ORGONOTIC PULSATION

The differentiation of the orgone energy from electromagnetism
Presented in talks with an electrophysicist *

By Wilhelm Reich, M.D.

INTRODUCTION.

The present article deals with the orgonotic pulsation as a physical characteristic of the cosmic orgone energy. The relevant experiments demonstrate orgonotic manifestations in the realm of non-living nature. With that, orgone biophysics takes root in orgone physics. The past five years (1939-1944) have shown that the differentiation of the cosmic orgone energy from electromagnetism as commonly thought of was indispensable and fruitful. In the process of this differentiation, a wealth of connections between orgonotic pulsation and problems of biology, geology and astronomy were discovered; they are as yet incalculable, and only a small fraction of them could be organized. I was confronted with the choice of either postponing the publication of the basic facts of orgone physics until such time as all these basic connections are essentially clear, or of delimiting certain problems and of presenting them separately.

In the first case, the presentation of a total picture of the orgone functions would inevitably have been burdened with hypotheses. In the second case, that of piecemeal presentation, the view of the whole is unsatisfactory and often even confusing; there is, however, the advantage that the details of a special realm of functioning can be more sharply drawn. I chose the second way, also in order to collect more differing and critical points of view before attempting to correlate the various aspects of the orgone function into a whole.

I can understand the impatience of my friends who would like to hear of all that is worth knowing as soon as possible. However, the interest of the total work requires the interpolation of several years between the making of a finding and its publication. This is an automatic safeguard against theoretical blunders. From the very beginning of orgone research it has proven valuable not to publish a new finding until it had already developed into an essential new piece of insight. The continued development to a new insight is a confirmation of the previous finding.

The finding that all substances which have been made to swell show a bionous structure was not published until it had already brought an understanding of the cancer cell. The finding of the visibility of the orgone was not published until after the discovery of the temperature differences. When the findings of thermical and electroscopic orgonometry were published (1944), the phenomena of orgonotic attraction and repulsion (1942-43)
Wilhelm Reich

had already been confirmed. At this time, when I submit the phenomena of orgonotic pulsation for publication, there are already at hand new findings and correlations which derive from the study of the pulsation, which confirm and elaborate it.

These things are being said for a good reason: many of my critics are hasty in their judgment. Thus, for example, in the case of the article, "The Discovery of the Orgone" (1942), the objection was made that I should have used this or that method of measurement, that I should have made this or that additional experiment. We do not have to pay any attention to the sarcastic derision with which the first publications on the orgone were met in certain quarters. It is the reaction of impotent people to something alive.

The presentation of the orgonotic pulsation in the realm of non-living nature is in the form of talks with an electrophysicist. He propounds views and objections which, in the course of years, have been propounded by actual physicists. In some places, I have attributed to him typical textbook opinions. In other places, he raises objections which I had to raise myself in the course of the experiments; in still others, he gives explanations as they derive from the orgone experiments. In other words, our electrophysicist is the personification of many real physicists of diverse orientation. This manner of presentation seemed the best to pave the way to a common meeting ground of orgone physics and electrophysics. The erroneous concepts of my electrophysicist are quite common in the world of physics. It goes without saying that they are not mine.

I would like to ask the reader to be indulgent toward minor errors which may be found here and there. If one cuts through a jungle, one is apt to trip over a root and make a blunder. The pioneer in the jungle does not of necessity have to know the exact chemical composition of the leaves. Theoretical physics contains so many fundamental errors that it can ill afford to appear in the role of an intolerant critic of a young and pioneeringly fruitful science such as orgone physics.

Wilhelm Reich.

April, 1944.

1. THE POSITION OF THE BIOLOGICAL ENERGY IN NATURAL SCIENCE.

Electrophysicist (E): A biologist friend of mine told me very peculiar things about your orgone research. He thinks that your bion experiments may prove of great significance for biology; on the other hand he doubts whether the world of classical biology will ever accept the bion theory.

Orgone biophysicist (O): I share his doubts. Orgone biophysics will gain social recognition at first not in the realm of biology, but in the realms of biopsychiatry and physics.

E: I don't understand. After all, with psychiatric problems concerning the nature of the "emotions" as your point of departure, you found a way into the biological foundation of psychic processes. One would think, then, that the realm of biology would be the first to acknowledge your findings. Do you understand this resistance on the part of classical biology?

O: This question can be answered in a few sentences: Biology, apart from vitalism, has an essentially mechanistic orientation. Orgone biophysics, on the other hand, operates functionally, in the experiment, its interpretation, and in the formulation of theories. Classical biology finds itself in a tragic dilemma. On the one hand, it operates with living processes which it considers sharply delineated from non-living nature. On the other hand, and simultaneously, it attempts to comprehend the life principle by way of methods and concepts which are taken entirely from physics and chemistry, that is, the sciences concerned with non-living nature.
Orgone biophysics finds itself at the opposite pole. It assumes the existence of fluid transitions from the realm of non-living to that of living nature. Second, it dispenses, of necessity, with the mechanistic physical conception of living processes. It demonstrates a specific biological energy, which governs all living processes on the basis of simple natural laws. This energy, called orgone, governs living as well as purely mechanical natural processes. The functions of this energy make comprehensible the manner in which living matter develops from non-living matter, that is, the process of biogenesis.

E. It was precisely this aspect of your research which made me look you up. I come to you not for electrophysical but for biological interests. I have been studying biology on the side, as one collects stamps or plays golf, in order to get a change from my own professional field.

O. I doubt that your biological interest is no more than an incidental avocation. The biologists, left unsatisfied by their own science, seek respite from dry mechanism in physics and chemistry. For the same reason, many physicists and chemists find their way into the realm of living functioning, if not into mysticism. It is striking to see to what extent Newton was taken up with metaphysical and religious problems; at first glance, this seems amazing in a representative of that "most exact of the natural sciences," mathematicians. That which is alive in the genuine scientists always searches for the basic elements, for the common denominator in the natural laws and natural processes. The living is a significant part of nature. Up to now, it was under the care of mysticism and genuine religiosity. Of course, I am referring here not to the officials of natural science, those who are concerned with knowledge which is already acknowledged; they are comparable to museum guards who watch over statues. I am referring to the genuine researcher, the one who strives to get beyond his own limited field, the one who attempts to find the place of his special field in the unitary natural process.

E. Obviously, there has always been a tremendous need for the simplification and unification of the scientific world picture; unfortunately, the efforts in that direction were futile. Rather, the increasing specialization of the various branches of research and their concern with detail work had the opposite effect: that of leading natural science farther and farther away from its real goal, that of simplification and unification of natural processes. The natural philosophers, charged with this task, also soon became specialists: specialists in speculation and in the attempt to solve the riddle of the common denominator in nature by pure thinking. Natural philosophy also failed in this task. The cry for integration of the natural sciences means little as long as the process and the function are not found which comprise all natural processes in their totality as well as in their individual functions.

The specialists of today are poorly trained in methodical thinking. They cannot co-ordinate the details into a whole. It is as if thousands of builders were to build a magnificent structure without having a plan for the whole. Thus the front door does not fit the staircase; there are magnificently furnished rooms lacking an entrance; the water pipe leads into the chimney; the bedrooms are in the lobby and the reception room on the eighth floor. The result is utter confusion. One does not see the woods for all the trees, and one does not see the natural process for all the words. When the tenants moved in, there was war, for—all improvements of modern technic notwithstanding—nobody could find his way around.

O. I usually demonstrate to my pupils and friends the difference between mech-
anistic word-science and functional natural science by way of a very simple illustration.

E. Let's hear it.
O. Take a primitive who enters a modern living room and sees a chair for the first time in his life. What will be his immediate first question? "What do you call this?" or "What do you do with it? What is it made of?"

E. The latter, of course. To begin with, he would not ask about the name, because a word, such as "chair," would not tell him anything about the function or nature of the sitting contraption. To him, "table" or "book" could equally well mean "chair." His biological feeling of motion will soon tell him what one has to do in order to "use" this peculiar sitting apparatus. Not until our primitive has established this practical, that is, functioning contact, will he give the contraption a name, such as "leg rest" or "buttocks support."

O. Our classical biologists are not that close to reality. Classical biology has divided and subdivided the realm of the living according to external statistical characteristics and clothed it with a host of difficult words. With that, the primitive sense for function and the origin of function was so thoroughly lost that the natural functional intelligence underwent complete atrophy. When a biologist sees an energy vesicle which is spherical and takes blue Gram stain he believes to have it satisfactorily explained when he names it "staphylococcus." With that, the avenue of approach to the question, "Where does it come from, what becomes of it, how does it function," is thoroughly blocked.

E. Yes. And since every one of the infinite number of diverse manifestations has its own word, the result is a fantastic confusion.

O. Neurology actually believes to this very day that it has "explained" a motion when it designates the nerve fibres in which the excitation runs. Among the hundreds of thousands of anatomical names referring to the animal organs there is not one referring to the orgastic contraction. For all the naming of the various reflexes one overlooked the simple and basic biological functional movements. If any animal were to move according to the description of its body in a mechanistic anatomy, it would be unable to move a limb.

E. I once saw a mental patient in a rigid attitude of defense and made a remark about it to the psychiatrist. He said, "This is the well-known opisthotonus"; the expression of the movement, that is, its function, he did not see.

O. It is a pleasure to hear a physicist speak in strictly functional terms. Has not the electronic theory realized the desired unification of the scientific world picture to some extent, after all? Is not the electronic theory of today in harmony with the good old atomic theory of Democritos? To judge from the newspapers and professional publications, everything seems to be pretty well settled.

E. As a professional physicist, I should agree with that; as a living organism, I cannot. To begin with, nobody has as yet seen any electrons. Their existence was assumed as a hypothetical working basis. They were assumed in an attempt to comprehend the common denominator. Unfortunately, this common denominator soon fell apart into neutrons, protons, electrons, positrons, etc., which are unrelated; one does not know their common denominator. Similarly, the atoms remained invisible.

O. Like the genes of the heredity people.

E. Exactly. Nevertheless, the misbelief in the unchangeability of the chemical elements has been dissipated by the discovery of radium by Madame Curie. But now the substances are built of electrons, positrons, etc. The question of the common denominator has only been shifted...
and has become more complicated. In addition, there is magnetism, heat, mechanical energy, etc., the common basis of which is unknown. Since the times of Kepler and Newton one has known the laws of gravitation, but one knows nothing about its nature. The comprehension of the common denominator of the various forms of energy seems farther removed than ever.

O. I don't know enough of practical physics and chemistry to form an opinion here. In biopsychiatry, the mechanistic splitting up of natural science is disturbing. Physics and chemistry have thus far not contributed anything fundamental to the understanding of the vital apparatus, either theoretically or practically. The total functioning of the organism has remained a riddle.

E. People say that, with your orgone physics, you transgress your competence as a psychiatrist. If, as you contend, there is a universal cosmic energy which can be measured and made visible, the physicists should have discovered it long since. You say yourself that you do not know much of practical physics and chemistry, and thus confirm this objection.

O. Let's clarify the question of competence, first of all. It is a matter of the point of view from which competence is judged. I have often asked myself whether I was not going beyond my competence in trying to comprehend orgonotic manifestations in non-living nature. Two considerations contradicted my doubts:

First, it is a fact, one that has been stated by many eminent researchers, that thus far mechanistic natural science has contributed nothing fundamental to an understanding of the simplest life manifestations such as pulsation. Classical biology, tied as it is to the apron strings of inorganic chemistry and physics, deriving its scientific principles from the realm of non-living nature, has also failed. If one judges competence not from pretensions but from achievements, then there can be no doubt that the mechanistic natural sciences have not proved their competence in the realm of the living. This is clearly shown in the sad state of affairs which prevails with regard to medicine and the vital apparatus. People with cancer die a living death of putrefaction. No pathologist, chemist or medical man notices this simple fact. That is, in the question of competence of physics and chemistry with regard to living functioning, the facts decide against them.

Second, the discovery of the specific biological energy, the orgone, resulted not from a transgression of basic biopsychiatric questions but, on the contrary, from their consistent study. Quite logically, the discovery of an unconscious psychic life postulated the existence of a "psychic energy." Equally logically, this postulated "psychic energy" had to be thought of as rooted in the biological apparatus. Sex-economy occupied itself for a decade and a half with the vast field of psychic emotions before it made an important biophysical discovery: The intensity of the sensations of pleasure, of anxiety and of rage, that is, of the three basic emotions of any animal organism, was shown, at the oscillograph, to be functionally identical with the quantity of the biological excitations in the vital apparatus. This was a deep breach into the obscure mind-body problem. The emotional sensation is not a "result" of the biological excitation, as the mechanists had assumed for thousands of years; nor is it the "cause" of the biological excitation, as the spiritualists had always believed. It is not independent of the excitation, as the dualists believe, nor the "other aspect" of the excitation as the monists contend. The experiment shows that excitation and sensation are one and the same process in the biological apparatus, for the intensity of a sensation corresponds to the quantity of the excitation, and vice versa. At the same time, however, a sensation, say, a visual
impression, can produce an excitation, and, conversely, an excitation, say, the touch of a hand, a sensation. Adrenalin in the blood produces anxiety, and anxiety results in increased adrenalin secretion into the blood.

E. You call the relationship of sensation and excitation “functionally identical and antithetical.” It is difficult to conceive of a simultaneous identity and antithesis.

O. This is due to the armored human structure which is incapable of thinking functionally, that is, in keeping with reality.

E. You will arouse violent objections if you contend that people, as a result of their biopsychic structure, perceive the natural processes in the wrong manner. If you were right, the two prevailing systems of thought, mechanism and metaphysics, would have to be thought of as resulting from the character structure of man during an epoch of some thousands of years. That is hard to swallow.

O. Not any harder than what man had to do when he had to give up his misbelief of two thousand years’ standing that the earth was the center of the universe. Then, the teaching of a divine, that is, supernatural, creation of man created the misbelief that man was the center of the world and, with that, the earth was the center of the universe. Similarly, the misbelief that man thinks, independently of his character structure, “in itself logically and correctly,” creates the erroneous beliefs of his natural philosophy. Ever since the beginning of written history, human structure has become rigid as a result of authoritarian civilization; for this reason it no longer follows, as does that of the animal, purely biosocial laws. It is not difficult to understand that a biologically rigid organism experiences its own body, and with that its sensations and perceptions, in a different way than a biologically non-rigid organism, say that of a snake.

E. What you mean is this, then: As natural philosophy has always known, sensation is the only portal through which we gain access to the environment and our own organization. If, now, the sensations of the organism are not unitary, if they are blocked or split apart, this state of affairs must be reflected in the perception and the intellectual comprehension of the natural processes. In that case an organism which does not experience its vegetative currents directly and in a unified manner but which, nevertheless, is under their influence, would have to assume mystical, supernatural forces. An organism, on the other hand, which experiences itself as angular and mechanical could produce no other than a mechanistic world picture.

O. Precisely. Functional thinking, on the other hand, corresponds to the natural unitary functioning of the organism. This fact is clearly established by painstaking character-analytic investigations. In schizophrenia, for example, the emotions are perceived as influences coming from without, because the perception of the vegetative currents is blocked from the excitation. The splitting off of excitation and sensation is a basic symptom of this disease and gives it its name. The compulsive character, with his mechanical, angular, unyielding compulsive thoughts, with his dividing into mechanical subdivisions everything he experiences, is the prototype of mechanistic thinking. In reality, mechanical rigidity and mystical experience usually go hand in hand. This is so because the mechanistic splitting up of self-perceptions leaves a void as far as experiencing life is concerned; the mystical experience then makes up—in a pathological manner, of course—for what the rigid, mechanistic thinking does not provide.

E. Can you graphically depict your schema of biopsychic functioning?

O. This is what it looks like:
As you see, this schema comprises the unity as well as the antithesis of the biopsychic apparatus. What functions antithetically at the surface is identical in the depth. This schema has proven a safe guide in the most difficult observations and formulations of natural science.

E. I would like to test it on a simple example from the realm of the non-living. It does apply to magnetism: the north pole and the south pole of a magnet are antithetical. In the function of magnetic attraction they are identical. Now, if we try to describe magnetism by way of the methods refuted by you, we would have to say, "The quality of the north pole determines the quality of the south pole." This is obvious nonsense, as is the converse. Or, "The quality of the north pole and that of the south pole are one and the same thing." This is incorrect, for north pole and north pole repulse each other, while north pole and south pole attract each other. "North pole and south pole function in a parallel manner" would be equally wrong.

O. Try it with an example from chemistry.

E. Sodium ions and chlorine ions are functionally antithetical, but they do not "cause" or "determine" each other. Sodium goes to the cathode, chlorine to the anode; they have a positive and negative charge, respectively. But they attract each other chemically and form the neutral compound NaCl. In this, the two antithetical functions are united, forming a new and different functional unit, NaCl. Your scheme applies here as well as for any other chemical compound.

O. Test it on more general natural processes.

E. Your formula applies to the whole realm of nature: Living matter is sharply distinguished from non-living matter and often antithetical to it. At the same time it has basic factors in common with non-living nature, such as the basic chemical and physical processes.

O. The simultaneous identity and antithesis of living and non-living matter is most easily demonstrated in the orgone-biophysical formula of living functioning. It is the basic formula of biological pulsation: MECHANICAL TENSION → ENERGY CHARGE → ENERGY DISCHARGE → MECHANICAL RELAXATION. It applies to the pulsation of the heart as well as the motion of the worm or the contraction of the vorticella.

E. I see: Tension and relaxation, charge and discharge are also found in non-living nature. To that extent, living nature and non-living nature are functionally identical. The antithesis consists in the fact that these physical functions occur in living nature in a four-beat combination which is specific of life and does not occur in non-living nature. That’s amazing.

O. Now try to apply the mechanistic or the vitalistic method of thought to this.

E. . . . "The non-living determines the living." Correct. But, on the other hand, life also turns again into the non-living. This fact is left out of consideration in the concept of a one-sided determination of the living from the non-living . . . Spiritualism postulates the dependence of the non-living from the living. Correct, for living matter turns into non-living matter. But here the opposite direction of the process is left out. . . What about the dualistic theory? “Life and non-life are two different, independent, parallel natural processes.” This is obviously erro-
neous . . . Now as to monism: "Life is identical with non-life." This, too, is obviously one-sided and therefore erroneous. Your formula, better than anything else, reflects reality: Living matter is identical with non-living matter and at the same time antithetical.

O. Our formula of living functioning solves the age-old feud between the mechanists and the vitalists. Living matter follows, indeed, the same natural laws as non-living matter, as is assumed by the mechanists and materialists. But at the same time there is, as the vitalists contend, a fundamental difference between living and non-living matter. The functional identity between life and non-life consists in the fact that it is one and the same energy which governs both realms. Living matter is different in that it functions according to the four-beat of TENSION → CHARGE → DISCHARGE → RELAXATION, which four-beat does not exist in non-living nature.

E. You are supposed to have said somewhere that any concept, including the metaphysical one, has some basis in reality somehow. Does that mean that the diverse theories concerning nature are concerned, in each case, with different aspects or functions of the same natural process?

O. I once set out to combine into one whole the diverse and contradictory methods of thought in our basic schema of functioning.

E. But that is impossible. For if the diverse methods of thinking deal, in each case, only with individual functions, they cannot possibly be united in a schema of thought which proves these diverse methods to be one-sided or incorrect.

O. Yet, it is possible. One must even assume that the organisms which observed and described the natural processes—in spite of onesidedness and incorrectness—nevertheless hit upon parts of the real facts which are contained in our functional schema.

E. Now, for example the spiritualistic concept that the spirit creates the body can hardly be compatible with a functional concept of nature.

O. Let us divide our schema into divisions which we number:

![Diagram of energetic functionalism](image)

Fig. 2. Diagram of energetic functionalism comprising mechanistic, vitalistic, parallelistic, mystical-theological and monistic natural philosophies.

1 → 2 Mechanistic materialism
2 ↔ 1 Idealism, vitalism
3 ↑↑ 4 Psychophysical parallelism, dualism
5 ↔ 6 Theism, mysticism
7 ↑ 8 Monism, psychophysical identity
9 The "common denominator of nature," the cosmic energy, orgone (mystically: "God"; physically: "ether").

Now, if we consider the constituent parts of the schema separately, we find the following:

At the surface, at 1 and 2, there is an absolute antithesis of psyche and soma. This is the realm of the mechanists who derive psychic functioning one-sidedly from chemico-physics; it is also the realm of the vitalists who, conversely, believe that the vital energy creates and determines the soma. "The soma determines the sensation," say the mechanists; "the sensations (the entelechy) determine matter,"
say the vitalists. It all depends on whether your point of departure is 1 or 2.

3 and 4 run parallel, and—considered apart from the rest of the diagram—without any connection between each other. These lines correspond to the parallelistic mind-body theory, according to which somatic and psychic processes are independent of each other and run a parallel course.

5 and 6 run apart from each other. They correspond to that concept which contends that matter and spirit, soma and psyche, instinct and morals, nature and culture, sexuality and work, earthly and divine things are incompatible; more than that, that they are antithetical. They represent the thinking of every kind of mysticism.

At 7 and 8 there is only one line of direction, which can be viewed either from the left or the right side. It corresponds to the concept of monism, of psycho-physical identity, according to which psychic and somatic are merely different aspects of the same thing. We must admit that the monists, in their thinking, came closer to the truth than the mechanists, vitalists, dualists and others. They have come very close to the common origin of all other functions. But they overlooked the antitheses which result from the splitting up of the unitary, as for instance that of nature into living and non-living matter, animals and plants, or that of the organism into autonomous organs. In overlooking the antithesis, they also overlook the mutual interdependence of the somatic and the psychic.

Our functional schema, on the other hand, takes into consideration the many autonomous functions of a functional unit. According to this concept, the various functions derive from a common source (9); in a certain realm, different functions are identical (7, 8); in a different realm, they are divergent (5, 6); or they run parallel, independent of each other (3, 4); or, finally, they are convergent, that is, attract or influence each other on the principle of antithesis (1, 2).

To illustrate in concrete terms: The animal organism derives from a single unitary cell which is equipped with the function of orgonotic expansion and contraction (9). From this unitary cell develops, on the basis of the function of tension and charge, the somatic as well as the psychic function of what is going to be the complicated total organism, in a unitary branch (7/8) which manifests as yet no differentiation into independent psychic and somatic functions.

Then we see a differentiation taking place: the somatic functions develop by themselves, forming, in the course of embryonic development, the various independent organs. In this period, the emotional functions are not developed beyond the primitive stage of pleasure and un-pleasure perceptions. At birth, soma and psyche already form two branches of a unitary apparatus (5, 6), the organ functions on the one hand and the pleasure-unpleasure functions on the other. The bio-energetic branch which they have in common (7/8) continues to exist.

From this point on, the two developments run independently of each other, i.e., “parallel” (3, 4), at the same time influencing each other. The various body organs have been formed and continue to grow. Independently of this, the pleasure-unpleasure function branches off into the three basic emotions of pleasure, anxiety and rage, and the various functions of perception. The development and differentiation of the function of perception is autonomous, independent of the growth of the organs. Nevertheless, both series of development are provided with biological energy from the common branch (9 and 7/8) in the form of the autonomic nervous system. For the growth of the organs as well as the development of the emotions depends on the total function of the autonomic life apparatus.
During the first few months of postnatal life, one can observe how the organ functions (movements of eyes, arms, legs; grasping, sitting up, etc.) become co-ordinated with each other into a totality, while, on the other hand, the pleasure, anxiety and rage reactions also become more detailed, more co-ordinated and more unified. Then follows, step by step, the contact between organ movement and organ perception, the reaction of the organs to perceptions and the reaction of perception to organ movements. With the co-ordination of individual, as yet purposeless movements into purposeful total body movement; with the co-ordination of individual sensations into the perception of the total body; and with the co-ordination of total body impulse with body perception, that gradually develops which we call consciousness. The innumerable individual functions continue to operate independently, but at the same time they form a unitary whole and influence each other synergistically and antagonistically (1, 2). With the function, say, of walking, the “goal” of locomotion develops, e.g., that of reaching a table. The function determines the goal, not—as the vitalists believe—the goal the function. But the function also determines the chemico-physical processes, and not vice versa as the mechanists believe. Such is the functionalism in biological reality which guides our thinking. The more exact our observations, the more fluid and differentiating but at the same time more comprehensive and unitary are our deductions.

The functional nature of our thinking is shown in the fact that it recognizes antitheses and identities alongside with other functions. It is not rigid; it recognizes transitions; it follows, nevertheless, definite laws. The mechanistic splitting up of an all-embracing, unitary natural function into single functions, on the other hand, results inevitably in rigidity since it does not allow for the fact that the same process may have different functions at one and the same time.

E. What you have shown here is indeed far from being just a play with lines. Since it leaves room for differentiation, the common denominator and antithesis at one and the same time, it really is a true reflection of reality. Man and woman have a common origin and common interests. They have a sexually antithetical anatomy, their interests may be different and yet run parallel, and in spite of any antithesis they can attract each other and melt into each other. How did you come upon this methodological schema of thought?

O. Biophysical thinking, comparing and differentiating is guided by the functions of the organism. The organism presents a marvelous picture of unity and differentiation. It forms a functional unity and totality. All its organs derive from one tiny undifferentiated germ cell. What is unitary and undifferentiated splits up into diverse organs with a different function and construction. The action of the heart has in itself nothing to do with the function of hearing, the contraction of the biceps nothing with gastric secretion. Nevertheless, in spite of all the autonomy of the various organs, the organism presents the perfect picture of harmonious unity, order and co-operation, in short, that of biological self-regulation. If, now, you arrange the various functions of the organism in a schema, beginning from the common denominator and from the simple functions, progressing to the complicated and antithetical, you arrive at our schema of functional thinking.

E. I begin to see why you should have such difficulties in coming to an understanding with other sciences. This methodology of thought is new. It is many-sided. The usual methods of thinking are one-sided. In your methodology, the functions show fluid transitions and yet are shown to follow definite laws. The customary
thinking establishes more or less rigid limits, allowing of no such transitions.

O. You are right. Our functional method had to be developed in the study of the psychic and somatic functions before the orgone could be discovered. To come back to the question of competence: Does it not seem logical now that the discovery of the biological energy took place not in the realm of chemistry or physics, but in the realm of biopsychiatry? The guiding principle was not the functioning of the Diesel engine, but the pulsation of the heart, of a vacuole or a protozoon; not the chemical compound, but sexual attraction; not the X-ray, but emotional excitation; not the flight of an airplane, but the flight of a bird or the motions of a fish, not the motion of an engine piston, but orgasmic contraction or the contraction of growth in the embryo. In brief, it was the functional manifestations of living matter, and not the mechanical ones of non-living matter, which brought sex-economy on the tracks leading to the orgone energy. The manifestations of life revealed the energy which governs them for the simple reason that sex-economic research did not borrow anything from the realm of the non-living; rather, it learned to deduce the nature of living movement, and, with that, the nature of the biological energy, from direct observation. In the course of the past decade, many physicists tried to follow. Many of them failed, for the simple reason that they were incapable of giving themselves over to the process of their perceptions and sensations and incapable of simply relinquishing an orientation by non-living processes.

E. It would be peculiar if a New Yorker, coming to Stockholm, were to try to orient himself by a map of New York.

O. I wonder whether you will be as easily convinced if we enter, in a practical way, the field of perception and its interpretation. I am afraid that there we will find ourselves taken not from one city to another city, but to a dense jungle which has no resemblance to a place of habitation at all, where streets and houses still have to be built.

E. It is easier to follow where it is a matter of theoretical principle than where it is a matter of practical work. The joy in hearing, over the radio, of a military victory, has little in common with the emotions experienced in the actual winning of the victory. Things are easier for the spectator than the actor.

O. As a hardworking natural scientist, one experiences idle praise as almost as painful as the carping criticism of the uninitiated passer-by. The functional method of research requires a manysided knowledge of basic facts and the ability to relate isolated facts with each other. This is why it is so difficult to come to an understanding with the specialists who think and work mechanistically. In addition, functional research presupposes a knowledge and mastery of one's own character structure and that of others. This is so because every perception and sensation is tinged by the character structure. Orgasm research required this self-control to a particularly high degree, since it has connections with all fundamental branches of research in natural science. Orgasm research grew out of psychiatric work, took roots in sexual biology, pushed on to the emotions and with that to the biophysiology of excitation. With that, however, at first without having an inkling of it, it entered the realm of the cosmic energy.

E. To one not intimately acquainted with these problems it would seem peculiar that a new branch of physics should have developed from sexological research. I think you should no longer speak of sex-economy and orgasm theory, but of orgone physics and orgone biophysics. This would make your theory to be much more readily accepted.

O. And would make a new field of
I wel!

knowledge to be soon obliterated. I well
know people’s reactions to the terms of
sex-economy and orgasm. They evoke
pornographic ideas. For that, however,
not sex-economy is to be blamed, but the
character structure of the people who
react in this manner. These reactions are
painful and create ridiculous as well as
dangerous situations. But should one give
in to such manifestations of the emotional
plague, this universal disease which finds
itself confronted for the first time by a
deliberate medical opponent, namely, sex-
economy? No, we must continue to adhere
to the terms and concepts of sex-economy
for more than historical reasons. Without
sex-economy and orgasm research, the
orgone would not have been discovered.
However, orgasm research has more than
a historical significance for orgone re-
search. People and concepts come and go.
They are like accidental passengers on an
express train; the passengers stay on for
a short stretch and disappear again; the
express train, however, continues across
the continent. Compare the function of
a human prejudice with the function of
the living! The human prejudice which
impedes orgasm research is at most 4000
years old. The orgasm function, however,
is timeless. Besides respiration, it is the
basic function of the living, as expressed
in the orgasmic longing—conscious or un-
conscious—of man and animals. It is not
due to this natural process that the animal,
man, deteriorated pornographically. Be-
sides, the pornographic prejudice is not
being cultivated by the human species but
by some relatively few miscarried indi-
viduals; by these, it is true, it is done,
unfortunately, with great and devastating
success, for there is as yet no penal law
against the defamation of nature by indivi-
duals suffering from the emotional
plague. The most immediate practical func-
tion of orgasm research is precisely that of
doing away with pornography. Beyond
that, it will always remain the core of
orgone research. I did not make it that
way; it is so whether we want it or not.

E. You are right. There is no researcher
or artist of any account whose work did
not in one way or another grow out of
the sexual process.

In your presentation of the function of
the orgasm you speak of bio-electricity.
The orgasm makes the living being part of
the general process of nature. Are you
still of the opinion that the animal or-
ganism is part of the general electrical
process of nature?

O. Before the orgone energy was dis-
covered and made an object of study,
there was no other way than to assume
electrical energy processes at the basis of
the orgasm function. This being so, the
interpretation of the processes ran, again
and again, into unsolvable contradictions.
For example, emotional excitation was
expressed in potential differences of milli-
vols. This extremely small magnitude of
the electrical reaction did not fit the gi-
gantic forces at work in an organism. It
is impossible to define an organism, with
its unitary function, in terms of bipolarity,
that is, in terms of positive and negative
electricity. Nor is it possible to equate the
polarity of the sexes with electrical po-
larity, to assume, for example, the man
to be positively charged and the woman
negatively. Besides, the slow, wave-like
forms of motion of living tissues are at
variance with the rapid, angular motions
of electricity. In other words, there were,
even before the discovery of the orgone,
considerable difficulties in applying elec-
trical concepts in the realm of the living.
The gradual exploration of the orgone
settled this question by demonstrating
beyond any doubt the non-electrical nature
of the orgone. True, electrical stimuli
result in sensations, but these sensations
are alien to the organism, they have a
disturbing effect and are at variance with
organic sensations. Incidentally, physiol-
ogy has not yet succeeded in reducing the
specific biological reactions to electrical processes. It did not get any farther than the application of electrical stimuli and the study of the action currents. But between stimulus and action current there is a third link, the specific biological reaction. This, however, is independent of the stimulus as well as the action current. It functions without stimulus also; in addition, the kind of the reaction is specific and has nothing to do with the electrical stimulus. The same electrical stimulus produces a different reaction in a skeletal muscle, a heart muscle, or a smooth muscle. True, the electrical stimulus can bring about a biological reaction, a contraction; but the energy of the contraction is something different from the energy of the stimulus.

E. Do you take the basis of the biological reaction to be a "spirit," an "entelechy"? It seems to me that this basic question should be dealt with first of all. Not only the theists and mystics, but prominent natural scientists assumed a general "animism" of nature, including non-living nature. This concept of nature, beginning with the "soul atoms" of Democritus, persisted over more than 2000 years in the diverse forms of natural-scientific idealism; we find it in the "crystal soul" of Haeckel, the "categorical imperative" of Kant, etc. Correctly thinking materialists always postulated a "perceiving matter"; this seems to be the greatest riddle of all research in natural science, if one excludes the metaphysical, absolute universal spirit. Very likely, the perceiving plasma of the animal, man, has misinterpreted the cosmic energy in terms of an absolute universal spirit. Unfortunately, man made out this universal spirit as unknowable and invested it with banal human characteristics, such as a beard.—Where do you put the boundary line between life and non-life?

O. It is not long since a "soul" and "perception" was ascribed only to man as distinguished from the other animals. From the biophysical point of view, no line of demarcation can be found in the realm of the living at which perception is added to pulsation. If we draw the consequences from our bio-electrical experiments, according to which the quantity of a biological excitation is identical with the intensity of the perception of pleasure or unpleasure, then biological excitation and psychic perception are functionally identical. That is, perception is present with the very first plasmatic expansion and contraction. On the other hand, there is no sufficient reason for the assumption that non-contractile, that is, non-living matter, perceives. The assumption of a general "spirit" of nature, including non-living nature, is not a sound one, then. At the present state of our knowledge of perceptions and general biophysics we do better to separate the living from the non-living; the living being that which is characterized by pulsation (alternating expansion and contraction) and perception, the non-living that which is rigid and without perception. Where there is no pulsation, there also is no perception.

E. If the orgone energy functions in both realms of nature, and if the orgone is connected with the characteristics of life, then I see no way of excluding perception in the realm of the non-living.

O. There are some experiments which show that pulsation, that is, alternating expansion and contraction, is an immanent basic function of the orgone energy. The orgone shows a pulsatory function in rigid substances also. This finding supports your argument. But mysticism would immediately make capital of such a gap in natural science and contend that natural science, had confirmed the existence of the universal spirit. Living matter differs from non-living matter in that it is capable of participating in the orgonotic pulsation; non-living matter,
due to its rigidity, is incapable of participating in the orgonotic pulsation.

E. In other words, we can speak of living matter only if the cosmic orgone energy functions in matter capable of contraction, if the orgonotic pulsation produces an actual pulsation in it.

O. Precisely. It is a matter of the pulsatory changes in form which occurs in matter. It is these changes of form which determine the fundamental biological functions, such as growth, division, procreation, metabolism, pleasure and anxiety. This one does not really comprehend until one has first observed the pulsation in rigid matter, that is, matter incapable of change of form. Thus one convinces oneself that there are two kinds of pulsation, energy pulsation and material pulsation. Material pulsation and energy pulsation must coincide, must be synchronous, in order to produce life processes.

E. Did you succeed in observing the transition of matter from a rigid state to a pulsatory state directly?

O. The study of this transition is the most important aspect of microscopic bion research. The becoming plasmatic of previously non-plasmatic matter, in other words, the appearance of the capacity of pulsation in previously rigid matter, can be observed directly.

E. You mean to say you observed movements of contraction and expansion in previously rigid substances?

O. Yes. But such observation is not possible at a magnification of less than 3000x. This direct observation shows beyond any doubt that what causes the movement is inner impulses and not external mechanical impulses which the mechanist ascribes to the molecules and calls "Brownian movement."

E. One should think it's obvious that Brownian movement can result only in a movement from place to place and that it cannot explain inner motility.

O. This has already been admitted by some biologists.

E. Movement without energy is inconceivable. Since we must exclude the presence of external impulses, the inner motility can be ascribed only to an energy which develops in and from the matter itself.

O. It cannot possibly be otherwise.

E. How do you bring about the transition from rigidity to inner motility?

O. By making matter swell. This can be done simply by putting it in water. Depending on its hardness and density, it will take more or less time until the first manifestations of inner motility appear. In order to shorten the process, we add substances which promote the process of swelling, such as potassium chloride, and heat the solutions in the autoclave to 120°C. In doing so, we reproduce a process which continually goes on in nature. After a long spring rain, for example, one finds vividly pulsating bions in the soil. Very hard or rigid substances such as rock or coal have to be "smashed" by heating them to incandescence before being exposed to the process of swelling.

E. How does the bion differ from its substance of origin?

O. First of all, structurally. For example, a coal particle, a rock particle or a particle of iron filing shows a smooth or striated structure. After having been made to swell, however, the same substances show, particularly in the darkfield, a vesicular structure. The vesicles detach themselves. If viewed at a magnification of 3-5000x, with apochromatic lenses, their content appears blue or blue-green. The substances of origin, however, show their own color: coal appears black, iron blackish brown, etc. Every substance which has been made to swell and every living substance shows these two characteristics: bionous, vesicular structure and blue or blue-green content.
E. At what stage do the pulsatory movements occur?

O. When the membrane of the bion has become thin enough to yield to the impulse to expansion and contraction from the inside.

E. I would like to limit myself to the physical manifestations and suggest that we postpone discussion of the biophysical manifestations until we have understood the orgone functions in the realm of the non-living.

O. Fine.

E. Do you find that the particles exert any influence at a distance, and are there any differences in this respect between the bions and the substances of origin?

O. The non-living substances of origin show no inner motility, the bionous substances do. This indicates the mobilization of attractive and repulsive forces in the process of swelling. The rigid substances of origin have no influence on bacteria which are placed in their proximity. The heaps of bionous matter, however, attract and paralyze them. This effect is the more marked the more mobile and the more strongly radiating the bions are.

E. You say "more strongly radiating." How do you determine this?

O. Bionous matter refracts light more strongly than does non-bionous matter. Microscopically and photographically, it shows a strongly refracting "margin" around the membrane. This radiating margin appears with the bionous disintegration of matter and disappears when the bion dies, that is, becomes immobile or degenerates into T-bacilli. T-bacilli, or, to put it differently, particles with a weak orgone charge, show no radiating margin; blood platelets do not show it. The radiating margin, then, is certainly not a phenomenon of refraction.

E. You assume a connection between orgone and light. What have you found out about that experimentally?

O. Nothing really, up to now. The connection is still obscure. We have experimented with photographic plates for the past five years, without reaching a satisfactory conclusion.

E. Are photographic plates influenced by the orgone?

O. We have incontrovertible proof that the orgone affects the photographic emulsion. However, the results obtained in different experiments are so contradictory and so unusual from the standpoint of customary radiation photography that they are as yet inconclusive. For this reason, we are not yet publishing the results obtained thus far.

E. After all, in a research field as new as yours, nobody will ask to see everything settled at once. Does the orgone influence the photographic plate like light or like another kind of electromagnetic energy? Does it blacken the plate?

O. According to observations to date, the atmospheric orgone consists of three different forms of energy. I shall not tell you about them yet, because I would like you to see them for yourself. Since the orgone penetrates everything and for that reason it has not been possible to delimit it, it was also not possible to separate the three different forms from each other. If one exposes photographic plates in the dark to concentrated orgone, one obtains doubtless results which correspond to a light influence. If, however, one exposes plates to concentrated orgone and light, simultaneously or successively, one finds that those parts of the emulsion which were influenced by the orgone no longer react to the light influence. It seems, then, that the orgone acts at one and the same time like light and antithetically to it: On the one hand, it blackens photographic plates, and on the other hand it prevents or reduces the blackening by light.

E. That sounds peculiar. The prevention or reduction of the light effect by some energy is something basically new.
But now I would like to see the orgone energy.

O. That will not be difficult. We sit down in this completely dark orgone accumulator. It consists of a double layer of organic and metallic material. From the outside to the inside, it consists of a layer of celotex, then a layer of sheet iron, then again a layer of celotex and another layer of sheet iron. We shall have to adapt our eyes to the darkness for about half an hour. Then, will you describe your observations?

E. All right. I am very curious and believe in direct observation. In physics, unfortunately, we cannot directly observe the flight of energy particles; all we can do is to photograph it. But that is not the same thing. We are forced to form hypothetical concepts concerning the motion of the electrons, without being able to observe them. We can only deduce their motion but cannot see it. The motion of the energy particles is too rapid for our eye and is in itself not perceptible except by way of fluorescent substances or the photographic plate.

O. In observing the orgone, we have the great advantage that the motion of the particles is very slow compared with the speed of electromagnetic energy . . . Keep watching a definite spot on the metal wall of the accumulator. You will have to wait until you really can see the phenomena.

E. I find that the room is not absolutely black, but as if filled with a dim diffuse light. It is of a bluish-gray color. It also seems that there are small bluish dots flying by. But I can't be sure, because when I close my eyes, they continue to be there.

O. Since the orgone is present everywhere, you have it in your eyes just as you have it outside, at the wall of the accumulator. This is one of the difficulties inherent in these observations. The orgone also irritates the optic nerve and produces after-images.

E. Now it becomes more distinct. I see small blue sparks fly toward me and past me. They seem to come out of the walls, at rhythmical intervals which have nothing to do with my pulse rate . . . As the dots move toward me, they seem slowly to contract and expand. When flying by sidewise, they take a trajectory similar to a parabola. This trajectory is interrupted by loop-like forms; it is as if the dots, at certain points of the trajectory, would begin to fly in the opposite direction, thus forming a loop.

O. Can you tell whether the distances between the loops are uneven or about even?

E. They seem to be about even.

O. We shall draw the form of the trajectory sometime and discuss it. For the time being, just get acquainted with it . . . In the corner of this large orgone accumulator is a small one consisting of three layers each of organic and metallic material and measuring 1 cubic foot. It contains a small frosted bulb such as are used in the development of highly sensitive photographic films. In the front wall there is an opening measuring 4 square inches, containing a cellulose disc with a dull surface on the inside. In its stead, one also could use a fluorescent screen such as is used in X-ray fluoroscopy. I now turn on the green bulb.

E. . . . I see some sort of movement at the disc; as if vapors moved over it. It is like a vivid flickering . . . Why, this is amazing! You have turned on a dark green electrical bulb which gives a steady dim light. But what I see, in addition to the flickering, is not green, but blue-violet light!

O. This is the specific color of the orgone. Can you distinguish details?

E. . . . My eyes are somewhat blinded.

O. This cannot be due to the green
light, for the eyes rest in the dark and are not irritated by dim green light.

E. It is as if the opening became alternatingly lighter and darker. At times the impression of light seems to disappear altogether. Other times it looks as if luminous vapors came through the opening as if in individual impulses.

O. Here is a magnifying glass with a magnification of 5x. Focus it on the disc.

E. . . I see yellowish-white rays which move very rapidly in all directions. It looks like miniature fireworks.

O. In other words, you have now seen the three different energy forms of the orgone: blue-gray vapors, blue-violet dots which float slowly and form loops at regular intervals, and, finally, rapid, straight, yellowish rays.

E. There can be no doubt about it. It is remarkable that you should not yet have succeeded in photographing this intensive energy in an unmistakable manner. Doubtless, it has some connection with light, for the light dots were far less distinct in the dark than they are now against the background of the steady, dim green light. It is as if the dim light produced a stronger radiation in the particles. A most peculiar thing!

O. Instead of the green light, I shall now turn on a dim red bulb such as is used in dark rooms.

E. . . There are, against the dim red light at the disc, violet patches, definitely. You did not turn on a violet bulb, did you?

O. No, but red plus blue gives violet. This goes only to show again that there is, in the atmosphere, a blue energy.

E. The longer I look, the more distinct become the trajectories. There can be no doubt: the trajectory continues, in a rhythmical manner, to turn back on itself, and the little dots become alternatingly bigger and smaller. What do you think about it? What does it have to do with the nature of light?

O. Let’s turn on the light and discuss this question another time.

E. The facts can no longer be doubted, though they are very difficult to comprehend. Radiating energy points which move very slowly and seem to float! . . . My eyes hurt.

O. We shall get some fresh air. The air in the orgone accumulator is heavy. And we have been sitting in it for an hour and a half.

E. I should like to think this experience over. Could we continue our discussion in a couple of days?

O. I shall look forward to it.

II. THE ORGONOTIC EXCITATION OF INSULATORS. QUESTIONABLE POINTS IN THE CONCEPT OF STATIC ELECTRICITY.

O. You have convinced yourself of the existence of visible energy particles in the atmosphere. I termed this energy “orgone,” at first in order to distinguish it, for the purposes of investigation, from all other, known phenomena of radiation. We have good reasons for the assumption that the functions of this energy cannot be subsumed under the concept of “electricity.” My observations force me to assume that what is commonly called electricity is only a special function of the orgone energy.

E. That is a very radical conclusion. One cannot simply introduce a new concept of energy and thus reduce to insignificance an old concept worked out by thousands of researchers. But I shall listen to your arguments.

O. Before giving them, let us find out whether there is, in the world of physics, any kind of consensus of opinion concerning the basic principles of electrics. Is there an awareness of fundamental gaps in the understanding of electromagnetism?

E. Indeed there is. There are plenty of contradictions. Quite a number of promi-
Modern physicists doubt the correctness of the prevalent concepts of so-called “static electricity.”

O. How would you briefly formulate these doubts?

E. Modern physics in general has progressed to functional formulations of energy. The concepts of “matter” and “energy” are no longer rigid; they no longer denote sharply delineated fields but, rather, a functional condition, a condition which allows of transition. No longer is “energy” thought of as attached to “matter”; rather, matter is considered extremely slowed down energy which has become rigid, while energy is considered matter dissolved and extremely speeded up. Compared with such functional concepts in modern physics, the concept of the two “electrical fluids” which supposedly explain the phenomena of the static electroscope is unsatisfactory.

O. The findings of orgone biophysics absolutely fit the functional concept of the relationship between matter and energy. On the other hand, they are at variance with the concept of two separate electrical fluids, positive and negative electricity. This old theory is a reflection of mechanistic thinking which splits things up. This thinking not only made an absolute distinction between “matter” and “energy”; it even split up the electrical energy into two independent “fluids.”

E. For that, the old scientific pioneers should not be blamed. After all, this concept was in accord with a number of phenomena of friction electricity. A rubber rod, when rubbed, shows an energy which indeed has the opposite electroscopic effect from the energy shown at a rubbed glass rod. If one deflects the electroscope leaf with a rubbed rubber rod, a second rubbed rubber rod will increase the deflection, while a rubbed glass rod will decrease it. This confirms the concept of the two separate electrical fluids.

O. I have carried out the old experiments with this kind of electricity many times and can confirm them. But in doing so I have made two observations which are at variance with the theory.

E. New observations may still be understood in terms of the old theory. Only if this is absolutely impossible; only when a new concept brings more facts into a simple unit than the old theory, and does it in a better way; only then has it a right to replace the old theory. Experimental physics is rightly strict in judging new theories, if for no other reason, to avoid chaos. What are the observations which are at variance with the theory?

O. I continued the experiments with rubber electricity and glass electricity in the following manner: Instead of rubbing the glass rod on dead felt, I rubbed it on the hair of my head. The electroscope was charged with an energized rubber rod. According to your mechanistic theory of friction, there should be no difference between the dead felt and my hair: friction is friction. Consequently, the glass rod which was energized at my hair should decrease the opposite charge of the electroscope. In reality, it increases the charge; that is, it has the same sign as the rubbed rubber rod. This contradicts the assumption of a specific glass electricity. It would be senseless to assume that the glass rod becomes energized like the rubber rod if rubbed at the hair, and like a glass rod if rubbed at the felt. It is conceivable, however, that the process taking place between glass rod and hair is a different one from that taking place between glass rod and dead felt. This phenomenon is incompatible with the mechanistic concept of electrical excitation by friction. My observations of the orgone manifestations explain the contradiction. The hypothesis of the two specific electrical fluids fails us here.

E. Not yet. There is the possibility that
the glass rod takes up negative electricity from the hair, while it may itself become excited, that is, react positively, at the felt which is much rougher than the hair.

O. I raised this objection myself. Another experiment answers your argument. If you were right, then the friction at the felt—indeed, the sign of the excitation of the glass rod—would have to result in the same deflection of the electroscope as the identical friction at the hair.

E. Yes, if one considers the identical amount of mechanical friction to be the cause of the phenomenon. What does the experiment show?

O. I stroke the glass rod lightly over the hair of my head, just once. The electroscope leaf deflects to an angle of about 45 degrees. Now we discharge the glass rod with water. We stroke it lightly over the much rougher felt. The leaf deflects only minimally or not at all. That is, the phenomenon is not mechanically determined. The hair not only energizes the glass rod much more easily than does the felt; it also charges it with a different energy, the same as that of the rubber rod.

E. There must be a mistake here; that's completely incomprehensible.

O. There is no mistake. I have made this experiment hundreds of times, always with the same result. It is in accord with other observations of the orgone. The phenomenon is incomprehensible only from the point of view of the mechanistic concept of the two separate electrical fluids attached to glass and rubber, respectively.

E. What is your conclusion from these findings?

O. Only a preliminary one. It is: So-called "friction electricity" has nothing to do with friction. Further facts will confirm this assumption.

E. How does your theory explain the fact that, after all, rubber or glass have to be rubbed in order to get a deflection of the electroscope? Apparently, friction is indispensable. You draw off from the hair, that is, use friction.

O. "Drawing off" and "rubbing, using friction" is not the same thing. There are orgonotic phenomena which appear only if one draws off gently but not if one rubs strongly. Friction eliminates many reactions which are easily obtained by gentle stroking. More about this another time. The orgone theory answers the question of friction in the following manner: The orgone energy is present everywhere. The felt is permeated by it as is the soil or the atmosphere. The felt, however, being a non-living substance, does not of itself radiate energy. It only gives off what it has taken up from the environment or what is released by strong friction. The living hair, on the other hand, radiates orgone by virtue of its living functioning. It is spontaneously charged. For this reason, it is very easy to draw off orgone from the hair with a rubber or glass rod. The felt, on the other hand, does not live, that is, does not spontaneously give off orgone. In order to get it, one has to "rub it out" of it.

E. From this it would follow that the concept of "friction electricity" could be replaced by that of orgonotic excitation. "Friction electricity," then, would be no more than an uninteresting special case of orgonotic excitation which may be based on passively absorbed orgone or orgone radiated as part of living functioning.

O. That is precisely the conclusion to be drawn from these observations. It does
not become fully convincing, however, until one demonstrates the same electroscope reactions without friction and without drawing off of energy.

E. This would indeed be incontrovertible proof. But I doubt that it can be done.

O. Yes, it can: Rubber or cellulose, if rubbed on metal, shows no electroscope reaction, regardless of how we interpret this fact. We take a cellulose disc and make sure that it shows no reaction at the electroscope. We then leave it lying for a few days on the metal wall of an orgone accumulator. Depending on the orgone tension in the accumulator, the cellulose disc will absorb orgone more or less quickly and will show a more or less strong deflection of the electroscope. In making this experiment, one must have patience and not expect the reaction too soon.

E. You should not expect the physicists to go to too much trouble with new experiments. Is there not another method of demonstrating the orgonotic excitation without friction and without stroking?

O. Yes, there is. The sun continues to radiate orgone into the atmosphere. Let us put a cellulose plate which is electroscopically indifferent into bright sunlight, possibly in the absence of wind. After about 15 to 30 minutes of exposure to the sunlight the cellulose will show a deflection of the electroscope; the magnitude of the reaction will depend on the intensity of the sun radiation and the relative humidity of the air. It is important to remember that most orgone reactions disappear and cannot be reproduced when the relative humidity is more than about 50%.

E. Thus far you have only shown that so-called “friction electricity” is a special function of the orgone energy. But you have not yet proven your original contention that orgone is not electricity at all. What physics calls “electricity” might be a special function of the orgone; it also might be something basically different. My belief is that orgone is nothing else but negative electricity, pure and simple.

O. This is exactly what was said by a Dutch physicist at the time of the discovery of the orgone in 1939. The orgone in the rubber or the glass rod, taken from the hair, does indeed act like negative static electricity. Since all energy must be reduced to one common denominator, it goes without saying that what we call “orgone” and what you call “electricity” must have some connection with each other. But, unfortunately, there are important differences. It would be much more convenient for me if I could express the characteristics of the orgone in well-known terms of electrics, if I could describe them, for example, in terms of electronics. Unfortunately, that is not possible without doing violence to the facts. The functions of the orgone energy cannot be understood in terms of the known functions of electricity and magnetism. This forces on the experimenter the necessity of difficult and time-consuming experiments to find out what orgonotic functions there are which do not exist in electromagnetism, which, in other words, are specifically orgonotic; to find out, further, what are the undoubtedly existing connections between orgone and electromagnetism; to prove, finally, that orgone and electricity are not identical. It would be so much simpler if the orgone could be subsumed under electricity. So you see that my contentions do not spring from a desire to be original.

E. I think your undertaking is hopeless. You cannot simply throw over research in electrics of hundreds of years’ standing. You cannot adduce all the proofs which would be necessary to prove your contention satisfactorily.

O. It may look that way. But there are gaps in electrics which are bridged by orgone physics; there are a number of observations which are fundamental
enough to encourage the undertaking. If one must ascend the Mont Blanc, one cannot let oneself be intimidated by its height and the difficulties of climbing it. Patient climbing will get one a considerable distance; nobody can predict, however, whether or not one will succeed in reaching the summit.

E. Let's hear. We don't expect it to be easy.

O. There is some consolation in the following: In studying physics and in talking with physicists one meets so many erroneous contentions which continue to be made without any criticism that I have resigned myself to the possibility of adding another erroneous contention to the many. That would not matter much. But the possibility of success is too tempting to leave the attempt cowardly alone. In addition, the numerous contradictions in physics are only another incentive.

E. Well, there can be no harm in formulating a new hypothesis.

O. Electricity—to stick to the term for the time being—was discovered, and produced, by the ancient Greeks and later by Gilbert, Cabo, Guerike, Franklin and others, in non-metallic substances. Those substances which produce but do not conduct “electricity” they termed “electrica”; the metallic substances, which conduct but do not produce electricity, they termed “non-electrica.” The good old electrical machine was based on the principle of friction between leather and glass; the electric energy was accumulated by way of points and “Leyden jars.” Franklin’s famous experiments with the lightning conductor were based on this. Have you ever been struck by the fact that this original method of producing electricity has been given up and has been relegated to the museum of history?

E. Frankly, I never gave it any thought. But it is true that, since the days of Volta and Faraday, the principle of producing electricity has become an entirely different one: In industry, electrical energy is produced only by chemical elements or the motion of metal wires in magnetic fields. The generator and the battery have replaced the old electrical machine. That’s all. It doesn’t strike me as remarkable.

O. But it is. This has not happened by accident. The theory of friction electricity did not lead any further because it became bogged down in the concept of the two separate fluids. Technically, it was a miscarriage. Practically, the principle of the two electrical fluids was replaced by the more fruitful principle of the moving electromagnetic energy fields.

E. What about it? You are getting involved.

O. No, I am not. I have to call back from oblivion an extremely important fact, precisely in connection with the question whether orgone is electricity or not. My contention is that the energy with which the ancient Greeks and the moderns since Gilbert were dealing was a basically different energy from that with which the physicists are dealing since Volta and Faraday; different not only with regard to the principle of its production, but fundamentally different. In reality, the ancient Greeks, with the principle of friction, had discovered the orgone. The electric current was not discovered until the times of Volta, Faraday, Coulomb, Ampère, etc.; and they broke completely with that method of energy research followed by the ancient Greeks, and by the moderns to the times of Gilbert and Franklin.

E. Why, that sounds fantastic. I would not even listen any more if I did not know you as conscientious.

O. It is no more fantastic than the overlooking of the atmospheric orgone on the part of the physicists and astronomers.

E. How do you explain the fact that the atmospheric energy was so thoroughly overlooked?
O. There is a psychological or, rather, biological explanation which I shall put forth elsewhere. But there is also a purely technical explanation. The men who study the “cosmic rays” have been on the track of the orgone for a long time. The fact that they missed it is due to an erroneous interpretation of electroscopic reactions.

E. You don’t say! Can you explain this in a simple manner?

O. Basic facts can always be presented in a simple manner. What is always complicated is the working out of new methods and, even more so, the refutation of prejudiced and erroneous concepts which shroud the simple facts. The phenomenon of overlooking the atmospheric orgone shows this particularly clearly.

E. If you had not given me an incontrovertible visual demonstration of the orgone, I would have refused to follow here.

O. It is just the point at which so many physicists refused to give me credence. One is loath to give up old, well-established concepts. That has always been so. I wonder whether man will ever reach the stage where he is willing to give up the illusion of emotional security which is provided by well-established concepts for the triumph brought by the finding of something new.

E. You overlook the factors of envy and the narrowness of everyday thinking.

O. I have learned to understand this narrowness. It is necessary for a well-ordered functioning of the social machinery and as a protection against human irrationalism. Unfortunately, it blocks the way to decisive insights and, with that, to a real mastery of the difficulties of life.

E. What are your facts? We might postpone the interpretation of the facts until later.

O. I am glad to hear you make a clear-cut distinction between the two. All too commonly, facts are being explained away by concepts without any content. When I demonstrated the bions to a biologist he brushed them off with the remark that “the Brownian movement was a well-known fact.” When I asked him whether the physical Brownian movement, based on “the push of the molecules” could explain the movements of expansion and contraction in the bions, he became angry. Let us, to begin with, look at the new facts and try to bring them into harmony with the concepts of electrics. Will you, as an exponent of electrics, give me the current concepts of electric conduction and insulation?

E. This is simple and generally recognized: The good conductor of electricity differs from the insulator or poorly conducting material by the fact that in it the units of electricity, the electrons, are freely mobile; in the good insulator they are immobile.

O. This is in accord with the fact that the electrical energy in a wire which is insulated with rubber does not act beyond the surface of the wire. The rubber does not conduct the electricity to the surface of the wire, that is, it “insulates” it. Now I should like to show you an experiment: We insert a thin polystyrene rod between the metal knob of this electroscope and the metal rod to which the leaf is attached. That is, we have inserted an “insulation” between the knob and the leaf.

![Diagram of demonstration](image-url)
According to your theory, no electricity should flow from the knob to the leaf. The experiment contradicts this contention: If we hold a polystyrene rod which has been charged from the hair at a distance of about 1 cm. from the knob, we get the same deflection of the electroscope as with direct metallic conduction. The only difference is that with the insulator in between the deflection occurs somewhat more slowly. At any rate, the insulator did conduct "electricity."

E. You must have chosen a poor insulator.

O. The better the insulator, the more marked the reaction. Polystyrene is known as an excellent insulator. It always gives the reaction.

E. This is amazing. I have never heard about this experiment.

O. It is amazing only from the standpoint of the concept that in the insulator the electrical units are immobile. From the standpoint of the orgone theory the phenomenon is not amazing at all. The energy which I draw off from my hair is not electricity but orgone energy which is capable of penetrating everything. The theory of the insulators applies to electricity but not to the orgone. Orgone is something different from electricity.

E. This one experiment would hardly suffice to prove your contention. A well-trained physicist could explain it in the framework of the concepts of electricity. For example: Have you calibrated your electroscope? Do you know the magnitude of the charge you use?

O. Yes, my electroscope is calibrated. A deflection of 90 degrees corresponds to the deflection obtained with about 1000 volts.

E. I am sorry you fell into the trap. I hope you will prove to be right. For our concept of static electricity is indeed unsatisfactory and contradictory. Our usual electrical wires have an insulation sufficient for 110 to 220 volts. If you put 1000 volts through such a wire it will go through the insulation; that is, the same thing will happen as happened in your insulator here. This fact can be understood in the framework of electrics.

O. You would hardly think that I would make such contentions without thinking of such facts and without adding the proper proofs.

E. There can't be any such proofs.

O. They are as simple as the fact of the existence of a visible energy in the atmosphere, though hitherto it has been overlooked. Please charge the electroscope with your static energy so that the deflection represents a tension of about 1000 volts.

E. Here is the charge. What now?

O. Put a disc of cellulose, a good insulator, the size of about 6x12 inches, on the metal plate of the electroscope. Now touch the insulating disc with your finger.

E. The electroscope discharges gradually!

O. A fact which is incomprehensible from the point of view of your electrical fluids, since, according to that view, the insulator has no mobile electrical units and, therefore, cannot conduct electricity. From the standpoint of orgone physics, the phenomenon is easily understandable:

*The electroscope is charged not with electricity, but with orgone. The orgone penetrates everything, conductor and non-
conductor, only at different speeds. The insulator does not conduct electricity. But it conducts orgone. This is why you can charge an electroscope with an organonically charged insulator just as you can discharge the electroscope through an insulator.

E. You have charged the electroscope with a charge corresponding to about 1000 volts. It must be possible to check your contention that the energy in the electroscope is not electricity. Let us connect a voltmeter with the electroscope. According to our theory, the deflection is due to a tension between the negative electricity at the leaf and the positive electricity at the casing. This must show at the voltmeter.

O. Connect the voltmeter with the electroscope in any way you wish. If the energy in the electroscope is electrical energy; then your voltmeter must react.

E. No matter how I do it, I cannot obtain any reaction at the voltmeter.

O. I know. I have checked this up many times and always obtained a negative result. The voltmeter does not react at all, in spite of the fact that the electroscope contains energy in the amount of about 1000 volts. From the point of view of electrics, this is incomprehensible. From the point of view of the orgone theory, it is simple enough: orgone is not electricity. The electroscope contains not an electrical but an organonotic charge. Orgone does not influence electromagnetic measuring apparatus. This is a fact which I have been observing in amazement for years.

E. I shall assume your point of view, tentatively. According to that, there is no connection between orgone and electricity. This, I must say, sounds unlikely.

O. There is, in fact, a connection: orgone energy disturbs electrical energy. For many months, I connected voltmeters in diverse ways with my orgone apparatus and never saw the slightest reaction. Then, one day, a very "unscientific" method of obtaining the voltmeter reaction occurred to me. Please connect the voltmeter with this dry-cell battery.

E. Done. The voltmeter shows 4 volts.

O. Now draw orgone from your hair with the polystyrene rod and move the rod sidewise past the voltmeter pointer, at a distance of about 2-5 cm.

E. You wouldn't call this an experimental method, would you?

O. Why not? Facts are facts, whether we like them or not.

E. Agreed. Well, I get a deflection of the voltmeter pointer according to the way in which I move the rod.

O. I was just as amazed as you when I saw this for the first time. But it is really quite simple and entirely in accord with other orgone observations. The orgone deflects magnetic needles. It disturbs electromagnetic apparatus. The so-called electromagnetic storms in the atmosphere at the time of increased sun spot activity have nothing to do with electrical or magnetic energy. They do deflect the needles of electrical measuring apparatus, that is, they disturb them in the same manner as you did when you brought about a deflection of the voltmeter with your body orgone.

E. Why, that's fantastic!

O. Only at first glance. If one gets used to it, as I have, it becomes quite simple and clarifies many natural processes which hitherto have remained obscure.

E. Somebody told me once that control experiments had been carried out and that they had not confirmed your experiments. But here every one of your contentions is proven to be true.

O. In the early phases of my orgone-physical work, I made again and again the mistake of showing to outside physicists and biologists individual facts. Their reaction was always the same incomprehensible one: they saw the fact, gave some "explanation" for it and be-
lieved that with that they had understood it. I had to learn that these new findings must be presented only in their logical context, and that a clear-cut distinction has to be made between fact and interpretation. For example: When I discovered the phenomenon of lumination of fluorescent electric light tubes, I showed it to a physicist. Before demonstrating it to him, I asked him what he would expect to happen if one brought a charged polystyrene rod close to the tube. He said that nothing was expected to happen. When the tube, nevertheless, luminated, he was at first highly surprised, but immediately found an "explanation." It was the gas in the tube, he said. I was surprised to see that this man, a good electrophysicist, failed to realize that his "explanation" did not in the least explain why the tube, when approached with the charged rod of insulating material, began to luminate. The specialists have too little curiosity; they are too readily content with words.

E. Your lumination experiment reminds one of the electrified atmosphere connected with the Northern lights. According to my knowledge, all astronomical radiation phenomena are explained by electrical ionization. Do the orgone experiments say anything about this?

O. You have quite correctly seen a connection here. The customary interpretations of such phenomena as the aurora borealis are altogether uncritical. In all these phenomena, we are dealing with orgone, and not with electricity.

E. Can you prove that?

O. Yes, to the extent of my experimental experience. If the Northern lights were of an electrical nature, then a voltmeter would have to react in an experimental reproduction of these phenomena. Connect one of the knobs of this fluorescent argon tube with the electroscope knob. Now move the orgone-charged polystyrene rod up and down past the tube.

Fig. 5. Demonstration of orgonotic lumination in fluorescent tube. P = polystyrene rod; T = fluorescent tube; OM = orgonometer.

E. The electroscope shows deflections of several hundred volts.

O. We shall now darken the room and adapt our eyes to the darkness. Then we bring the rod close to the knob of the electroscope.

E. The tube luminates every time the rod is brought near it and every time it is removed from it; the same happens when I bring the rod near the tube itself and remove it from it.

O. That is, the orgonotic charge makes the tube luminate, is transferred through the wire to the knob of the electroscope where it brings about a deflection, and vice versa.

E. The phenomenon would disappear if we were to ground the tube.

O. Try it.

E. The phenomenon remains the same, whether the tube is grounded or not.

O. Precisely. This fact is incompatible with the theory of positive and negative electrical charges. You remember that we have not applied a tension between two charged poles. Our energy system is unipo-
lar. There are, in the realm of electricity, no unipolar phenomena. Wherever they may be assumed, critical examination will result in orgone reactions, and not electrical reactions.

As we know, there are charges of several hundred volts at work in the gas tube. Now connect the knobs of the tube in any way you please with a voltmeter and repeat the experiment.

E. The phenomenon of lumination as well as the electroscope reaction continue to exist. But the voltmeter does not react, whether it is connected parallel or in series.

O. This confirms again the earlier experiments and the orgone theory: orgone and electricity are not the same.

E. According to these observations, then, “static electricity” in the customary sense is not electricity at all.

O. That is the inevitable conclusion. It is merely a matter of convention whether we are going to identify the “electricity” of the ancients with the orgone and retain the concept of electricity for the orgonotic phenomena. In this case we would have to form a new concept for that which has been known as electromagnetism since Faraday, Ampère and Volta. Or else we drop the concept of electricity of the ancients, call the respective phenomena orgonotic, and restrict the concept of electricity to those phenomena which one obtains through the movement of wires in magnetic fields.

E. This is a radical and painful operation. It would inevitably influence large fields of physics, as for instance, those of the colloids and the atoms.

O. I cannot help it if I am to continue to adhere to the facts which you yourself just confirmed. It will have its advantages. One will be forced to come down out of the realm of verbiage into the realm of facts.

E. That won’t be easy.

O. More than that, it will be very hard.

Organized natural science becomes a means of making a living; that is one of its functions. Every kind of pioneer work is made to suffer from this as long as it cannot serve this function.

E. Do you expect these facts to be recognized by organized physics and biology?

O. I was once naive enough to do so. Only after many bitter experiences did it occur to me that the discoverer of the incandescent bulb, for example, would have been more than naive to expect the recognition of electric illumination from the manufacturers of gas lamps.

E. Who plays, in your case, the role of the gas lamp industry?

O. The pharmaceutic industry.

E. It would seem to me that the radium and X-ray industry would be even more dangerous to you.

O. I know it.

E. I have plenty of food for thought. I shall be back.

III. Measurement of the Electroscope Discharge in the Orgone Accumulator (1940-1941).

E. I have taken plenty of time. I would not have thought that a simple electroscope could make one rack one’s brain so.

O. I had the good fortune to approach the electroscope not from inorganic physics, but from the field of the biological emotions.

E. You don’t mean to say that the electroscope is more closely related to the realm of the living than to that of the non-living?

O. That is precisely what I mean. The electroscope, and not the voltmeter, is the appropriate instrument for determining the nature of biological energy processes.

E. You forget about the oscillograph all too readily.

O. I’m not forgetting about it. But if I can observe phenomena in terms of hundreds of meters I shall not use measures
of fractions of millimeters; if for no other reason, to save my eyes.

E. You make great demands on my comprehension.

O. No greater ones than were made by the functions of the orgone energy on the discoverer. It took years of hard, uninterrupted work and many sleepless nights before I could come out with the contention that orgone is not electricity. And all the words coined by physics did not make things any easier.

E. After all, you don't believe that there is a complete consensus of opinion among the electrophysicists.

O. I know; but there is immediate consensus when it comes to deny social recognition to a new discovery.

E. Bitterness does not help research. Rather, prove your contention that the electroscope is more closely related to the realm of the living than to that of the non-living.

O. I will have to qualify that statement: *The energy which governs living functions in the realm of the non-living.* This merely means that the electroscope lends itself poorly to an investigation of those processes which characterize the electric industry; and that, on the other hand, it lends itself admirably to a study of the non-living as well as the living functions of the orgone.

E. In our first discussion you explained that many functions of the orgone are incompatible with the concept of the positive and negative electric fluids. But you have failed to replace this theory by another and better one. The theory of the two electrical fluids explains the deflection of the electroscope leaf occurring with the approach of a negatively charged rubber rod: The negative electricity of the rubber attracts the positive electricity of the electroscope into the disc and repulses the negative electricity into the leaf. This negative electricity in the leaf causes the leaf to deflect. If, now, you remove the rubber rod again, the deflection disappears; the positive electricity of the disc becomes free again and neutralizes the negative charge of the leaf.

O. We do not have to enter into a deep discussion of the theory of the positive and negative electrical fluids. I found that this theory cannot explain orgonotic phenomena; I also found facts which show clearly that orgone is not electricity. Friction electricity is only a special manifestation of the orgone energy and consequently something different from the electricity of Faraday.

E. What has that to do with measuring in terms of hundreds of meters and fractions of millimeters?

O. Orgone biophysics has been searching for years for the bridge between the realm of the orgone and the electricity of Faraday. The connection has remained obscure thus far, but its existence cannot be doubted. There are some peculiar facts to be considered. Mathematically speaking, 1000 volts cannot equal, say, 50 millivolt. But this is the impossible conclusion we would have to draw were we to equate orgone and electricity. The first measurements of the biological energy at the surface of the human organism were made with a sensitive electromagnetic oscillograph. The potential differences between an unexcited and an excited place of the surface of the organism were shown to be between 0 and 100 millivolt. On the other hand, one drawing off of energy from the hair of the head or from an erogenous zone easily results in an electroscope charge corresponding to about 1000 volts. The reactions of the electromagnetic measuring system, then, are in minimal fractions of those at the electroscope. Nevertheless, there is a connection between orgone and electricity, although it is still full of riddles. *The few millivolt of the oscillograph cannot be the same thing as the many hundred volts of the electroscope.* If we take into consideration the gigantic work
achieved by a living organism, it becomes obvious that the reactions of the static electroscope reflect reality much more truly than the galvanometer. The electroencephalogram reveals only unimportant partial reactions, for they are diminutive compared with the work of the brain in terms of energy.

E. This contradiction has never been explained. Your facts do indeed not admit of equating the volts of the voltmeter with those of the electroscope. I am just being struck by the fact that we can discharge the 1000 volts of the electroscope into our body without any harm, even without noticing it, while it would be highly unhealthy to touch a wire with a tension of 1000 volts. This speaks, indeed, in favor of a fundamental difference between the energy at the voltmeter and that at the electroscope. I must admit that now the idea that a rubber rod contains only negative electricity, without its positive counterpart, begins to strike me as peculiar.

O. You are getting entangled in that jungle of theories into which every orgone biophysicist inevitably gets in trying to differentiate the orgone from electricity. Physics has defined the unit of the static charge as equivalent to 300 volts of electrical tension. With that, the erroneous concept crept into electrics that the static tension of an electroscope is of the same nature as the volt tension of an electric current.

E. Apart from this conceptual clarification of the quality of the orgone, do you have any clear-cut experimental proofs that the orgone functions according to its own specific laws?

O. There are such proofs. So many of these are obtained with the electroscope that we are justified in calling it orgonometer. Would you summarize for us the prevailing theory of the discharge of the electroscope, our orgonometer?

E. That's simple enough. Strictly theoretically speaking, a charged electroscope should retain its charge. Experience shows that this is not quite the case. There is a spontaneous discharge of charged electrosopes, the so-called "natural leak." It is usually ascribed to the humidity of the air which is assumed to establish a connection between the rod which carries the leaf and the casing. However, there is no consensus of opinion on this point among physicists. But if one subtracts the spontaneous discharge from the measurements made, it is possible to exactly determine the speed of discharge. This principle is always used in radium research. It is the following: Radiation of any kind electrifies or ionizes the air between the rod and the casing. Since ionized air equalizes electrical potentials more quickly than non-ionized or weakly ionized air, the speed of discharge of the electroscope is an indication of the intensity of the ionization effect.

O. According to this concept, then, the quantity of an electrical energy from a source of radiation is in direct proportion to the speed of the electroscope discharge. In other words, the more intensive the radiation, the more rapid the discharge.

E. That's right. This is the principle of the measurement of cosmic radiation. In the higher strata of the atmosphere electrosopes discharge more rapidly than in lower strata. This points to a more intensive cosmic radiation in the higher strata. The lower intensity in lower strata is ascribed to the absorption of the cosmic rays by the atmospheric air. But the cosmic rays possess a gigantic capacity of penetration for they have been found, by way of measurement of the electrosopic discharge, deep down in the ocean and in mines. This capacity for penetration is as yet not understood.

O. This concept can be correct only if the prevailing theory of electrosopic discharge is correct. It stands and falls with the theory of the electroscope.
E. You don’t doubt the fact, do you, that an electroscope which contains radium or is exposed to X-rays discharges more quickly than an electroscope without such ionizing influence?

O. I don’t doubt these facts. But I object to the uncritical application of concepts which are valid in one field to another field. You leave out of consideration the spontaneous discharge of the electroscope.

E. Not at all. The air always contains a certain amount of free ions; this amount may be very small, but still large enough to explain the spontaneous discharge of the electroscope.

O. If I remember correctly, the phenomenon of lightning is now explained by “air electricity.” But you say that the ion content of the air is very small; otherwise the air could not be a poor conductor, or, to put it differently, a good insulator. How can this statement be brought into harmony with the other statement that such vast amounts of energy can accumulate in the atmosphere that one single bolt of lightning can discharge millions of volts?

E. This is indeed a contradiction which has remained unexplained. One simply does not know where the gigantic amounts of electrical energy discharged in a thunderstorm come from. They are at variance with the very small amount of free ions in the atmosphere.

O. Does it not seem to you that we are meeting here the same impossible equation according to which millions of volts equal millivolts?

E. So it seems, indeed.

O. From the standpoint of the theory of positive and negative electricity, this queer equation is unsolvable. But we know that the atmosphere contains orgone, and that orgone is not electricity, though we do not know what the latter is and how it functions. Let us introduce our orgone and, from now on, carry out our measurements not “electroscopically,” but orgonometrically.

E. All right. I admit I am very curious, as I find myself in a tight corner. You are aware that you have to prove quite a lot.

O. I know. What experiment would you suggest?

E. I can only start out from certain known suppositions. One is the acceleration of electroscopic discharge under the influence of ionizing radiation. The existence of an energy in the atmosphere is visually proven. Let us measure the speed of discharge within and without your orgone accumulator. If the speed of discharge is the same inside and out, then there is no difference in the energy concentration. That is, your contention of a concentration of the atmospheric energy in the accumulator would be proven incorrect, and we would be unable to decide the question whether orgone is the same as electricity or not. If, on the other hand, the accumulator concentrates the energy, then there must be a difference in the speed of the electroscopic discharge. If your orgone is the same as electricity, as I am still assuming, then the electroscope will discharge more quickly on the inside than on the outside. Right?

O. Yes, on the proviso that you admit the difference between orgone and electrical radiation energy if the experimental result is neither of the two you mentioned, but a third, unexpected one.

E. Granted. But I do not expect a third possibility. Only the two I mentioned are conceivable.

O. Let's proceed to the experiment. We charge the electroscope, my orgonometer, in each case to the same scale division.

E. . . . The electroscope discharges much more slowly in the orgone accumulator than on the outside. None of the two predicted possibilities came true. This result is altogether unexpected, and I cannot explain it.

O. For the sole reason that you continue
to approach the orgone function from the theoretical assumptions of electrics.

E. There could be this explanation: the air on the outside circulates more quickly around the electroscope than on the inside of the accumulator; consequently, a greater number of air ions pass by and accelerate the discharge compared with that on the inside.

O. Couldn't that be checked?

E. I shall let the electroscope discharge twice in the open air: one time as is, and one time with the use of an electric fan. . . . I find that the fan has no influence on the speed of discharge. After this, I must admit a fundamental difference—even an antithesis—between the atmospheric energy and electromagnetic radiation. But now it is up to you to make comprehensible this result which clearly contradicts the application of electrical concepts.

O. That will not be possible without further observations at the orgonometer. It is easy to see that, say, a Slav, whom we do not know, reacts differently from an Englishman whom we know well. It is much more difficult to define this difference, before one has gotten to know the unknown. You will admit now that one has to rid oneself of the misplaced application of the theory of the two opposite electrical fluids before one can even start really to understand the orgone which is something quite different.

E. I am glad to admit that now. I am very curious what the study of the specific orgonotic qualities will reveal. Have you any ideas?

O. Although I know that the orgone is an energy with specific biological action, and although it would be easy to derive a hypothesis from the specific biological functions of the orgone, I prefer to let the experiment speak for itself. If the experimental results agree with the basic biological functions, all the better. If not, there will be new riddles.

E. I couldn’t say at this moment which possibility I would prefer. If there were agreement, this would provide a decisive insight into the riddle of living functioning. If there were not, we would have a lot to think about.

O. The moment of discovery is as exciting as the search. For the rest, we cannot give in to our subjective inclinations. Whether we want to or not, we have to bow to the facts.

IV. VARIATIONS IN ATMOSPHERIC ORGONE CONCENTRATION. A PRELIMINARY INTERPRETATION OF THE ORGONE FUNCTION (AUGUST 1941).

E. I have tried to explain to myself the slower speed of discharge of the orgonometer in the orgone accumulator. I don’t know. I thought there might be, somewhere outside of the accumulator, radio-active substances. These might explain the fact that the orgonometer discharges more slowly in the accumulator than on the outside. In that case, the metal walls would keep out the accelerating influence of the radio-active substances.

O. Do you assume that such radio-active substances are to be found everywhere?

E. No.

O. You obtain the same result no matter where you place the apparatus. Orgone is present everywhere, even though in varying concentrations. Radio-active substances, on the other hand, are of rare occurrence.

E. That’s true. Your theory would be strengthened if the result of a slower discharge with a stronger orgone influence could be confirmed in some other way.

O. There is such a confirmation. I found it by chance when, in the summer of 1941, I measured the daily variations of the atmospheric orgone concentration over a period of several weeks.

E. What gave you that idea? As far as I know, such an experiment was never made before.
This experiment was made in order to refute the assumption of the influence of humidity or of atmospheric "electricity" on the spontaneous discharge of the electroscope. If you measure the electroscopic discharges every hour, what result would you expect, from the standpoint of the air ion theory?

E. It may be one of two things. First, one might assume that the ion content of the air remains about constant. In this case, the spontaneous discharges of the electroscope would also remain about constant. Second, one could assume that the sun radiation increases the electric charges of the air. For example, the air at high altitudes is strongly ionized, containing much ozone. In this case, one would expect that the discharge of the electroscope would be slowest in the early morning, most rapid at high noon, and again slower toward evening.

O. From the standpoint of your electric theory, this expectation is entirely correct. However, the hourly measurements with the orgonometer show the exact opposite. Do you want to try it?

E. This is too important to be taken lightly. I shall check up on it. . . . I find you are right: On clear days, the discharge of the electroscope is far more rapid in the early morning than between 2 and 4 PM, and it becomes again more rapid toward evening. This is at variance with the theory of ionization; on the other hand, it is in accord with the results obtained from measuring the discharge inside and outside of the accumulator. But that doesn’t make the result comprehensible. Clearly enough, the ionization theory fails here; it is difficult to think of a different interpretation.

O. Let’s leave the interpretation to further observation. Again from the point of view of the ionization theory, what would you expect in the case of cloud formation or of a thunderstorm?

E. In that case, the electroscope would discharge much more slowly because the clouds decrease the ionization of the air by the sun and because they take up electrical charges from the atmosphere.

O. Will you take some measurements? It so happens that there is a good deal of cloud formation just at this moment.

E. . . . Why, I find that the electroscopic discharges become more rapid before and during cloud formation. A unit of charge which, during clear weather, takes dozens of minutes for discharge discharges in a very few minutes during strong cloud formation. I am going to check up on this at home on the occasion of the next thunderstorm.

O. Our orgonometer, then, measures orgone, and not electrical charges. Before reaching any theoretical conclusions, I would like to mention a further contradiction in the theory of electricity, a contradiction which is completely solved by the discovery of the atmospheric orgone. Does an electrically charged metal sphere, provided with a metal point, discharge more rapidly or more slowly than a similar sphere without such a point?

E. The sphere with the point will, of course, discharge much more quickly, that is, give off its electrical charge to the surrounding air much more rapidly than a sphere without a point. Every schoolboy knows that!

O. Exactly. Now, another question: How does physics explain the effect of the lightning rod?

E. That too, every schoolboy knows. Benjamin Franklin had observed the fact that metal points take off electrical charges from rubbed electrical substances such as amber or glass. That’s what he based his lightning rod on. The metal point takes up the electricity from the charged cloud. It also attracts the lightning and conducts it, being of metal, to the ground, thus protecting the building against the uncontrollable spreading of the lightning electricity.
O. Wasn't there a dispute among the members of a learned commission as to whether the lightning rod should be provided with a sphere or a point?

E. There was, but I don't see why you should mention this uninteresting matter.

O. I only wished to indicate that, as long as 200 years ago, there was an inkling present of the contradiction in the concept of electricity which we are now discussing. Have you been struck by the fact that one and the same theory assumes that a point will give off electricity more easily and at the same time, that a point will absorb it more easily? Is it conceivable that one and the same instrument should fulfill these two antagonistic functions with one and the same energy?

E. I was never struck by that contradiction, but I would think that many a physicist would have given it thought.

O. Would it be possible to take off electrical energy from a charged sphere by placing a lightning rod at a distance, say, 1 meter?

E. I don't know, but I would doubt it. The electron tubes and X-ray tubes certainly do not contain any kind of points at the anode for the purpose of attracting the electrons coming from the cathode. On the other hand, there is the "electric wind" at a candle flame which is placed between a metal point as cathode and a plate as anode.

O. I do not intend to meddle in problems of electricity. It is not my field. But in order to get anywhere at all I have to separate the orgone—which is well known to me though not to the electrophysicist—from electricity; without doing so, we could not even understand the results of our measurements of the electroscopic discharges. The principle of the lightning rod was gained from the phenomena of "friction electricity." It is strictly at variance with the principle of electricity which is gained through the movement of wires in magnetic fields. We have seen that the old static electricity, or friction electricity, is only a special case of the orgone. The principle of the lightning rod is absolutely correct; only, it has nothing to do with electricity. The lightning rod does not take off "electricity" from the clouds or from the lightning, but orgone, just as does the point at our fluorescent gas tube.

E. That is logical, but will kick up a lot of dust.

O. Suppose it does. The facts are completely in harmony if viewed from the point of view of the orgone functions. They are at variance if they are forced into an all-embracing electrical theory. But now we might venture a first interpretation of the discharges at the orgonometer. Do you think that the well-known principle of the equalization of different levels of charge or tension is applicable here?

E. Water flows from a higher basin, or one with a greater potential energy of drop, to a lower basin with lower potential energy, and not vice versa. This is the principle of the equalization of potential differences. The "tension" existing between higher and lower altitude or stronger and weaker charge constitutes the "potential difference"; the work produced corresponds to the kinetic energy which results from the potential energy in the process of equalization of the potential difference. This is true of the "energy of position" as well as for electrical or caloric energy. A warmer body gives off heat to the colder one and not vice versa. These are some of the most elementary principles of physics and I would hardly expect you to doubt them.

O. Far from it. My only interest is that of investigating, without prejudice, the functions of the orgone energy; in doing so, I cannot let myself be led astray by principles which are valid for other forms of energy. One reason for overlooking the orgone and for misinterpreting static elec-
Electricity is precisely the fact that the orgone follows different natural laws. Now, according to the basic law of electricity, energy always flows from a more highly charged body to a less highly charged one. What would you expect to happen, then, when you touch an electroscope which is charged with about 200 volts with your finger? As you have seen, we can easily take off from our hair an amount corresponding to about 1000 volts, with one gentle stroke over the hair. Our organism is much more highly charged than the electroscope.

E. According to our theory, the electroscope would become charged to its full capacity from our organism.

O. Please touch this electroscope which is charged in the amount of about 500 volts.

E. It discharges promptly and completely when I touch the disc with my finger: energy flows from the less highly charged to the more highly charged body. That simply doesn't make sense!

O. It does, indeed, not make sense if you apply your electrical theory to the phenomenon. It does make sense if we realize the validity of specific orgonotic laws of functioning. We must assume that every organism represents an orgonotic energy system of its own. A stronger gamete attracts a weaker one, the ovum attracts the spermatozoon, etc.; a sand bion with a strong orgone charge kills an orgonotically weak bacterium, simply by withdrawing orgone energy from it.

E. I don't know anything about biology, so I cannot judge the validity of your statements.

O. The cosmic orgone energy was discovered in the course of studying the dynamics of the instincts and of sexual-biological functions. The orgone energy, then, must contain those energy functions which constitute the specific difference between life functions and mechanico-physical functions. The reason why the biologists did not discover the fundamental law of biological pulsation lies precisely in the fact that they tried to apply the laws of chemistry and physics in the realm of the living as they operate in the realm of the non-living. This methodological question will be a matter of polemics between orgone biophysics and the biologists. But it seems to me that the physicist cannot afford to keep himself aloof from the specifically living functioning. Not only because he approaches the processes of nature as the living system which he is himself, but also because there is a form of energy, the orgone, which does not follow mechanistic laws. The overlooking of the specificity of biological energy functions caused also the overlooking of the atmospheric orgone. Physics presumed the rank of the leading natural science even in the realm of biology. It has not come up to such expectations. More than that, I am convinced that the mechanistic concepts of the universe held by physics has blocked to biology the path to an understanding of the life functions.

E. You are getting dangerously close to talking like the metaphysicists who assume the existence of a special “life force.”

O. Well, nobody will doubt the existence of an energy or force which governs living functioning. It is only a matter of how one conceives of it and how one comprehends it. Physicists and mechanistic biologists simply deny its existence altogether. Metaphysical biologists divorce the life force completely from the realm of physics and relegate it to the realm of the supernatural. Orgone biophysics solves this conflict: The specific biological energy is nothing metaphysical; it exists physically in the atmosphere, outside of the living organism, and is tangible visually, thermically and electroscopically; it exists, biologically functioning, in the soil and in the living organism. There is a continual process of energy metabolism between the purely physical and the biological form.
of the orgone, as seen, for example, in the respiration of plant and animal. The orgone experiments show that the physicist, even though he be not a biologist, could gain much from the knowledge of purely biological functions.

E. As you probably know, a great many physicists are dissatisfied with the mechanistic concept of things. Many are metaphysicists and mechanists at one and the same time. They believe in the transmission of souls . . .

O. and fight a functional energy concept of the life process. Yes, I have seen that a great many times.

E. The change from a purely mechanistic to functional thinking in physics has not satisfied the physicists' craving for metaphysics. The study of the transformation of chemical elements, and the dissolution of the absolute antithesis of matter and energy, it is true, have shaken the mechanistic world concept considerably; but instead of clarity there is only more confusion now. The gaps which were created in the mechanistic principle of causality have not been filled by a better, more reliable method of thought. I think that if we want to interpret your new findings we will have to go back to the simplest observations which were made in the early days of the theory of electricity.

O. Quite so. It is all too easy to get lost in the ocean of words and concepts which, in the course of centuries, were formed out of a lot of unrelated details.

E. Let us return to the primitive fact that a charged metal sphere loses energy through a metal point . . .

O. . . . and, that the same metal sphere can take up energy through a metal point. The materials and their form are the same in both cases. Yet, the processes are exactly opposite. It follows, inevitably, that the energy in the one process is not the same energy as in the other.

E. The process by which we charge your orgonometer is that of electrical influence. The negatively charged rod of insulating material draws positive electricity through influence into the point and gives off negative electricity into the electroscope leaf, which makes it deflect.

O. Can you describe the form in which this function of influence takes place?

E. The process is a continual, gradual one.

O. Now, does the equalization between the negative electricity of the leaf and the positive of the sphere take place one time, or does it occur repeatedly?

E. According to the basic law of electricity, it can be only one time. If, for example, the rubber rod has attracted a freely suspended cork and touches it, the antithetical electrical substances or fluids become equalized. The cork takes up the electricity of the rubber rod and is consequently repelled. It cannot be attracted again without a new manipulation. Otherwise we would have produced the perpetuum mobile!

O. Another theoretical orientation, in my case the orgonotic one, leads to new arrangements which prove the old concept to be erroneous and replace it by a more correct and more inclusive one.

E. There were some electrophysicists who did not speak of positive and negative electricity, but of a more of electricity as compared with a less of it. Others spoke of an “affluence” and “efluence” of electricity.

O. Let us stop here to discuss the concept of electrical influence. We bring our negatively charged rubber rod close to the point of the electroscope and achieve a deflection of the leaf through “electrical influence.” The rubber rod does not touch the metal of the electroscope. That is, electricity does not flow from the rubber rod into the metal of the electroscope. The effect of the influence takes place through the air, or, better, as the result of an elec-
trical field between rubber rod and metal point.

E. That’s correct.
O. Now, I bring my hand close to the electroscope, approaching it from above. If the electroscope is charged, that is, if the leaf is deflected, it begins to move; it goes down when I bring my hand close and it returns to its former deflection when I remove my hand.
E. I see that.
O. If, however, the electroscope is not charged, I cannot produce a movement of the leaf with my hand.
E. After all, your hand is not a charged rubber rod . . .
O. . . . but it is surrounded by an energy field! Why does the electroscope react to the electrical field or the influence by the rubber rod but not to the electrical field, or influence, of my hand?
E. This contradiction has never been explained.
O. There is more to it. As we have seen, I can influence with the energy field of my hand a charged electroscope, but not an uncharged one.
E. I admit that is a riddle.
O. Our electroscope at the moment discharges an amount of energy corresponding to about 600 volts. That is, my energy field, like that of the rubber rod, is capable of strongly influencing the amount of 600 volts, increasing or decreasing it.
E. That’s a demonstrated fact. But I don’t see what you are getting at.
O. I would like to demonstrate the absurdity of a certain kind of scientific thinking: the method of drawing conclusions from isolated phenomena, without making comparisons. Please connect the poles of this 6-volt battery and see what happens at this voltmeter.
E. It shows 6 volts.
O. Now bring the rubbed polystyrene rod close to the wire, and then your palm.
E. . . . There is no reaction.
O. Exactly. Now, according to your theory of electricity, it should be possible that our palms or the rubbed polystyrene rod definitely disturb 600 volts by influence while at the same time they cannot influence 6 volts. Such a thing cannot be possible. The wire contains electrons, and so does the metal of the electroscope. The electrons of the electroscope, then, should be set in motion by influence, while those of the wire are not?
E. Well, in the wire the electricity flows, while in the electroscope it is static.
O. Will a whip get a standing horse going but not influence one that is in motion?
E. I admit the contradiction, but there are plenty of unsolved problems in electrophysics.
O. All the more incomprehensible is the arrogance of so many of its representatives. The point is this: The field effect of the palm and the rod, which you call influence, is due to an orgonotic energy field and not an electrical one. Otherwise, my palm would disturb the 6-volt tension just as it does the 600-volt tension. Now let us try to understand the purely physical functions of the orgone by approaching it from the angle of biological observation. Two organisms of different sexes show “sexual attraction.” If we take the energy conception of such fundamental processes as sexuality seriously, we must consider the attraction in sexual excitation an orgonotic energy process. From a strict functional point of view, there is no process without its counterpart. The counterpart of attraction is repulsion. Repulsion, also, is a function of sexuality. Two copulating organisms, after attraction has taken place, remain attached to each other until an energy discharge takes place in the orgasm, in which the sexual substances, as a result of repeated muscular contractions, are expelled. After this has occurred, the organisms detach themselves from each other.
E. That seems very far-fetched to me. Do you mean to say you wish to construe
a relationship with the attraction and repulsion of the electroscope leaf?

O. Not so fast. The sexual processes are not determined by positive and negative charges. The male and the female organisms are not charged with "opposite" charges, but they are both excited by the same unitary energy. This energy clearly shows two antithetical functions: attraction and dissociation (or repulsion). There is no reason to assume the existence of two separate substances or fluids for these two antithetical functions. As the experiment shows, it is one and the same orgone energy which functions in two antithetical directions or ways, like this:

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Attraction   Repulsion
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Orgone energy

Fig. 6. Attraction and repulsion as antithetical functions of the orgone energy.

E. If this is not just a new hypothesis added on to a thousand others, if your hypothesis explains known facts better than my hypothesis, and if it explains new connections, I shall agree. But let's not get too far afield. We started with the question: What is the principle according to which the discharge of my electroscope—your orgonometer—takes place if the principle of the equalization of potential differences is not applicable?

O. I had a good reason for leading up to this question, but could not do it very well without the detour into biology. These biological considerations help the orgone-physical experiment; they carry us further and fulfill your demands for the justification of a hypothesis.

E. I am eager to see your experimental proof.

O. We shall carry out this experiment in the dark orgone room. Please take orgone from your hair, and bring the excited polystyrene rod as close to this tubular fluorescent argon lamp as about 5 cm. Then keep your hand steady.

E. . . . I have done so several times. Nothing much happened, except that a small area of the lamp began to glow once.

O. Now carry out another experiment: Hold the rod at a distance of about 30 cm from the lamp, then bring it close to the lamp, so as to almost touch it, and remove it again. Repeat this as often as you please.

E. . . . As I come close, the lamp glows several times; this happens at shorter intervals as I come closer. If I hold the rod quiet at the same distance, nothing happens. If I move it away from the lamp, it glows again, several times in succession. The more frequently I repeat the movement of the rod to and fro, the lighter does the lamp become.

O. Now move the excited rod along the lamp, lengthwise and evenly.

E. . . . There is an irregular flickering. The glowing of the argon is intermittent and does not seem to be a direct result of the even movement of the rod.

O. These phenomena cannot be explained by a uniform electrical influence from the rod to the gas or its ions. Otherwise, the lamp would glow as long as electrical energy from the rod influences it. Then, when the electrical energy was discharged, the glowing would disappear. On the other hand, these phenomena are in full accord with the basic functions of living systems. The lamp glows only when the rod is brought closer to it and when it is removed again; it does not glow when the rod is not being moved. A muscle contracts only when the galvanic current is turned on and when it is turned off,
not when a steady current is sent through it. In addition, it does not contract according to the electrical stimulus, but according to its bio-energetic structure. In response to the same stimulus, the striated muscle contracts rapidly, the smooth muscle slowly and in a wave-like manner. The contraction of the muscle is only precipitated by the turning on and off of the current. The energy of the contraction, however, lies in the muscle itself. It is not the electrical energy supplied from the outside which is expressed in the contraction but the biological energy in the muscle which is stimulated by the turning on and off of the current. In our experiment, you brought an orgone-excited rod close to the fluorescent lamp and removed it again. The lamp “luminates” when the orgone charge is moved but not when it is at rest. This phenomenon of lumination, as we call it, is based on an alteration of the field of the energy in the rod, and not on the static influence of the energy field.

E. I understand. You leave the field of the positive and negative fluids or substances and enter the field of moving energy fields. Would you equate “energy field effect” and “charge”? You said that the orgone “charges” the orgonometer.

O. You will admit that it is extremely useful occasionally to go back to the most elementary concepts. As a matter of fact, I do not believe that the orgone rod “charges” the orgonometer, but that, by way of the moving orgone field, it “excites” it. Typically, this excitation occurs only when the contact of the energy field with the excited substance is established and when it is interrupted. The fluorescent lamp luminates only when the rod is brought close and when it is removed. If we move the energy field lengthwise along the lamp, there is a sequence of contacts and contact-interruptions. Accordingly, the lamp flickers; it luminates and stops luminating intermittently.

E. Faraday did not succeed with his induction experiments until he hit upon the idea of turning on and off the current in the primary coil, in other words, of making excitations and fields of excitations appear and disappear. The secondary coil develops a current only with the appearance and disappearance of the energy field in the primary coil; it does not react to a constant current.

O. This is probably the place where the riddle of the connection between orgone and electrical current has to be looked for. But let’s not go into that now. We shall only remember that there is a functional resemblance between the contraction of the muscle when the current is turned on or off, the induction current in the secondary coil with the turning on or off of the current in the primary coil, and the lumination of our argon lamp when the orgone rod is brought close or removed. In all three cases, the process is dynamic, that is functional, and not static. It is not a matter of one discharge of positive and negative electrical particles, but of a repeated attraction and dissociation in the excited substance.

E. Can you demonstrate this experimentally?

O. Yes; after having freed myself of the static concept of the two separate electrical fluids, I found a way of experimental demonstration. Instead of the rigid and heavy, and therefore clumsily moving, aluminum or gold “caves we use two thin silk threads. These we attach to a metal rod; we then interrupt the conduction from the metal rod to the metal knob by an intermediate piece of hard rubber or plastic, and bring our orgone rod close to the knob. Do you want to try it?

E. When I bring the rod which was excited with hair orgone to the knob, there are several successive attractions and repulsions of the silk threads. The same happens when I take the rod away. The reaction reminds me of contracting frog’s
legs. At first I felt like rejecting this comparison.\(^1\)

O. Nevertheless, it is entirely correct. In addition, you have reproduced the phenomenon of lumination in a mechanical form. The silk threads remain immobile when you do not move the rod. They move back and forth when you bring the rod close and when you remove it again.

E. This demonstration is simple and convincing. I admit that in this case the assumption of two electrical fluids does not apply. What we see is not a single attraction with consecutive repulsion, but repeated attraction and repulsion. What is your conclusion from this observation?

O. We must assume that every establishment of contact and every interruption of contact in the energy field goes with two opposite functions in the excited substance: appearance and disappearance of excitation. The fluorescent lamp luminesces and ceases to luminate; in the secondary coil a current appears and disappears; our silk threads attract and then repel one another.

E. In brief, you replace the attraction of the positive and negative electrical charges by the attraction of two organotically excited substances which are exposed to the influence of one and the same orgone energy. Furthermore, you replace the repulsion due to two negative or two positive electrical fluids by the repulsion or dissociation of two organotically excited bodies due to the disappearance of the excitation or lumination.

O. The observation of the processes of biological excitation allows of no other conclusion. The copulation and separation of two biological individuals are the prototype of the phenomenon. The phenomenon of the attraction of two organotically excited systems is clearly and simply demonstrated to us in the realm of biology. The phenomenon of dissociation is more complex.

E. We started out from the fact that the slower speed of discharge of the electroscope in the orgone accumulator and around noon time cannot be explained on the basis of the ion theory. But neither do I see how the function of attraction and repulsion of the orgone energy explains the phenomenon.

O. In the early days of orgone physics, I tried to explain the slower discharge of the orgonometer in the accumulator by the principle of the potential difference. I assumed that the electroscope could discharge less easily into an atmosphere with a high orgone tension than into one with a low orgone tension. However, this assumption had to be dropped. Since it is always the stronger organotic system which withdraws energy from the weaker one, there can be no potential difference in the sense of mechanics (from higher level to lower level) or electrics (from higher tension to lower tension). Another assumption was more in accord with the facts: the orgone-excited orgonometer gives off orgone to the surrounding air and, at the same time, takes up orgone from it. Emission and absorption of energy take place simultaneously. A vacuum tube in the orgone room takes up orgone and at the same time emits it. That is, we must give up the customary concept of potential difference and must assume a simultaneous emission and absorption of orgone energy. I suggest that we postpone the application of this new concept to the spontaneous discharges of the orgonometer until such time when further observations have made us more familiar with the characteristics of the orgone functions.

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\(^1\) Translator's note: It seems indeed peculiar that the movement of a pair of silk threads should remind one of a biological movement. I well remember my amazement when I saw this experiment for the first time. Yet, my immediate impression was that of moving frog's legs. The witnessing of such experiments which again and again demonstrate the functioning of a unitary energy both in the physical as well as the biological realm is one of the most impressive experiences.—T. P. W.
Thus far, at any rate, we have established the following pairs of functions:

1. Absorption and emission of orgone;
2. Attraction and repulsion of two orgonotic systems;
3. Lumination and cessation of lumination in the moving orgone field.

V. ORGONOTIC ATTRACTION AND REPULSION (CONTRACTION AND EXPANSION) IN THE ORGONE ENERGY FIELD (1942).

E. Since our last discussion I have convinced myself that the speed of discharge of the orgonometer increases shortly before a thunderstorm; during a storm, several scale divisions discharge in seconds or even fractions of seconds instead of in half an hour or even hours as usual. This confirms your observation, which opens a new avenue of approach to the problem of weather formation. This observation cannot be explained away. At any rate, it is more interesting to participate in this breakthrough into unexplored realms than to refuse to do so as I did in the beginning. Your art of interpretation is contagious: could it be that the orgonometer functions biophysically when in good weather it maintains the deflection longer than in bad weather? After all, it registers biologically effective physical energy, so why should it not react biophysically?

O. I don't quite see what you mean.

E. In good weather, an animal stretches out comfortably, in bad weather it retreats into itself. That is, it expands and contracts according to the weather, entirely in accord with the function of orgonotic attraction and dissociation of the particles.

O. I am glad to see that you thought this out to its logical conclusion. When I had to reject the original mechanistic interpretation of the speed of discharge, I was at first at a loss. Gradually, I formed the idea which you just put forth. I did not mention it last time because I thought it might disturb our friendship. But I think it is entirely justifiable to say: With high atmospheric orgone tension the deflection lasts longer because the orgonometer leaves can expand and dissociate longer. Biophysically speaking, they "feel better" in a high orgone concentration than in a low one. In other words, we are not dealing with potential differences as in the case of mechanical or electrical energy, but with strong or weak attraction and dissociation. Now, biophysical pulsation consists of rhythmically alternating expansion and contraction. The expansion of the orgone corresponds to the dissociation or repulsion of the orgonotic particles, the contraction corresponds to their association or attraction. Do you consider this conclusion justified?

E. Yes, it is theoretically correct, but can hardly be demonstrated experimentally. In order to demonstrate it, one would have to make a non-living system expand and contract rhythmically, and that cannot be done.

O. It is possible to reproduce the dissociation of the particles in the form of a repulsion and the association in the form of attraction of the particles. It is not yet possible, though, to produce attraction (contraction, association) and repulsion (expansion, dissociation) alternatingly in one body. That would be the same as producing a homunculus. It is possible, however, to reproduce these two basic orgone functions separately, that is, in different substances.

E. This would indeed be an important practical step beyond mere theory. What are the experimental arrangements?

O. They are simple. But to remain with the concepts for a moment: Repulsion and attraction are energy functions; they are the basis of the corresponding changes in the state of matter, disintegration, dissociation, association, cohesion. According to this, the state of matter is determined by the relative function of its energy.

Now let us demonstrate the functions of repulsion and attraction. We connect
this iron sphere of about 3 cm diameter with the metal rod of the orgonometer by way of a wire. On each side of the sphere, at a distance of about 2-3 mm and at the height of the equator, we suspend a substance in pendulum form. For a reason to be explained later, I suggest 16 cm as the length of the pendulum. The pendulum on the left carries a small piece of cork, that is, an organic substance; that on the right, a thin tin foil of about 5 mm length. As you see, the pendulums do not move at all. Now please charge the orgonometer.

E. . . . The piece of cork moves toward the metal sphere and adheres to it. The tin foil was first attracted but then immediately repulsed again.

O. Did the tin foil return to its original vertical resting position?

E. No, it is being kept away from the metal sphere. That is, the orgonotically excited metal sphere has attracted the piece of cork and holds it fast, while it repels the tin foil and keeps it away.

O. Please continue to charge.

E. The cork continues to adhere to the sphere; the tin foil is kept away at an increasing distance. That is, we can observe how the repulsion increases; the increase in the attraction of the cork we can only surmise but not observe.

O. One and the same excitation of the metal sphere has an antithetical effect: it repels the metal and attracts organic material. According to your theory of the two electrical fluids which are present in the metal and in the organic substance, the effect would have to be the same in either case: first attraction, then repulsion, in the case of the metal as well as that of the cork. Our experiment produces the two reactions separately.

E. The orgone energy, then, is composed not of two antithetical fluids, but of two antithetical functions, attraction and repulsion; and each of these functions has a specific relationship with the nature of the substance. In chemistry, one knows metals, metalloids and carbon compounds . . .
O. I must interrupt you here. Let us postpone the discussion of these relationships to the chemical function. It has to do, among other things, with the energy function of chemical affinity. For that, we are not yet prepared. Let us confine ourselves to the conclusions which can be drawn from this one experiment, otherwise we would get lost in speculation. Let us introduce into our experiment a second metal sphere which is connected with a second orgonometer. Sphere II is at a distance of about 1-2 cm from sphere I. Exactly in the middle between the two spheres is suspended a small piece of cork through which thin pieces of iron and copper wire have been stuck in all directions. It represents a combination of organic and metallic material which we shall term MO. On the free side of sphere I we have the tin foil, on that of sphere II a piece of cork. Please charge orgonometer I with orgone from your hair.

E. . . . The combination MO oscillates back and forth between the two spheres. Each sphere alternatingly attracts and repels it. The tin foil (M) is repelled and kept away by sphere I, while the cork (O) is attracted and held fast by sphere II. I notice that the orgonometer II, without direct influence, has become charged spontaneously. How do you explain that?

O. The total system is charged with orgone. Each spark from the rod to the orgonometer tip has added a certain amount of orgone energy to the total system. Orgone energy fields were formed around both spheres. The tin foil (M), influenced by only one orgone field, was repelled and is being kept away. The combination MO oscillates back and forth because it is influenced by both fields, in the sense of both attraction and repulsion.

E. Let us ground the case of orgonometer I . . . The total system gradually becomes discharged. Let us repeat the experiment by charging orgonometer II
... We obtain the same result as with charging orgonometer I.

O. Let us put the tin foil (M) between the spheres instead of the combination MO. Now charge sphere I.

E. The tin foil oscillates between the spheres.

O. Discharge both spheres by touching the orgonometer tips. Then charge sphere II alone.

E. During the discharge, the tin foil kept still. It began again to oscillate when I charged sphere II alone.

O. Let us again discharge both spheres. Then we charge them alternatingly with one spark each, that is, evenly.

E. . . . The tin foil does not oscillate, but remains still in the middle. That is, it is held fast by the two repulsion fields between the two spheres. I shall check up on this. If the interpretation is correct, the tin foil must move toward sphere I and not toward sphere II when I reduce the charge of sphere I. . . . It does. When I charge sphere I more strongly than sphere II the tin foil moves from sphere I toward sphere II.

O. Another check consists in discharging one of the spheres completely.

E. I discharge sphere I. The tin foil oscillates vigorously between the spheres. . . . I discharge sphere II also. . . . The foil no longer moves.

O. Organic material is attracted and held fast. Metal is attracted for a moment and then steadily kept away. Consequently, the combination (MO) will be neither attracted nor be kept away; it only oscillates somewhat.

E. . . . MO oscillates vividly between two charged spheres; near one charged sphere it swings slightly back and forth. The energy field of the one sphere attracts MO a little. The complete attraction of the organic material is contradicted by the repulsion of the metallic material. The sphere does not keep MO steadily away as it does M, for the O in MO contradicts the repulsion by attraction. These experiments are clear. They prove the repulsion of metallic substances and the attraction of organic substances in the combination MO also. What happens with organic material between two spheres?

O. O, unlike MO, does not oscillate, nor does it stay still like M, but it adheres alternatingly, and for a considerable time, to one sphere and then to the other. This is accompanied by phenomena which I do not yet understand.

E. Nobody would ask to have every detail of a new experiment clarified all at once.

O. I would like to stress two facts emerging from these experiments particularly:

1. When the movement of the pendulum has already subsided and the spheres are discharged, it can begin again if one touches the connected orgonometer with one's finger. It reminds one of the illumination with contact interruption, but it is not quite understandable yet.

2. If we arrange MO with one metal sphere we observe, when we excite the latter, not only a pendulum movement, but also a rotating or torsion movement of MO. This also is not understandable yet. But we shall have to keep this rotation in mind; nobody can predict in what connection it will prove significant.

E. You observe very well. I had seen both phenomena but did not mention them. Could it not be a matter of mechanical disturbances?

O. No, for I have been able to reproduce them under different circumstances.

Now, according to the theory of electricity, an electrical charge is transferred by influence from the charged to the non-charged body. An amber rod, when rubbed, attracts pieces of paper. Let us transfer this theory to our palm. We must assume it to be charged. But it does not attract the freely suspended metal foil. How do you explain this?
E. I have no explanation for it.

O. Please produce an orgone energy field around the metal sphere so that the tin foil is repulsed from it.

E. Done.

O. Now bring your palm close to the tin foil slowly and remove it again.

E. . . . Every time I bring my hand close, the tin foil approaches my hand and goes back again when I remove it.

O. The charge of your hand has not changed. Your hand exerted no attraction on the tin foil as long as the tin foil itself was not in an orgone energy field. But as soon as this was the case, the attractive effect of your hand appeared. If it were a matter of electrical influence, the effect would have had to be present from the beginning. It was not. It appears when two orgone energy fields, that of the sphere and that of your hand, come into contact with each other.

E. These phenomena are not understandable from the point of view of electricity. There can be no doubt that orgone is fundamentally different from electricity. A simple logical confirmation of these facts occurs to me. The orgone is present everywhere in the atmosphere and in all substances. It must also be present between the wires of a telephone or high tension conduit. The wires are not insulated. If they were, this would not change anything anyhow, since the orgone penetrates insulating materials. If orgone were simple electricity, there would be conduction between the wires and there would be discharges and electrical disturbances. Telegraph and telephone would be an impossibility. All this is not the case. The orgone, then, does not establish a conduction between the telephone wires, and can therefore, logically, not be electricity.

O. This is a very important critical objection to the thoughtless application of the concept of electricity. If orgone were the same as electricity, insulation by air and insulating materials would indeed be impossible. I suggest to postpone the discussion of the relationship between orgone and “dielectricity” until another time.

E. I had to think of this relationship myself. It has remained obscure why different insulators act so differently when placed in the field between two condenser plates. The difference of the dielectricity constants is a riddle.

O. We are not yet prepared to discuss this.

E. I see. I begin to realize that your discovery is far more significant for the theory of electricity when one realizes that the orgone is an energy different from electricity.

O. There are many still hidden approaches to the biological energy. Several years of hard experimental work showed me that the current theory of electricity not only failed to provide an avenue of approach to the problem; rather, it always led one astray. This I would like to illustrate with an anecdote: My first biophysical experiments in humans were done in 1935, with the assistance of a physiologist from the Kaiser-Wilhelm-Institut in Berlin. We had to find out whether the erogenous zones of the body surface, when biologically excited, showed an increase of their bio-electrical potential compared with an indifferent place of the body surface. I had already observed the increase of the potential with pleasurable vegetative excitation and asked my assistant to carry out further experiments while I went abroad for a lecture course. When I came back six weeks later, my assistant told me that “nothing had shown” at the erogenous zones, that there was no increase of potential with pleasure, and that therefore my hypothesis was erroneous. I asked him to demonstrate his experimental procedure. For six weeks, with the greatest precision, he had fastened glass cups over the subject’s nipples with adhesive tape. The glass cups were
filled with electrolyte fluid and supplied with electrodes which were connected with an oscillograph. Mechanically speaking, the arrangement was faultless, absolutely correct in every detail. Only one fact had been overlooked, and that was the decisive one: No living organ gives a pleasure reaction if one ties glass cups to it with adhesive tape!

E. If I understand you correctly, this means that mechanistic methods, taken from the realm of the non-living, are not applicable in the case of phenomena of biological excitation.

O. That, precisely, is my contention. It is based on a great many disappointing experiences. Living matter functions basically differently from dead matter. My assistant had excellent training in mechanistic concepts and methods, but he did not know what to do with the biological concept of “emotion” and had no realization of the faultiness of his procedure.

E. That is, you first used mechanistic methods which failed and had to work out new methods which were in keeping with the biological functions?

O. Precisely. But that in itself was not sufficient. Since the biophysical laws can be deduced only from the observation of biological processes, the methods of observation and experiment must also be biological. We work with the living organism in order to gain indications of the nature of the orgone energy. On the other hand, we must also work with other material in order to arrive at the purely physical orgone functions. Ideally, the orgone-physical experiment should convincingly demonstrate living energy functions. The biological orgone experiment must agree with the purely physical experiment.

E. The hypothesis of the two separate electrical fluids, then, led nowhere. The organism does not contain two poles, one charged negatively and the other positively, and there is no equalization between negative and positive charges.

O. True, there are higher and lower charges. But there is no flow of energy from the higher to the lower charge. On the contrary, the specific biological mechanism is that of an energy flow from the part with weaker to the part with stronger excitation. The strongly excited pseudopodium of an ameba attracts plasma from the non-excited parts of the organism. This is what leads to the flowing of the total plasma, the “crawling.” There is lumination (“excitation,” “emotion”) which is unipolar and has nothing to do with potential differences. Nor is there any equalization of positive and negative charge.

E. You have replaced the attraction of positive and negative electricity and the repulsion of positive and positive, negative and negative electricity, respectively, by the antithetical functions of attraction and repulsion.

O. The theory of electricity assumes that the antithesis of positive and negative develops from a neutral condition. In the living organism, the concept of a neutral condition is not applicable. The living organism is never completely at rest like, say, a dynamo. The unitary, always functioning biological energy works in two antithetical directions as attraction and as repulsion of the particles in the living plasma or the colloid. The repulsion of the particles expresses itself as dissociation or expansion, the attraction as association or contraction. Orgone biophysics had to demonstrate, purely physically, these two antithetical functions of one and the same energy. This demonstration did not succeed until, after innumerable failures, the electrical concepts were discarded and the experiments were carried out purely from the standpoint of biological attraction and repulsion.

E. A piece of leather, a glass rod and a piece of tin, put together on a table, do not mean anything until the searching intel-
lect puts them into some relationship with each other. It is necessary to rub the glass rod with the leather in order to produce a movement of the tin foil.

O. One of the greatest hindrances of research is the fact that science always stops at separate individual facts which it does not really understand. Scientific search is essentially the establishing of an intelligible connection between individual facts. The problem of the biological plasma pulsation reduces itself to an alternating expansion and contraction, that is, alternating connections. As you know, the formula of plasmatic functioning, of the four-beat tension → charge → discharge → relaxation was not discovered by experiment but by thought. The unification

Field

Fig. 9. Schema of orgonotic system.
of the known facts of physiology was later confirmed by the bio-electrical experiments at the erogenous zones.

E. Let's remain with the theory. In order to follow your experiments I have to comprehend your theoretical standpoint. Otherwise I could easily explain away your individual findings by wild individual interpretations.

O. Nothing is easier than to take the individual facts out of their context, to separate them from the basic theory and to find a special “explanation” for every individual fact. For example, if you bring your hand close to the charged electroscope, the leaves collapse; that is “the effect of capacity.” If you bring the rubbed rubber rod close, the leaves deflect; that is “the effect of influence.” If you connect the electroscope casing with grounded metal the deflection increases; this is “the effect of the negative charge of the earth on the positive charge of the leaves.” If one brings the orgone rod close to an electric tube and removes it again, the tube flickers; this is “the effect of ions.” If there is a bolt of lightning between cloud and earth, this is a discharge of “positive cloud electricity and negative earth electricity.” If, however, there is a bolt of lightning between two clouds, without contact with the earth, lo and behold, suddenly there are clouds not only with positive but also with negative charge. The lightning contains millions of volts while the air contains only traces of electricity. Well, then it was “the effect of the electrical charge of the surface of the droplets” . . .

E. That's enough! I know there is a magic of words which—in physics no less than elsewhere—is taken for scientific explanation. But we want to get at new facts.

O. I cannot pass over the magic of words as easily as you. For many years, it was used against me with great dignity and authority at every step I took, until finally I lost my respect for it and determined to declare orgone research autonomous and independent. When I demonstrated the pulsation of the bions microscopically, it was said to be a matter of “Brownian movement,” although this cannot explain the pulsation. The sap bions which opened the way into the realm of the orgone energy were called “only sarcinae.” Character-analysis was called “old stuff” or “all wrong.” Vegetotherapy, to which we owe the formula of living functioning, was called “simple massage.” With regard to the orgone accumulator, many physicists said that “of course” a metal cabinet was warmer, without substantiating such a statement. That is, one cannot get around the magic of words; one has to overcome it.

E. Let's overcome it by the solution of problems, and by a correct instead of a verbalistic solution. One of these problems is why these phenomena, unequivocal as they are, have not struck any physicist or astronomer thus far.

O. You are mistaken. The atmospheric orgone has been seen and described by hundreds of physicists, astronomers, meteorologists, biologists and chemists. That the orgone was not discovered in a practical way long ago is due to the mechanistic splitting up of the natural sciences, the mechanistic verbalizations which were taken for explanations, and the lack of functional, that is, unitary thinking.

E. I don't get you.

O. One and the same phenomenon, the wave-like flickering of the atmospheric orgone, has been sighted and described in meteorology as well as in astronomy. Meteorology, observing the atmosphere mainly during the day, knows the atmospheric orgone as “blue haze” and “flickering as a result of evaporating water.” Astronomy on the other hand, making its observations mainly at night, knows the orgone under the designation of “diffuse light” and as a disturbance in astronomi-
cal observation which is called “bad seeing.”

Geologists and physicists know the atmospheric orgone as “flickering in the sky due to terrestrial magnetism.” The physicist, in addition, knows the orgone as “static.” The astronomers and physicists have experienced the atmospheric orgone mainly as a disturbance. The spontaneous discharge of the electroscope is a natural expression of the atmospheric orgone. The physicist calls it the “natural leak” and excludes it because it disturbs his calculations of ion effects. Orgone lumination at the mast of a ship is called “St. Elmo fire”; lumination at the height of some hundred kilometers is called “aurora borealis” but at the height of a few hundred meters it is called “heat lightning.” The orgonotic flickering at the walls of a room is called “merely a subjective optical impression.” The blue of the sky, an unequivocal orgone phenomenon, is “merely absorbed blue sunlight.” The blue-green coloration of the protoplasm is “merely a phenomenon of refraction.” The lumination of fire-flies is merely the luminescence of a substance called “luciferine.” The lumination of disintegrating wood in the dark is “merely a phenomenon of putrefaction.”

If natural science were not mechanistically split up, if it did not operate, to its great disadvantage, with a plethora of concepts, then the astronomer, the geologist and the meteorologist would long since have arrived at an understanding of the flickering in the atmosphere. The astronomer would have found that the stars in a planetarium also flicker. The physicist, together with the meteorologist, would have found that there are certain laws according to which the spontaneous discharge of the electroscope varies; that, for example, the speed of discharge increases with cloud formation and before rain and decreases with strong sunlight in the afternoon. The triumph of the new scientific method of \textit{energetic functionalism} was that of having brought together in \textit{one unit} the many separate forms of expression of the cosmic energy. This theoretical comprehension led to the construction of the orgonotic cabinet, with that to the locally delimited reproduction of the flickering in the atmosphere and, further, to the thermal and electroscopic demonstration of the cosmic energy.

\textbf{E.} This only shows that the theoretical unification of different and widely disparate phenomena leads to new experiments which in turn confirm the theory.

\textbf{O.} The path to the discovery of the orgone was in reality a different one, starting, as it did, from the bionous structure of any substance which has been made to swell. But it might have taken the course you indicated.

\textbf{E.} How about discussing the thermal manifestations of the orgone next time?

\textbf{O.} Gladly.

\textbf{VI. ORGONOTIC HEAT (MAY 1939-FEBRUARY 1944).}

\textbf{E.} I am most curious about your demonstration of orgonotic heat. There are many gaps in the physical theory of heat. For example, the heat developed by the sun is still not understood. It cannot be simple combustion heat, otherwise the sun would have burned out long since. The sun’s loss of mass by radiation amounts to about \(4.2 \times 10^{12}\) gram/sec. This corresponds to about 4,200,000 metric tons, or \(1\%\) of its mass in 150,000 million years. The earth alone constantly receives about 2 cal. of heat per cm\(^2\) every minute. In order to understand these gigantic amounts of radiated heat energy one has assumed that it is not a matter of heat from combustion, but of \textit{subatomic heat}, that is, heat from disintegration of matter.

\textbf{O.} Has anybody tried to explain how it is possible that the heat radiated by the sun into the universe does not get lost
on the way to the earth, a distance of about 149 million kilometers, why there is not a rapid equalization with the temperatures of the universe which are near absolute zero?

E. I do not know of any such consideration, but it is undoubtedly important. Have you an opinion about it?

O. The discovery of the orgone has led to some surprising clarifications.

E. I just remembered the fact that you can easily charge your orgonometer through exposure to sunlight to the amount of many hundred volts. That must mean that the sun radiates orgone energy directly to the earth. It is orgone energy and not heat which manifests itself at the orgonometer. As we know, heat is only a form of manifestation of energy anyhow, and not energy itself. But I cannot as yet think of a connection between orgone and heat. As you have found out, orgone penetrates all substances. In caloric research, one finds always the same thing: all temperature differences result in an equalization from the higher to the lower temperature which takes place more or less fast or slowly according to the conductivity of the substances involved. Since, now, the orgone is present everywhere, only in different concentrations, one should have found such differences, which is not the case.

O. The demonstration of such irregularities in the equalization of temperature succeeds only if one imitates, in miniature, the arrangement of materials of a planet such as our earth. Then one finds indeed a constant temperature difference without a constant source of heat of any known kind.

E. I was prepared for all kinds of surprises, but this would really be a bombshell.

O. I am afraid that when this "bombshell" is going to explode, many a physicist will dig in behind an impenetrable
wall of "interpretations" which are to explain the phenomenon away.

E. You are too pessimistic.

O. I am speaking from experience. But first let us convince ourselves that the rule of the equalization of all temperature differences is correct. Here are four very exact decimal thermometers. Please put their points about 2 inches below the surface of the soil. You may choose shady or sunny spots; the thermometer tips are protected from direct sunlight in either case.

E. I prefer a sunny spot . . . The four thermometers show the same temperature.

O. Now we bury this apparatus in the soil. The apparatus consists of an exterior box of wood and an interior box of sheet iron of 1 cubic foot. It is a good idea to use an apparatus consisting of two or three such layers. In the top of the box we insert a glass cylinder which has a small opening for the insertion of a thermometer. The whole thing is covered with soil so that the apparatus itself is not exposed to the direct sun rays. Will you measure the temperatures?

E. . . . The box thermometer shows a far higher temperature than the other thermometers. At present the difference is 9°C.

O. This is April, and the sun is not very high. In summer, we find temperature differences up to 20 degrees. Let us call these differences $T_o - T$. It is that temperature above the average soil temperature which is produced by our arrangement of materials. Since the sun radiation is the same in the whole field of the experiment, the temperature difference can only be the result of the arrangement of materials.

E. . . . The sky has become overcast. The temperature difference decreases gradually . . . Now it is only 2°C.

O. Before and during a heavy rain, it
decreases to very low values such as 0.1°-0.4°C. It is much smaller at night than during the day. It increases toward noon and again decreases toward sunset. In other words, we find the same daily variations as in the curve of the orgone tension. The curve of the temperature difference runs more or less parallel to the tension curve of the atmospheric orgone.

E. I have an objection. The control thermometers are in contact with the soil, while the orgone thermometer measures the temperature of the air in the soil above the apparatus. I am going to put a piece of rubber hose around the tips of the control thermometers in order to create the same condition as above the apparatus . . . The result remains the same. The thermometer inside the orgone accumulator shows a temperature several degrees lower than the thermometer above the upper metal surface.

O. When I told an eminent physicist about this fact he declared it to be impossible. The temperature within the orgone accumulator is always lower than above its upper surface. This fact is difficult to explain.

E. I am going to bury a simple wooden box in the same way as the metal apparatus . . . The temperature above the wooden box is the same as within; it is only about 0.5°C. higher than that of the control thermometers. In this experimental set-up, then, metal behaves quite differently from organic material. As far as I know, such a phenomenon is unknown in physics, and I certainly could not explain it.

O. Individual findings remain as unintelligible in the realm of orgone physics as in other realms of physics. For example, you could not explain the deviation of the compass needle in the electrical field without a knowledge of other electrical facts and of the corresponding theory. We have already encountered a fact which explains the temperature difference between above and below the metal surface just as it explains the disappearance of the temperature difference if we use organic material alone.

E. Oh yes, our cork piece is attracted by the orgone-charged metal sphere while the tin foil is repulsed.

O. You have established the right connection. Organic substances attract and absorb the orgone, metallic substances reflect it. The functions of the orgone become comprehensible not so much through individual findings as through the connection of seemingly widely disparate facts. One would not immediately surmise a connection between this temperature phenomenon and the phenomenon of attraction and repulsion. The temperature phenomenon and the electroscope phenomenon are in accord: metals stop the kinetic energy of the orgone. True, organic substances also stop the orgone particles, but this effect is almost completely counteracted by the absorption on the part of organic substances. As everywhere where kinetic energy is stopped, the stopping of the kinetic energy by metallic substances expresses itself as heat. Since heat ascends, it is clear why the temperature above the upper metal surface of the apparatus is higher than that of the inside, and why both accumulator temperatures are higher than those of the control thermometers.

E. I am going to repeat this experiment above the soil surface. I shall put the apparatus on the ground, measure the temperature of the enclosed space above it and compare it with the air temperature in the shade. The tip of the orgone thermometer is also in the shade.

O. If you compare with the air temperature in the sun, the fundamental result will be the same.

E. . . . The orgone thermometer in the open air above the ground shows a difference of about 10 degrees compared with the air temperature in the shade and
about 8 degrees compared with the air temperature in the sun. In other words, \( T_0 - T \) is always positive. This is indeed a bombshell: a constant temperature difference without an apparent constant source of heat!

O. That cannot be the case. True, there is no visible or artificial source of heat besides the sun radiation. But of course there must be a source of heat, or else we would have discovered the principle of the perpetuum mobile. The source of heat of the temperature difference is the stopping of the orgone radiation by the metal. We use no artificial, mechanical or chemical energy. The energy of the metal in stopping the kinetic energy of the orgone radiation is of a passive nature, consisting simply of the existence of the material resistance. The same kind of passive mechanical energy is consumed when a meteor hits the surface of the earth, resulting in light and heat. The high temperature difference at the orgone accumulator is due to the kinetic energy of the flying energy particles. What is consumed, then, is the kinetic energy of the orgone which, in being stopped, is transformed into heat. Since, however, the available amounts of orgone are, practically speaking, infinite, the amount of energy transformed into heat is negligible, and the observer gains the impression of heat production "out of nothing," that is, of a perpetuum mobile.

This fact always creates difficulties in the demonstration of the orgone. The observer, in seeing the temperature, always looks for a source of heat of a known nature, unless he is ready with an arbitrary interpretation. One observer, when I demonstrated the biological effect of a simple wood-metal cabinet to him, began to look for hidden wires and electrical connections because without them it seemed incomprehensible. Only time and experience will acquaint the observers with the fact that the orgone is present everywhere, that it can be concentrated in a specific manner and that in this way it develops its physical and biological effects.

E. These facts are amazing, your interpretation simple and plausible; I suppose you have not just thought it out.

O. Indeed not. It resulted from the combination of innumerable small findings in the course of years of constant and painstaking observation. All the more peculiar is the attitude of "critical" onlookers who see this or that individual finding and immediately try to do away with it with a word or a wild interpretation. An eminent physicist thought it "quite obvious" that the temperature above the metal should be higher. Why it should be "quite obvious" he failed to say.

E. You were going to tell me about an interesting experience.

O. Yes. I had been observing the temperature difference in my basement laboratory since 1939. In closed rooms, it is rarely higher than 1.5°C., apparently because the orgone radiation from the walls and from objects in the room is too strong. I presented my finding to a man who is a great authority in physics. At that time I did not yet know about the results of measuring the temperature in the open air because I had discovered the atmospheric orgone energy only a short time before. The physicist patiently listened to my story in the course of a four to five hours' conversation. The fact that the temperature above my accumulator was several degrees higher than inside he considered impossible. The difference between the box temperature and the room temperature—if true—he considered, like you, a "bombshell." He expressed the wish to observe the apparatus for some weeks. I put one on a table in his basement. The control thermometer I suspended freely in the room, at the same height. He convinced himself in my presence of the temperature difference and observed its constant existence over a period of two
weeks. He had promised me to support the orgone research if he could confirm the existence of the temperature difference. Now he had confirmed it. Then he called in an assistant. The assistant soon found "an explanation." The temperature difference, he opined, was due to "conviction of heat from the room ceiling to the table top." If his interpretation had not been irrational, he would, of course, have convinced himself of its correctness or incorrectness by conscientious experimentation. All he would have had to do was to put the control thermometer at the same height with the orgone thermometer above the table top. This would have shown him that the temperature difference continued to exist and that his argument was incorrect. His chief took the trouble of taking the apparatus apart and found a temperature difference between above and below the table top. This phenomenon was well-known to me. It is explained by the stopping of the soil orgone radiation at the lower side of the table top and has nothing to do with the temperature above the apparatus. If one interrupts the convection of heat from the room ceiling and replaces the wooden table top by a metal one, thus eliminating the difference, the phenomenon To-T nevertheless continues to exist. Of these measures, the high authority in physics did not think. The simplest procedure, of course, was that of excluding all heat influences as may exist in a room and to measure in the open air as we just did. This excludes room ceilings as well as table tops.

E. The superficiality of this assistant is amazing. After all, that's no way of dealing with a gigantic problem. How did it come out?

O. As usual, I refuted the assistant's interpretation by the measurements in the open air, where not only the objection is eliminated but where the phenomenon is even more marked. I submitted the results of these new measurements to the physicist but never received an answer. I never quite understood this but I cannot help feeling that this man, who had understood my problems and findings very well, simply wanted to keep aloof in order not to engage himself although he must be convinced of the correctness of my findings.

E. That must have been a bad blow.

O. That it was. I had to think of the many great and small discoveries which, in less robust characters, are done away with in this manner only to be newly discovered, or, rather, to be stolen, by others. This physicist, by the way, immediately saw the radiation when he looked through the orgonoscope, but later he felt incapable of quite distinguishing his subjective eye phenomena from the radiation. The orgonotic lumination of gases such as argon was at that time as yet unknown to me.

E. That was a dangerous situation there. Your cause might easily have been smashed.

O. No, for my refutation of the objection was unequivocal. In addition, there are too many tangible and proven facts, and there are too many gaps in physics which cannot be bridged without orgone physics.

E. Do you find a connection with the so-called "radiation of black bodies"? They absorb all the colors of the spectrum, which are reflected by white bodies. The soil contains heat which might be absorbed by your apparatus.

O. In order to refute this objection, all orgone boxes are painted white on the outside, as you see.

E. The heat at your orgone accumulator, produced by the stopping of energy, would seem to explain the heat of the sun and the earth. If the orgone is that energy which results from the disintegration of matter; if, further, orgone heat results from the stopping of the kinetic energy of the orgone; then the heat of the
sun could be simply explained as "orgone heat" as it results from the disintegration of matter at a temperature of about 6000 degrees.

O. Our little orgone system in the soil easily produces 10°C. of "orgone heat," that is, the difference $T_0-T$. On the basis of these facts, the sun heat is no longer a riddle. The heat produced in the inside of the earth also becomes understandable. It is assumed that the inside of the earth consists of "incandescent material." The heat of the interior of the earth cannot be simply combustion heat, for chemical combustion requires immense amounts of oxygen. If this oxygen were taken from the atmosphere, the available supply would soon be exhausted. In addition, it cannot be assumed that the interior of the earth is in connection with the atmospheric oxygen. The interior of the earth consists of "magma," an undefined, incandescent substance. Its existence cannot be doubted, for two reasons: First, the temperature goes up considerably toward the interior of the earth, about 1°C. for every 30 meters of depth. Second, the interior of the earth must be incandescent if the geological explanation of the origin of our planet from incandescent star material is correct. Since we must exclude chemical combustion we can only assume that the interior of the earth, too, develops orgone energy which in turn produces orgone heat. Finally, we must assume, on the basis of these facts, that what the sun sends to the earth is not heat, but orgone energy, no matter how obscure the mechanism of this process is. The assumption of direct heat radiation from the sun to the earth is incompatible with the almost absolute zero temperature in the universe, anyhow.

E. This opens the question as to the relationship between orgone and light. Do your experiments provide any clues?

O. Many observations point to the existence of such connections, but I am not ready to say anything about it. The fact that light is identical with electromagnetic waves leads to another question which is as yet not answered experimentally. The motion of waves always requires a medium in which it can take place. Water waves are unthinkable without water, sound waves without air. In order to make it possible for waves to move, the medium must vibrate. As far as I know nobody has explained in what medium light rays, coming from the sun to the earth, move. The fact of the transmission of light rays, that is, of electromagnetic waves of light character, cannot be doubted. For the time being we must assume that the orgone is the medium in which the electromagnetic waves of light vibrate. This seems a justified hypothesis and not a "wild" one. The motion of the radio waves, also, is to be ascribed to the orgone.

E. In order to decide the question, one would have to know whether and how the orgone extends beyond the atmosphere of the earth, whether there is, so to speak, an orgone bridge from the sun to the earth. It might be much denser near the sun and the earth than in the intervening space. That would in no way exclude the possibility of its being the medium which carries the light waves. At any rate, this idea provides a basis on which the light medium might finally be comprehended.

O. Arrhenius assumes a cone which extends from the sun to the earth and beyond it into space. This cone was made responsible for the zodiac light also; it was conceived as "consisting of particles of matter." If you look through the orgonoscope, you see moving light particles. It is difficult to arrive at a clear picture. We are often forced to fill gaps in our knowledge with assumptions which later may prove erroneous. That the orgone is in motion is a definitely established fact. This motion is seen in the flickering in the sky and on objects. Certainly, the
orgone does not stay still like the water in a puddle. Furthermore, the motion seems to be of the nature of a rhythmic pulsation, again reminding one of the wave. In the orgonoscope, we see plainly moving light particles, and orgone heat is apparently produced by the mechanical stopping of this orgone motion. A good telescope clearly shows the wave-like motion of the atmospheric orgone at a magnification of as little as 60x.

E. I am reminded here of the body temperature of animals which, in warm-blooded animals, is usually higher than the temperature of the air. If you don’t mind jumping from one special field to another: is animal heat also orgone heat?

O. Since the orgone is a cosmic, or rather, the cosmic energy, it is not surprising that our discussion should lead us often abruptly from one specialty to the other. You are right: the organism contains orgone. The orgone in the body is in constant motion which is again and again stopped at innumerable places. This is apparently the way in which animal orgone heat is produced. The problem of the production of animal heat thus finds a simple explanation. If heavy work is done, more orgone is in motion and more is stopped; consequently, more heat is produced. The heat production in the organism follows the same laws as the production of sun heat. It becomes understandable why life depends on the sun. Both systems function orgonotically. Both form “orgonotic systems.”

E. It seems to me that the bombshell of the orgone heat did not burst until this moment.

O. The simplest is always the most amazing. It would be premature to try to comprehend the biological orgone phenomena before the foundations of experimental and theoretical orgone physics are established. Although the principle of orgonotic pulsation is derived from the realm of the living, nevertheless, it must be confirmed in the realm of non-living nature before it can be utilized for an understanding of life. Unless we proceed cautiously, there might well arise a few generations of mystics who conceive of the orgone metaphysically, divorced from non-living nature and who do not comprehend it from the standpoint of natural science. And it seems to me that we have more than enough mysticism as it is.

E. Right. What do you suggest for our next discussion?

O. The phenomena of orgonotic attraction in relation to magnetism.

[To be continued]
Caro Leitor

Infelizmente, no que se refere a orgonomia, seguir os passos de Wilhelm Reich e de sua equipe de investigadores é uma questão bastante difícil, polêmica e contraditória, cheia de diferentes interpretações que mais confundem do que ajudam. Por isto, nós decidimos trabalhar com o material bibliográfico presente nos microfilmes (Wilhelm Reich Collected Works Microfilms) em forma de PDF, disponibilizados por Eva Reich que já se encontra circulado pela internet, e que abarca o desenvolvimento da orgonomia de 1941 a 1957.

Dividimos este “material” de acordo com as revistas publicadas pelo instituto de orgonomia do qual o Reich era o diretor.
01- International Journal of Sex Economy and Orgone Research (1942-1945).
02- Orgone Energy Bulletin (1949-1953)
03- CORE Cosmic Orgone Engineering (1954-1956)

E logo dividimos estas revistas de acordo com seus artigos, apresentando-os de forma separada (em PDF), o que facilita a organizá-los por assunto ou temas. Assim, cada qual pode seguir o rumo de suas leituras de acordo com os temas de seu interesse. Todo o material estará disponível em inglês na nuvem e poderá ser acessado a partir de nossas páginas Web.

Sendo que nosso intuito aqui é simplesmente divulgar a orgonomia, e as questões que a ela se refere, de acordo com o próprio Reich e seus colaboradores diretos relativos e restritos ao tempo e momento do próprio Reich. Quanto ao caminho e as postulações de cada um destes colaboradores depois da morte de Reich, já é uma questão que extrapola nossas possibilidades e nossos interesses. Sendo que aqui somente podemos ser responsáveis por nós mesmos e com muitas restrições.

Alguns destes artigos, de acordo com nossas possibilidades e interesse, já estamos traduzindo. Não somos tradutores especializados e, portanto, pedimos a sua compreensão para possíveis erros que venham a encontrar.
Em nome da comunidade Arte Org.

Textos da área do funcionalismo orgonômico

Texts from the area of Orgonomic Functionalism.

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International Journal of Sex Economy and Orgone Research

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Orgonomic Functionalism

01 Theodore P. Wofe. The Sex-Economic Concept of Psychosomatic Indentity and Antithesis 1942
International Journal of Sex Economy and Orgone Research Volume 1 Number 1 1942
Interval 38-59 Pag. 33-54

02 Wilhelm Reich. Biophysical Functionalismo and Mechanistic Natural Science 1941
International Journal of Sex Economy and Orgone Research Volume 1 Number 2 1942
Interval 1-11 Pag. 97-107

03 Wilhelm Reich. Orgonotic Pulsation I 1944
International Journal of Sex Economy and Orgone Research Volume 3 Numbers 2 3 1944
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05 R. H. Attkin. Mechanistic Thinking as the Original Sin 1947
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Interval 51-54 Pag. 95-101

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01 Wilhelm Reich Cosmic Energy and Ether 1949
Interval 3-11 Pag. 143-159

02 Notes Editorial. Basic Natural-Scientific Research 1949
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<td>Wilhelm Reich Orgonomic Functionalism</td>
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<td>01 Wilhelm Reich The Developmental History of Orgonomic Functionalism A 1946</td>
<td>Wilhelm Reich-Orgonomic Functionalism - Vol I. I</td>
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02 Wilhelm Reich The Biological Revolution from Homo Normalis to the Child of the Future 1950
Wilhelm Reich-Orgonomic Functionalism - Vol I. I
Interval 21-43 Pag. 30-74

03 Wilhelm Reich A Note on Sympathetic Understanding.
Wilhelm Reich-Orgonomic Functionalism - Vol I. I
Interval 43-47 Pag. 75-82

04 Wilhelm Reich The Silente Observer A 1952
Wilhelm Reich-Orgonomic Functionalism - Vol I. I
Interval 47-55 Pag. 83-99

05 Wilhelm Reich Functional Thinking 1950
Wilhelm Reich-Orgonomic Functionalism - Vol I. I
Interval 56-62 Pag. 100-112

06 Wilhelm Reich The Developmental History of Orgonomic Functionalism B 1946
Wilhelm Reich-Orgonomic Functionalism - Vol II. II
Interval 4-15 Pag. 1-23

07 Wilhelm Reich The Silente Observer B 1952
Wilhelm Reich-Orgonomic Functionalism - Vol II. II
Interval 16-20 Pag. 24-33

08 Wilhelm Reich Wrong Thinking Kills 1936
Wilhelm Reich-Orgonomic Functionalism - Vol II. II
Interval 21-25 Pag. 34-43

09 Wilhelm Reich On Using The Atomic Bomb 1945
Wilhelm Reich-Orgonomic Functionalism - Vol II. II
Interval 26-28 Pag. 44-49

10 Wilhelm Reich Mans Roots In Nature 1950
Wilhelm Reich-Orgonomic Functionalism - Vol II. II
Interval 29-41 Pag. 50-74

11 Wilhelm Reich The Developmental History of Orgonomic Functionalism C 1947
Wilhelm Reich-Orgonomic Functionalism - Vol III. III
Interval 4-13 Pag. 1-19

12 Wilhelm Reich Orgonotic Pulsation 1944 A
Wilhelm Reich-Orgonomic Functionalism - Vol III. III
Interval 14-35 Pag. 20-63

13 Wilhelm Reich The Evvasiveness of Homo Normalis 1947
Wilhelm Reich-Orgonomic Functionalism - Vol III. III
Interval 36-49 Pag. 64-91
14 Wilhelm Reich The Developmental History of Orgonomic Functionalism D 1947
Wilhelm Reich-Orgonomic Functionalism - Vol IV. IV
Interval 4-13 Pag. 1-18

15 Wilhelm Reich Orgonotic Pulsation 1944 B
Wilhelm Reich-Orgonomic Functionalism - Vol IV. IV
Interval 13-24 Pag. 19-40

16 Wilhelm Reich Orgone Functions in Weather Formation 1946
Wilhelm Reich-Orgonomic Functionalism - Vol IV. IV
Interval 24-29 Pag. 41-51

17 Wilhelm Reich The Attitude of Mechanistic Natural Science to the Life Problem 1941
Wilhelm Reich-Orgonomic Functionalism - Vol IV. IV
Interval 30-35 Pag. 52-63

18 Wilhelm Reich Orgonomic Functionalism in Non-Living Nature A 1947
Wilhelm Reich-Orgonomic Functionalism - Vol V. V
Interval 4-13 Pag. 1-19

19 Wilhelm Reich Orgonotic Pulsation 1944 C
Wilhelm Reich-Orgonomic Functionalism - Vol V. V
Interval 14-26 Pag. 20-44

20 Wilhelm Reich Parents as Educators 1926
Wilhelm Reich-Orgonomic Functionalism - Vol V. V
Interval 26-37 Pag. 45-66

21 Wilhelm Reich Open Season on Truth 1942
Wilhelm Reich-Orgonomic Functionalism - Vol V. V
Interval 37-48 Pag. 67-88

22 Wilhelm Reich The Fundamental Problem of Form 1935
Wilhelm Reich-Orgonomic Functionalism - Vol V. V
Interval 48-48 Pag. 89-89

23 Wilhelm Reich Orgonomic Functionalism in Non-Living Nature B 1947
Wilhelm Reich-Orgonomic Functionalism - Vol VI. VI
Interval 4-14 Pag. 1-21

24 Wilhelm Reich Orgonotic Pulsation D 1944
Wilhelm Reich-Orgonomic Functionalism - Vol VI. VI
Interval 15-21 Pag. 22-35

25 Wilhelm Reich Desert Development and Emotional Dedness 1953
Wilhelm Reich-Orgonomic Functionalism - Vol VI. VI
Interval 22-29 Pag. 36-50
26 Wilhelm Reich Process Of Integration in the Newborn and the Schizophrenic 1950
Wilhelm Reich-Orgonomic Functionalism - Vol VI. VI
Interval 29-39 Pag. 51-71

27 Wilhelm Reich The Meaning of Disposition to Disease 1944
Wilhelm Reich-Orgonomic Functionalism - Vol VI. VI
Interval 40-41 Pag. 72-75

28 Wilhelm Reich The Difficulty 1948
Wilhelm Reich-Orgonomic Functionalism - Vol VI. VI
Interval 42-42 Pag. 76-76
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Orgonomic Functionalism
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01 Robert A. McCullough. Rocky Road Toward Functionalism 1955
Interval 26-31 Pag. 144-154