychic phenomena.

If psychic energy can be quantized, then it is possible to state the hypothesis to the effect that an entire class of elementary particles exists which arise as a result of the psychic field.

CONCLUSION

In biology an abrupt change of biological properties is called a mutation. Similarly, an abrupt in the psychic properties of individual persons may be called a "psychic mutation." Such persons include those who are capable of manifesting various parapsychological phenomena. It may be assumed that if the fourth state of matter--plasma--is incorporated in living organisms, then plasma processes may be responsible for mutations, including psychic mutations. In this case, one may trace the connection between living organisms and cosmic phenomena through the action of natural electric and magnetic fields on the plasma. However, psychics is capable of self-advancement--of developing and overcoming the facts of the external medium. Therefore, a study of special states of consciousness and psychic training at the level of psychoenergetics by means of modern instrumentation has a significance that is just as great as the investigation of the ψ-field of psychically talented persons.

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LITERATURE CITED

[1]. Irwin Schroedinger. What is Life? (From the Point of View of a Physicist). Moscow. Avomizdat. 1972.