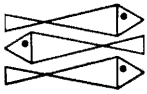
The Cancer Biopathy

VOLUME II OF

THE DISCOVERY OF THE ORGONE

by Wilhelm Reich

Translated by Andrew White with Mary Higgins and Chester M. Raphael, M.D.



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Love, work and knowledge are the well-springs of our life. They should also govern it.

WILHELM REICH

Foreword

Reich's theory that cancer is not primarily a tumor that arises mysteriously in an otherwise healthy organism but a systemic disease due to chronic sexual starvation will startle the average person who tends to view a disturbance of sexuality as distressing but not pathogenic. It will also enrage many who, because of moral prejudice, find such a connection offensive and untenable. Wilhelm Reich, with unerring appreciation for the relatedness of *all* natural phenomena, disregarded this prejudice and included the orgasm as a subject for serious investigation. His studies eventually led to an inquiry into the exact nature of the energy expressed in the orgasm and to its demonstration not only in the living organism but as the common functioning principle in nature.

The path Reich followed to the discovery of this ubiquitous energy, which he called orgone, is described in *The Function of the Orgasm.* Here, in *The Cancer Biopathy,* he details the actual discovery of orgone energy and reveals its practical importance to the problem of cancer. In so doing, he makes a contribution of enormous significance to an understanding of the gravest and most perplexing disease afflicting humanity today.

First published in 1948, *The Cancer Biopathy* is virtually unknown. It had an extremely limited distribution and was subsequently forced out of print by an injunction that caused Reich's books to be withheld or destroyed by an agency of the United States government. Fortunately, this new translation appears concurrent with a growing openness to innovative approaches to cancer.

At the basis of Reich's cancer theory is orgone energy, which can be utilized in the study of all natural phenomena and in the

investigation, treatment, and prevention of disease. One would think that the actual proof of the existence of a cosmic energy, about which man has speculated during the entire course of his history, would be eagerly received. However, the incapacity of the average human being to experience or understand his own bodily sensations —which are manifestations of the movement of this energy—has made him reject the reality of a specific force that governs his organism. Consequently, he has viewed the discovery of orgone energy by Reich as a fantasy or a fraud.

A major obstacle to an understanding of Reich's cancer theory is the conventional, mechanistic way of comprehending disease. Until fairly recently, actually less than a hundred years ago, diseases were attributed to the effects of the interaction of many variables in the individual and his environment. However, beginning with the investigations of Pasteur and Koch, "the doctrine of specific etiology" emerged, according to which a disease is caused by a specific factor, e.g., a bacterium or a virus or a hormonal deficiency. Modern medicine is based on this mechanistic viewpoint and it is the one that is presently being supported with vast federal grants in the investigation of cancer. Enthusiasm for this approach derives from the knowledge that a single, isolated factor can be introduced to produce disease in an experimental animal or that a mechanical procedure or chemical substance, often serendipitously discovered, can be effective in the treatment of disease. There are prominent scientists who take issue with this approach and assert that the search for a specific causal factor is futile. Nevertheless, the search continues.

Several individual "causes" for cancer are being investigated at this time, among them the viral, psychosomatic, and biochemical theories. Thus, some investigators are convinced that cancer is an infectious disease of viral origin and believe that a vaccine is soon to be developed. Others have drawn attention to the possibility of an interactional psychosomatic etiology and have speculated about the relationship of psychic depression, lack of aggression, etc., to the development of malignant tumors. Still others suggest that

psychological factors upset the hormonal balance of the organism or depress the mechanisms of immunity, thereby contributing to the etiology of cancer. Finally, in the biochemical area, the long-neglected finding by Otto Warburg that the normal oxidative processes are irreversibly damaged in the cancer cell and replaced by anaerobic processes is being reconsidered today, in view of the observation that lack of oxygen appears to contribute to the development of cancer.

Despite the interest stimulated by these diverse theories, it is evident that many questions about etiology remain unanswered and that much is obscure and confused. For instance, if viruses are involved, where or how do they originate? If there is something more fundamental than viruses at work, something chemical, what is it? If the emotions are etiologically involved, how do they actually produce cancer? That there is a relationship between cancer and viruses, the emotions, the lack of oxygen, etc., appears certain, but what it is or how it brings about the malignant transformation in the tissues is unknown.

In the absence of known etiology, the treatment of cancer has been largely symptomatic and the results have been unpredictable and generally discouraging. In fact, the suffering of the cancer patient is often due as much to the means that are employed to treat the symptoms as to the disease itself. Since the tumor is the most visible feature of the disease and is considered by most investigators to be the disease per se, treatment consists either in its excision or in an attempt to destroy it by radiation or chemicals. Controversy rages as to the value of these measures. For instance, there is constant disagreement about how much tissue need be removed in order to make certain that there are no cancer cells left that will invade and destroy the surrounding healthy tissue. George Crile, Jr., M.D., of the Cleveland Clinic, has found many surgical procedures to be excessive and has complained that "in our haste to stamp out cancer by indiscriminate use of surgery, we are forgetting the patient and even disseminating the disease." Yet, despite the limitations in treating the disease by removing or destroying the tumor, standard

medical practice considers the tumor to be virtually the only target for therapeutic intervention because of the mechanistic premise that the tumor arises *de novo* in an otherwise healthy organism.

In *The Cancer Biopathy,* Reich presents a functional theory of cancer that explains the origin and development of the disease and offers possibilities for its treatment and, more importantly, its prevention. This is accomplished without excluding the prevalent speculations about the relationship of the disease to infection, emotional disorder, damage to cellular metabolism, the value of simple excision of large tumors, etc. The theoretical "cancer virus" is undoubtedly related to Reich's T-bacilli, which produced cancerous tumors in experimental animals, thus supporting the present infection theory. However, to accommodate Reich's views, the infection theory would have to include the fact that the T-bacillus originates endogenously from the bionous disintegration of living substance. (This, of course, discredits the metaphysical theory of "air germs" from which all bacteria are presumed to develop.) The psychic depression or lack of aggression, noted by the psychosomaticists, is Reich's "characterological resignation." But, for Reich, "resignation" is not just an interesting finding that is obscurely involved in the origin of the disease; it is the first phase of a shrinking process that results from a disturbance in the discharge of biosexual energy. The current theory of oxygen deficiency on the cellular level, originally noted by Warburg, is not an isolated, unexplained finding but, according to Reich, the internal biochemical expression of the impairment of external respiration. In other words, in Reich's theory of cancer these and other factors are not miscellaneous and unconnected; they are symptoms of a systemic disease that has its origin in the prolonged stagnation of the organism's biological energy. That is, these factors have a common origin and then become capable of functioning autonomously, thereby giving the impression of being of primary etiological significance.

Every feature of cancer is accounted for in Reich's theory, in contrast to the insufficiencies of all other explanations offered so far. He not only made the same observations that are now being individ-

ually investigated, but he demonstrated a functional relationship between them which mechanistic methodology has been unable to discover. The tragedy is that his findings were greeted with scorn, neglect, and, above all, indifference when they were disclosed over a quarter of a century ago, and that no attempt has ever been made to examine them impartially. Even the present interest in Reich's early writings, which continue to be appropriate and timely in our current social climate, does not extend to his later works, which relate to the discovery of orgone energy. Perhaps, however, this new interest will stimulate a more favorable reception for his orgone theory and make possible the utilization of orgone energy in the study and treatment of somatic diseases, such as cancer.

One hopes that *The Cancer Biopathy* will provoke neither mystical enthusiasm nor blind rejection. Reich anticipated the possibility of irrational reactions to this work and warned that his solution of the cancer problem does not imply that a cure has been found. Yet, in spite of his efforts to clarify misunderstandings and discourage excessive expectations, he was ridiculed and condemned for claims he not only did not make but predicted would be falsely attributed to him. The fact that he was mindful of the inevitability of the distortions and malevolent reactions is distinctly stated in his preface. It should be read carefully to avoid any misconceptions regarding what he actually did claim. In addition, to dispose of any lingering doubt in this respect, the attention of the reader is also directed to the last chapter, in which Reich emphatically states that the ultimate solution to the cancer problem lies in preventing the disease rather than in curing it. The means to this solution are to be found primarily in the social realm, for it is our repressive social order that creates the sexual misery and the resulting stagnation of biological energy from which cancer originates.

Chester M. Raphael, M.D.

Forest Hills, N.Y.
1973

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Preface

This book is the second volume of *The Discovery of the Orgone* and is the direct continuation of the first volume, *The Function of the Orgasm.* It is composed of a series of articles concerning the discovery of cosmic orgone energy, first published between 1942 and 1945 in the *International Journal of Sex Economy and Orgone Research.* These essays are being offered in collected form so that orgone biophysics may be seen more clearly as a logical outcome of relevant observations, experiments, and work hypotheses. The unprejudiced reader will now be able to convince himself more easily than through the individual articles that the discoverer of orgone energy was much more a tool of scientific logic and consistency than a creator of "new theories." The wealth of facts and deductions recorded in this volume far exceeds the inventive capacities of the human mind. During the process of the discovery of cosmic orgone energy my task was not to construct theories but simply and solely to record my observations with care, integrity, and objectivity, to verify them by appropriate experiments, and to build the logical bridges of thought between one realm of functioning and another.

I have in part rearranged the previously published articles in order to avoid repetition and to present the contributions in chronological order. I have also added an account of the errors inherent in the "air-germ theory." Further, for the benefit of the specialist in cancer research, a discussion is included to establish the relation between classical and orgonomic cancer research. At the conclusion of the sections on orgone physics, there is a short note on the demonstration of atmospheric orgone energy by the use of the Geiger-Müller counter. Unfortunately, a comprehensive account of

this phenomenon was impossible for reasons of time, since it was not discovered until the summer of 1947.

I hope and believe this volume will be accessible to the scientifically untrained reader who has familiarized himself with the principles of scientific research in general and orgonomy in particular. Sections that are too technical can be passed over by such readers without undermining their understanding of the whole.

The present volume comprises the results of work done over a period of seventeen years, between 1930 and 1947. I have concentrated on essentials, since any attempt to include all the details would have made the book unreadable. There will be opportunity enough in other contexts to provide any important information omitted here.

It is regrettable but understandable that this volume cannot provide a complete account. There are still many gaps in orgone research, as is always the case in objective natural science. It provides neither a "system of thought" nor a new "philosophy of nature," merely new facts and some new connections between known facts, insofar as they have hitherto been verified. Where uncertainties remain, I have made appropriate notations.

Present-day orgone research is much more advanced than this book. The orgonometric results of recent years must await later publication. Similarly, a systematic exposition of the technique of functional thinking, fundamental to all our observations, experiments, and conclusions, has to be postponed until a later date. The omission is unfortunate but cannot be avoided. Over the course of the last twelve years, it has become obvious that orgone research is either not understood or misunderstood by biologists and physicists, because they fail to see the new facts from the point of view of *energetic functionalism,* and instead try to comprehend them with the aid of traditional, mechanistic methods of thinking. This is impossible. The bacteriologist, for instance, sees the staphylococcus as a static formation, spherical or oval in shape, about 0.8 micron in size, reacting with a bluish coloration to Gram stain, and arranged in clusters. These characteristics are important for orgone bio-

physics, but are not the essentials. The name itself says nothing about the origin, function, and position of the blue coccus in nature. What the bacteriologist calls "staphylococcus" is, for orgone physics, a small *energy vesicle* in the process of degeneration. Orgone biophysics investigates the origin of the staphylococcus from other forms of life and follows its transformations. It examines the staphylococcus in connection with the processes of the total biological energy of the organism and produces it experimentally through degenerative processes in bions, cells, etc.

I give this example merely as an indication, and no more than an indication, of why the facts of orgonomy cannot be comprehended if one uses classical mechanistic and chemical methods, and why a systematic exposition of the thought techniques and methods of orgonomy is so important for an understanding of orgone energy. But I have to limit myself and can only hope that the facts and functions presented will speak for themselves, even if they should appear new and strange to bacteriologists, biologists, and medical specialists trained in the classical way.

The natural processes discussed here will not be easy to understand without knowledge of the *biophysical function of the orgasm.* Just as the student of animal species must have adequate knowledge of geology, the scientist who wishes to investigate cosmic orgone energy must have precise knowledge about the function of the orgasm. The other requirement of the observer working with orgone energy, namely that his organ sensations be relatively unimpeded, can only be stated here and not substantiated. But certainly it is clear that the emotional structure of the natural scientist will color his observations and thinking and that therefore organ sensation is a tool of his work. This is just as true for me as for anyone else working with orgonotic natural functions. Experiment of course has to be applied to confirm or refute observations and work hypotheses. But the manner of conceiving and executing experiments depends upon the researcher's organ sensations. Sensory perceptions and organ sensations are decisive factors here. It is a mistake to believe that experiments alone can provide enlighten-

ment. It is always the living, feeling, thinking organism that explores, experiments, and draws its conclusions.

So much for the broad, difficult subject of the technique of functional thinking, an area of study only marginally touched upon in this book.

Our subject is a very serious one, with decisive implications for natural science in general. I have been fully conscious of this fact from the beginning. For that reason I have always allowed several years to pass before submitting a new observation or an unusual experiment to public scrutiny. I have made it a rule not to announce any new fact until it has been verified by additional findings. I ask the attentive reader to trust that I have not invested my private income since 1933, more than $100,000, in my research merely for the benefit of some "illusion," or a mere "idea," or just for fun. On the contrary, many people acknowledge that orgone research has overthrown several old and incorrect ideas about nature. Many people already understand that the rigid boundaries between the specialized sciences are broken down in orgonomy. Every person who works with cosmic orgone energy must possess adequate knowledge of medicine, biology, sociology, physics, and astronomy to understand the orgone functions in their various realms. Nature knows no boundaries between specialized functions. My own original starting point was biopsychiatry. The knowledge of human emotions plays a large part in orgone research, not only in understanding the basic functions of orgone energy but especially in understanding human reactions to the existence of a universal cosmic energy, which, in the living realm, functions as "biological energy," the energy of our emotions. This certainly has very serious implications.

Since my investigations into the essential biological functions of orgone energy have been carried out in connection with the cancer biopathy, this disease understandably is the hub of the orgonomic thesis as presented here. It may be considered a triumph for the field of biopsychiatry that it opened the way to an understanding of *biological cell energy*. In turn, that understanding led to the dis-

covery of atmospheric orgone energy. This process will become apparent in a logical way in the accounts that follow. It is a further satisfaction that it was the *sex-economic* branch of biopsychiatry in particular that succeeded in solving the riddle of cancer and raised hopes for a possible method of cancer prevention. In making such statements, I carry a frightening responsibility. But I cannot shy away from it if I am to communicate to the reader my sense of the gravity of this book's subject matter, which in itself demands a thoughtful and critical evaluation of my facts and claims. To offer a brief summary:

Cancer, the essential mechanism of which consists in a gradual shrinking of the autonomic system, is easily understood as soon as one overcomes his resistance to comprehending the following facts as a unified whole:

1. The air-germ theory must be abandoned and "endogenous infection" recognized.
2. The role of the emotions in organic diseases must be given full consideration.
3. The development of a living, spontaneously moving substance from other living or even non-living substances, indeed from mass-free orgone energy, must be acknowledged. In other words, in dealing with cancer we are directly confronted with the problem of *biogenesis.*
4. It is imperative, in our work on cancer, that we place *sexual pathology,* which is generally hated and avoided, at the center of our medical efforts.
5. If cancer is to be understood in a simple way, we must finally acknowledge the existence of a basically new, ubiquitous, *cosmic* energy that obeys functional rather than mechanistic laws. I have called this energy *orgone.*

Any one of these five points is enough to initially arouse skepticism in the serious natural scientist. I assure the reader, however, that I waited many years before I dared reveal to others the wealth

of newly discovered facts and their application. Dr. Walter Hoppe once wrote to me, quite rightly, that the biggest difficulty about my work was that *too much* had been discovered.

In serious scientific research there is the obligation to recognize facts even if it means risking one's neck. It was neither possible nor proper for me to evade this obligation if I was to do justice to the discovered facts. In time, the enormous significance of these facts began to seem less terrifying. I believe that the open-minded reader will also become less frightened of my discoveries when he considers the following:

1. Work in medicine and basic research is greatly facilitated by overcoming the sharply drawn boundaries between specialties in the natural sciences. In spite of its infinite variety, nature is basically a unified whole. The unity and simplicity underlying nature is revealed when we work with orgone functions. It is my belief that orgone energy is far less frightening and complex than other forms of energy which make possible the annihilation of entire cities.

2. The more familiar one becomes with the orgone functions, the more "at home" one feels with them. For example, the understanding provided by this work relieves the constant pressure felt when working with cancer patients without a knowledge of biological energy. After a few years of habitually using this knowledge, one cannot conceive how it once was possible to get along without it. Choreatic movements and epileptic seizures lose their mystery. These processes become simple and clear.

3. One gradually learns how to deal with human irrationality more easily, how to better understand what is going on inside people who fall victim to mysticism or the emotional plague.

4. Furthermore, it is a great relief, which is not to be underestimated, to be able to have a deeper and fuller understanding of the religious person because one knows that, present everywhere, there is an all-pervading cosmic energy (Newton's "ether," the "God" of all ages and peoples) that can be experienced, seen, and also measured by means of the thermometer, the electroscope, and the Geiger-Müller counter.

5. Finally, it is a relief to be able to give the medical term "disposition" a concrete meaning. It is a relief to understand why one person is constantly suffering from colds and another never; why only certain individuals succumb to an epidemic and others do not; why one person dies from cancer or vascular hypertension and another does not; and what biologically distinguishes a lively child from a sluggish child.

In short, the enlightenment derived from knowledge of orgone energy more than compensates for the fear experienced when the great mysteries of nature reveal themselves.

I would like to conclude with a few comments addressed to those colleagues who have made the research and practical application of cosmic orgone energy their life's work.

The revolutionary character of our work necessitates certain new attitudes toward the world around us and the relinquishing of a few of the usual techniques of dealing with it, if we are to fulfill our responsibility as orgone researchers. It is not personal interest but rather interest in achieving recognition of cosmic orgone energy for the common good that compels me to make the following remarks:

In our relations with professional colleagues and with laymen, we encounter sharp hostility, even dangerous attacks on our personal and professional integrity. As psychiatrists, we understand the irrational nature of the hostility and the attacks and recognize their true sources. They have nothing to do with the personal character of this or that orgone researcher or orgone therapist, and consequently they are dealt with in a prescribed manner by me and by others living and working far from my laboratory. In public, we cannot apply our knowledge of the motives of irrational behavior in any personal way, nor can we tell a physicist who neurotically dismisses the functions of orgone eneregy what is really motivating him to make his judgments. We can point out these motives only in general; we can never make personal judgments about specific individuals. The only thing we can do in good conscience is ask ourselves whether a certain attack is rational or irrational. Irrational attacks

should never be responded to. Our retaliation takes the form of revealing the irrationalism in human behavior. For the most part, these attacks will pass with time, even if they occasionally appear to be dangerous. We are perfectly aware that the average person today fears nothing so much as the knowledge of his biological nature; at the same time his greatest longing is for the fulfillment of his biological nature. Both the fear of knowledge and the longing for fulfillment confront us simultaneously. We must therefore always try to find the rational in the irrational and attempt to understand and reveal it without hatred or indignation. In time, the rational will prevail. Unfortunately, however, I am unable to offer any advice as to how one can protect oneself from the kind of irrationalism that is a threat to life. Neither lawsuits nor name-calling are any use here.

However, there is one proven way to force both laymen and professionals to respond to us rationally: *Delegate no authority in matters of orgone research if the critic cannot prove that he has thoroughly familiarized himself with our publications and findings over a long period of time.* Our science can be judged only from the standpoint of its own premises, methods, and thought techniques, and from no other. This is a strict rule in scientific intercourse, upheld wherever scientific research is conducted. We expect and welcome criticism, but only immanent criticism.

Therefore if a sexually abstinent court psychiatrist, or a "bogged-down" cancer specialist, or even a "free-lance writer" presumes to damn our work because he either does not understand it or takes it personally, or because it shatters his world view or threatens his political party, we respond with silence. We refuse to involve ourselves in any irrational discussion or brawl. I would like to stress this rule; it has proved very useful.

It is customary when one has made a discovery to try to have it endorsed by certain "authorities," to humble oneself and to make use of all kinds of stratagems and underhanded tactics to secure its recognition. Usually an attempt is also made to gain publicity in the newspapers as soon as possible. Such activities are not proper for those of us whose work is extremely serious. If we work honestly

and conscientiously, sticking to the facts and not yielding to the temptation to make compromises in essential issues like the orgasm function, then, sooner or later, we will win public confidence. There is little the world needs more urgently than knowledge of the orgone functions, inside and outside of the organism.

We cannot concede authority in questions concerning orgone energy, where no proven authority exists. And yet we have to delegate responsibility. A hospital that treats people suffering from cancer has, without question, the responsibility to work with orgone energy. It is the responsibility of every individual physician who has seen the therapeutic effects of orgone energy to advocate these facts professionally and not ignore them or wait for the opinion of "authorities." It is the responsibility of every individual who has enjoyed the therapeutic effects of orgone energy to help his fellow-man wherever it is possible. It is the indisputable responsibility of a writer not to hinder the use of the life-saving effects of orgone energy with scandalous, sensational newspaper articles. He must be made to realize that indirectly he kills people when he agitates against us. Finally, it is the responsibility of the government of this or that country to decide whether, and how quickly, cosmic orgone energy is made available to the general public. We do our duty in every way and as well as we are able. We work hard, for decades. We sacrifice money and leisure. We try as hard as possible to be decent and honest. We make known our results in a responsible manner. There is nothing more we can do. The rest is up to the public. A public that tolerates the publication of defamations, untruths, and distortions is hurting itself and not one or another orgone therapist. I wish I did not have to say these things, but it is my duty not to be silent about them.

At the same time, we have to understand that the world of serious natural science needs much time to orient itself in our field, which contains so much that is new. Human welfare is undermined by the fact that the ignorant and incompetent can so quickly and easily find an outlet for the articles they write; our political process makes the publication of an inflammatory article much easier than

the publication of vitally important facts. It is true, of course, that significant facts develop more effectively and sharply when in conflict with irrational human reactions. But it is an unfortunate fact that, in the social sphere, it takes time for the rational to achieve full acceptance—a great deal of time!

I should like to thank all those friends who helped me through the difficult years to build the framework that this book describes. I could list many important names, but those who have shared in our work will understand why I do not name them here. A few of my close friends and colleagues themselves advised me to depart from custom in this regard.

It should be obvious from many of my publications that I am well aware of how much I owe to the great pioneers in natural science, without whose careful efforts the discovery of cosmic orgone energy would not have been possible. I have repeatedly stressed the continuity and interdependence of all branches of vitally important scientific work. Furthermore, I must emphasize that the wealth of material gathered together by the painstaking efforts of mechanistic cancer research was indispensable for my new understanding of the cancer biopathy, despite the fact that the orgonomic theory of cancer differs greatly from the classical theory and even contradicts it in many details. Many cancer specialists are already aware that the problem of cancer is solved, and that its solution required the discovery of orgone energy and the elucidation of biogenesis.

On the other hand, some unjustified claims of priority put forward in the field of psychosomatic medicine after the publication of *The Function of the Orgasm* (1942) must be rejected. As the basis for the understanding of psychosomatic disturbances, the orgasm theory is much older (1923) than any of the other concepts derived from psychoanalysis. If the function of the orgasm, the central problem of psychosomatic processes, is ignored so completely in those concepts, they merit little consideration. We can only be amazed at the consistency with which the most important

factor is avoided. Those who suffer most are only, again, the many sick.

I do not publish this book without serious concern, mainly that many readers of our literature will now assume that a cure for cancer has been found. This is not at all the case. It is true that the riddle of cancer has become fully accessible through the discovery of orgone energy. But it is incorrect to believe that every cancer victim can now be saved. A great deal of hard work and cooperation will be needed before we will know how much orgone energy can help in specific cases of cancer. But a beginning has certainly been made.

ORGONON
September, 1947

WILHELM REICH

The Cancer Biopathy

CHAPTER I

The Function of Tension and Charge

1. THE FUNCTION OF THE ORGASM

Those familiar with Volume I of *The Discovery of the Orgone* know of the important event in 1933 that marked the turning point in the development of our research: *the discovery of the biological function of tension and charge.* I would like to describe in brief the substance of this discovery.

From clinical investigation we have learned that the function of the orgasm is the key to the problem of the source of energy in neurosis. Neuroses result from a stasis of sexual energy. The cause of this stasis is a disturbance in the discharge of high sexual excitation in the organism, regardless of whether or not this disturbance is perceived by the ego. It makes no difference whether the psychic apparatus does or does not misinterpret the process neurotically; nor does it matter that the person may develop false notions about the disharmony in his energy system and glorify it with ideologies. Experience in everyday clinical practice leaves no doubt: *The elimination of the sexual stasis by the orgastic discharge of the biological excitation removes every kind of neurotic manifestation.* The difficulty that must be overcome is largely of a social nature. Attention must be drawn to these simple basic facts again and again.

It has long been a known fact in sex-economy that the orgasm is a fundamental biological phenomenon; "fundamental" because the orgastic discharge of energy occurs at the very root of biological functioning. This discharge appears in the form of an involuntary

convulsion of the entire plasma system. Like respiration, it is a basic function of every animal system. Biophysically it is not possible to make a distinction between the total contraction of an amoeba and the orgastic contraction of a multicellular organism. The most salient characteristics are *intense biological excitation, repeated expansion and contraction, ejaculation of body fluids,* and *rapid subsidence of the biological excitation.* To understand these characteristics as biological functions, we had to free ourselves from the lascivious emotional reactions that every consideration of sexual functions—in fact, of autonomic functions in general—arouses in man. These emotional reactions are themselves neurotic expressions which constitute a problem in our psychiatric work.

More precise observation shows that these four functions are not paired but occur rather as a specific, lawful, four-beat pattern. The increasing tension that occurs in biological excitation appears as sexual excitement and produces a charging of the organism's periphery. This phenomenon was demonstrated unequivocally by measurements of the potentials at the erogenous zones during pleasurable excitation. Once the tension and the bio-energetic charge have reached a certain intensity, they are followed by convulsions, i.e., contractions of the entire biological system. The high-energy tension at the periphery of the organism is released. This is revealed objectively as a sudden drop of the bio-electric skin potential and is felt subjectively as a rapid decrease of excitation. The sudden shift from high charge to discharge is called the "acme." Following the discharge of biological energy, a mechanical relaxation of the tissues occurs as a result of the flowing back of body fluids. That the discharge of energy occurs is demonstrated by the evidence that the organism is not capable of renewed sexual excitation immediately thereafter. In the language of psychology, this state is called "gratification." The need for gratification, or in biophysical terms, *for the discharge of excess energy by merging with another organism,* occurs at more or less regular intervals, varying with the individual as well as the species. The intervals generally become shorter in the spring. In animals, there is the

phenomenon of heat or rut in which a concentration of this biological need occurs at certain times of the year, predominantly in spring. This fact reveals a close connection between the function of the orgasm and an energy function of a cosmic nature. Along with the well-known effects of the sun on the living organism, the orgasm function is one of the phenomena that cause us to regard the living organism as a special, functioning part of non-living nature.

The function of the orgasm thus reveals itself as a four-beat rhythm: *mechanical tension → bio-energetic charge → bio-energetic discharge → mechanical relaxation.* We shall call it the function of tension and charge or, in brief, the TC-function.

Earlier investigations have demonstrated that the TC-function not only is characteristic of the orgasm but also applies to all functions of the autonomic life system. The heart, the intestines, the urinary bladder, the lungs all function according to this rhythm. Even the division of cells follows this four-beat pattern. The same is true of the movement of protozoa and metazoa of all kinds. Worms and snakes, in the movements of their individual parts as well as of their total organism, clearly display the rhythmic functioning designated by the TC-formula. There seems to exist *one* basic law that governs the total organism, in addition to governing its autonomic organs. With our basic biological formula, we encompass the very essence of living functions. *The orgasm formula thus emerges as the life formula itself.* This corresponds exactly to our earlier formulation that *the sexual process is the productive biological process per se,* in procreation, work, joyful living, intellectual productivity, etc. The acceptance or refutation of orgone biophysics depends upon the acknowledgment or rejection of this formulation.

The mechanical tension of organs through tumescence may be easily understood: the tissues take up body fluids, and the individual particles in the biological colloid separate. Conversely, mechanical relaxation occurs through detumescence: the fluids are forced out of the tissues and, thereupon, a mutual coming together of the particles occurs. The question of the nature of charge and discharge is more difficult. The fact that we can measure electrical

potentials gives rise to the temptation to dispose of a gigantic problem by labeling the process merely a matter of "electrical charge" and "electrical discharge." After all, the quantities of electrical energy produced in contracting muscles and by electric eels, for instance, have been measured. And have we not progressed to the point where the electrical waves of the brain are measurable? In the accounts of my bio-electrical experiments (1934–1936), I recorded the changes in potential occurring in pleasure and anxiety in terms of millivolts.

2. THE POSTULATE OF A SPECIFIC BIOLOGICAL ENERGY

Is the specific biological energy identical with electricity? The problem is not as simple as it may seem. It would certainly be convenient if we were able to describe the functioning of the organism in terms of familiar physical concepts. The organism would then appear as nothing more than "a particularly complicated electrical machine." It would be convenient, and very easy, to explain away the reaction of rheumatic persons to changes in the weather by asserting that their "body electricity" is influenced by the "electrical" charges in the air. The attempt has also been made to apply the laws of iron magnetism to the living organism. We speak of a beloved person as having a "magnetic" attraction, or we feel "electrified" with excitement. We shall soon find, however, that such analogies are erroneous. In previous publications, I have spoken of "bio-electricity," using the customary terminology. The organism undoubtedly contains electricity in the form of electrically charged colloid particles and ions. All of colloid chemistry as well as neuromuscular physiology depends upon this. Muscular contractions can be induced by the application of an electric current. Combing the hair can produce "electric" sparks. Nevertheless, there are a number

of phenomena that in no way correspond to the theory of electromagnetic energy.

First of all, there are the effects of body "magnetism." Many physicians and lay therapists make practical use of these magnetic forces. Yet we are not convinced that these forces, which emanate from organic, colloidal, non-metallic substance, are iron-magnetic. In what follows, we shall provide experimental proof that the energy in the living organism is not identical with iron magnetism.

The electrical effects of a galvanic current are experienced by the body as foreign, "unorganic." Electrical energy, even in the minutest quantities, always causes disturbances in our normal functioning. The muscles, for instance, contract in an unnatural, "senseless," biologically inappropriate manner. There is no evidence that an electric charge applied to the body ever produces an organic movement bearing the slightest resemblance to normal movements by entire muscle systems or functional groups of muscles. Electrical energy generates a movement that lacks the most essential characteristic of biological energy, namely the movement of a group of organs in a coordinated, functionally meaningful form. By contrast, the disturbances of biological functioning by an electric current do possess the character of electrical energy. The movements generated are rapid, jerky, and angular, exactly like the oscillographic reactions produced by rubbing an electrode on metal (*cf. The Function of the Orgasm*).

In a muscle-nerve preparation, the electrical impulse does not manifest itself directly in the movement; otherwise the smooth muscle would contract just as quickly as the striated one. Actually, the contraction of the smooth muscle follows the slow, wave-like rhythm characteristic of its functioning. Thus, an unknown "something," is merely stimulated by the electrical impulse, which inserts itself between the electrical impulse and the muscle action, manifesting itself as a movement that is accompanied by an action current. But the "something" itself is not electricity.

Our organ sensations clearly indicate to us that emotions

(which undoubtedly are manifestations of our biological energy) are fundamentally different from the sensations one experiences from electrical shocks. Our sense organs completely fail to register the effect of the electromagnetic waves that fill the atmosphere. In proximity to a radio transmitter, we feel nothing. A radio reacts when near a high-tension wire; we do not. If our life energy, which is expressed in our organ sensations, were electricity, it would be incomprehensible that we should perceive only the wave lengths of visible light and otherwise remain totally insensitive. We perceive neither the electrons of an X-ray machine nor the radiation from radium. Electrical energy does not convey a biological charge. Thus far, it has not been possible to determine the potency of vitamins with electrical measurements, even though they doubtless contain biological energy. The examples could be continued indefinitely. Another problem is how our organism keeps itself from being destroyed by the infinite number of electromagnetic fields surrounding it.

It is true that sensitive voltmeters react to our touch, but the magnitude of this reaction is so minute compared with the amount of energy produced by our organism that there does not seem to be any connection.

These are major contradictions which are impossible to resolve within the framework of known forms of energy. They have been well known to biology and natural philosophy for a long time. Attempting to bridge the gap, some people have put forward concepts that were intended to make the specific life function comprehensible. Most of these concepts were advanced by the opponents of mechanistic materialism, the vitalists. Driesch suggested an "entelechy," a life force inherent in all living matter and governing it. But, since it was neither measurable nor tangible, it ended up as a contribution to metaphysics. Bergson's *élan vital* attempted to take account of the incompatibility between the known forms of energy and living functioning. His *force créatrice* represents an explosive function of matter which manifests itself most clearly in the way life functions. Bergson's hypothesis was

directed against both mechanistic materialism and teleological finalism. In theory, it grasped correctly the basically *functional* character of the life process, but it lacked empirical validation. The force in question was not measurable, tangible, or controllable.

The famous German physiologist Pflüger assumed a connection between life energy and fire on the basis of the function of cyanide. His assumption was correct. Prominent biologists, among them the Viennese Kammerer, were convinced that a *specific biological energy* exists, possessing no immediate connection with electricity, magnetism, etc.

> If transgressing the frontiers of what is permissible, I should finally state what seems to me to be the most probable—an unproven, and at the present time, unprovable, scientific credo—then I have to say: the existence of a *specific life force* seems to me highly plausible! An energy which is not heat, nor electricity, magnetism, kinetic energy (including oscillation and radiation), nor chemical energy, and is not an amalgam of any or all of them but an energy belonging specifically to only those natural processes that we call "life." That does not imply that its presence is limited to those natural bodies that we call "living beings" but that it is present also at least in the formative process of crystals. A better name for it, to prevent misunderstanding, might be "formative energy" instead of "life energy." It possesses no supraphysical properties, even though it has nothing in common with physical energies already known. It is not a mysterious "entelechy" (Aristotle, Driesch), but a genuine, natural "energy"; however, just as electrical energy is connected to electrical phenomena, so this "formative energy" is linked to living phenomena and the development and change of forms. Above all, it is subject to the law of the conservation of energy and is fully capable of conversion into other forms of energy, just as, for instance, heat can be converted into kinetic energy and vice versa. [Paul Kammerer: *Allgemeine Biologie*]

Kammerer came across the problem of a formative "life force" during the course of experiments designed to demonstrate the

heredity of acquired characteristics in salamanders. The "inherited substances" and "genes" postulated by the heredity theoreticians only obscured an understanding of the living process, and seemed to have been devised to block every access to it. Their theories might best be described as resembling an inverted pyramid, a veritable mass of hypothetical contentions precariously balanced on a small number of dubious facts. One typical example would be the unscientific, unwarranted, and moralizing conclusions drawn from the notorious "family Kallikak" study. In reading hypotheses on heredity, one consistently has the impression that there is more frantic ethicizing than there is science. The life process is smothered beneath a mound of mechanistic hypotheses. These theories finally degenerated into Hitler's pernicious race theory.

In the work of the vitalists, the life force became an elusive specter, while the mechanists converted it into a lifeless machine. Bacteriologists postulated the existence of a special germ "in the air" (yet to be seen) for every living organism. During the second half of the nineteenth century, Pouchet took upon himself the wearisome task of testing the accuracy of the air-germ theory. Pasteur showed experimentally that there are no living germs in liquids brought to certain temperatures. If living organisms were found, he ascribed their presence to air infection. Lange, in his book *Geschichte des Materialismus,* criticizes Pasteur's conclusions and cites Pouchet's experiments. Pouchet passed hundreds of cubic meters of air through water, then examined the water. He invented an apparatus that collected dust particles from the air and deposited them on glass plates. Pouchet then analyzed the dust. He conducted these experiments on glaciers in the Pyrenees, in the catacombs at Thebes, in the desert and on the sea in Egypt, and atop the cathedral in Rouen. He found many things, but only rarely did he find a spore of a fungus, and even more rarely a dead infusorium. Pasteur's refutation of the early theories of spontaneous generation was basically misunderstood. Questions about the origins of the *first* germs of life were taboo, and in order not to conflict with the doctrine of a

"divine creation," it was usual to resort to the notion of a plasmatic substance descending upon our planet from outer space.

Not one of these schools of thought succeeded in approaching the functional problems of the life process, nor did they find a connection with experimental physics. The life process emerged from their theories as a mystery, a special preserve of "divine providence" hidden away somewhere in the midst of the vast realm of natural science.

But the sprouting of every plant, the development of every embryo, the spontaneous movement of muscles, and the productivity of every biological organism demonstrate the existence of incalculable energies governing the work of living substance. *Energy is the capacity to work.* No known energy can compete with the total work capacity of the living organisms on our planet. The energy accomplishing this work must have its origin in *non-living matter.* Yet, for thousands of years it has been ignored by science.

What prevented an understanding of this energy? It was first necessary to understand the manifestations of the unconscious and repressed sexual life. Freud's discovery of the function of sexual repression made the first breach in the wall that had blocked our comprehension of the life process. The second step was a correction of Freud's theory of the unconscious: The repression of human instinctual life is not a natural but rather a pathological result of the suppression of natural instincts, in particular, of genital sexuality. An organism that uses most of its energy to keep the natural life process imprisoned within itself cannot comprehend life outside itself. The central manifestation of life is expressed in the genital sexual function, to which life owes its existence and continuation. A society of human beings that has excluded the most essential manifestations of this function and made them unconscious is not capable of living rationally; indeed, everything it says appears distorted and pornographic. Only the mystics, far removed from scientific insight, have preserved contact with the living process. Once the living process became the domain of the mystic, serious

natural science shrank from any concern with it. The literature of the biological and physiological sciences contains no indication of even an initial understanding of autonomic movement, such as may be observed in the worm, for example. This movement is too reminiscent of the despised sexual acts of the animal world. Mysticism and mechanistic biology thus stand in opposition. Meanwhile, the force of religious feeling itself betrays the existence of a powerful "something" experienced by man, which he is unable to define in words, or to manage. Religion, too, has mysticized the living process.

The problem enters the province of natural science only if and where there exists a measurable and controllable energy function that makes the basic life function understandable and, at the same time, does not conflict with physics. It follows that such a specific energy, expressing itself biologically, would have to possess these properties:

1. It would be fundamentally different from electromagnetic energy, and yet related to it.
2. It would have to exist in non-living nature independent of living organisms, if the principle of life originating from non-living matter is to hold true.
3. It would have to elucidate satisfactorily the relationship between living organisms and non-living nature (respiration, orgasm, nutrition, etc.).
4. In contrast to galvanic electricity, it would function in *organic substance, which does not conduct electricity,* and in animal tissue.
5. It would permeate and govern the *entire* organism instead of being limited to individual nerve cells or groups of cells.
6. It would have to explain simply the basic pulsatory function (*contraction* and *expansion*) of life, as it manifests itself in respiration and the orgasm.

7. It would manifest itself in the production of heat, a characteristic of most living organisms.
8. It would definitively clarify the sexual function; i.e., it would make sexual attraction comprehensible.
9. It would reveal why living organisms have failed to develop an organ sensitive to electromagnetism.
10. It would contribute to an understanding of the difference between protein that is dead and protein that is alive, and would explain what must be added to the chemically complex protein to make it alive. It would be capable of *charging* living matter; thus, it would have a *life-positive* effect.
11. Further, it would reveal the processes involved in the symmetry of form development and explain the basic function of form development.
12. Finally, it would make comprehensible why living matter exists only on the earth's surface.

The enumeration of these problems is intended to show the indispensable context within which any discussion of biophysics and biogenesis must take place.

CHAPTER II

Orgone Energy Vesicles (Bions) and the Natural Organization of Protozoa

EXPERIMENTAL FOUNDATION FOR UNDERSTANDING THE CANCER BIOPATHY

Orgone energy was discovered in a bion culture. My first task, therefore, is to give an account of the orgonotic phenomena that represent transitional stages of evolution between living and nonliving matter.

Because of the functional relationship between bions and atmospheric orgone energy, it is essential that a discussion of orgone functions in bionous matter precede the presentation of the actual discovery of the orgone.

It is difficult to determine a date for the discovery of orgone energy. Orgonotic functions of attraction, penetration, pulsation, and lumination had already been observed in the period between 1936 and 1939, and had been subjected to investigation in a variety of bion preparations. However, I had no presentiment that I was working with manifestations of a specific biological energy. Experiments with bion cultures led to the discovery of orgone energy in SAPA (*sa*nd *pa*cket) bions during January 1939 and in the atmosphere during July 1940. It was only after I had worked on the purely physical functions of orgone energy (1939–1942) that I understood the observations I had been making on bions and bion cultures since 1936. The description in my book *Die Bione* (1938) conforms completely to traditional bacteriological and biological concepts.

Later knowledge of orgone functions caused me to modify much of what I had written in that book. For instance, cultures of cocci and bacilli derived from bions represent not, as I thought then, a more advanced stage in the development of the bion but, on the contrary, a *degeneration* of bions to a biologically sterile form incapable of further development. I found that bions actually develop in the direction of protozoal organization. On the other hand staphylococci, streptococci, T-bacilli, and rot bacteria are due to a *degeneration* of the orgonotic living plasma.

Mistakes, such as the one I just mentioned, and the subsequent necessary modifications are unavoidable in working in unexplored territory. The following account of the bion experiments is given in the context of knowledge of atmospheric orgone energy, and its perspective is therefore no longer biologistic but functional, based on energy principles.

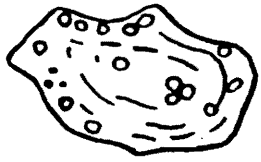
"Bion" and "energy vesicle" designate one and the same microscopically visible, functioning formation. The term "bion" refers to the vesicles into which all matter disintegrates if made to swell. These vesicles represent transitional forms between non-living and living matter. *The bion is the elemental functioning unit of all living matter.* At the same time, it is the bearer of a quantum of orgone energy and, as such, functions in a specifically biological way. It is an *energy unit,* compounded of a membrane, a fluid content, and an amount of orgone energy, i.e., an "orgone energy vesicle." In what follows, I would like to give an account of the observations and experiments on which the far-reaching conclusions just summarized are based.

1. THE VESICULAR DISINTEGRATION OF SWELLING MATTER (PA BIONS)

Carbon is the fundamental substance that, when combined with oxygen, nitrogen, hydrogen, and water, forms the basis of the infi-

nite variety of organic compounds as well as living matter. Our intention is to ignore the already well-known chemical reactions and simply concentrate on examining a particle of carbon under a good microscope equipped with apochromatic lenses. Reichert microscopes (the Z microscope), which permit magnification up to 5000x, were used for the experiments. The finer biophysical processes like expansion and contraction, vibration, and formation of a radiating bridge can be observed only at magnifications greater than 2000x, and are best seen at 4000x. What matters is not the resolution of fine structural details but rather the visualization of *movement*. For this purpose, we can use carbon, derived from blood charcoal (obtained from Merck & Co.) or from ordinary soot. Since the process of combustion converts all organic compounds to carbon, the origin of the carbon used for the experiment is not important.

First, we examine the particle of carbon dry, at a magnification of approximately 300x. What we see is a black, uneven structure



Carbon particle, dry

1. Thick wall of carbon, inelastic
2. Increased fluid content, swelling
3. Membrane thinner, elastic; blue color inside, vibrating
4. Indentation of carbon bion
5. Division into two bions

FIGURE 1. Development of a carbon bion

which is motionless. In the dark-field, we observe an essentially striated structure interspersed with occasional vesicular formations. Along the margins, between the striated structure and the tiny oval-shaped vesicles, the light is strongly refracted.

We set the microscope at a magnification of approximately 2000x (objective 80x, eyepiece 16x, and inclined binocular tube, which increases magnification by 50%). The striated, vesicular structure can now be seen more clearly. There is not the slightest indication of movement.

We add a drop of ordinary water and look again, first at 300x then at 2000x. Essentially, there is no change. We see no movement; only here and there a round or uneven particle may be in motion. Its size seldom exceeds one micron in diameter. Overall, the field is "lifeless." There is no sign of contraction or expansion.

Using a spatula, we add finely pulverized carbon powder to water contained in a test tube. A portion of the powder sinks to the bottom, while the remainder floats on the surface. The water itself retains its clarity and no colloidal solution forms. The preparation is *not* sterile. Each day we draw off a drop of the fluid and examine it under the microscope. The object is to discover whether changes are taking place in the carbon, and if so, what kind. But a change is observable only after several weeks. The tiny individual spherical particles moving weakly across the field are becoming more numerous. In the dark-field, the larger particles of carbon display a very gradual increase in the number of spherical formations within them. However, the overall scene remains unalive. Months pass without much change. We are struck by the absence of ordinary air bacteria. (The test tubes are of course sealed with cotton plugs.) Macroscopically, the fluid appears unchanged. It is still clear. This is our control experiment. The experiment for the *production of coal bions* is as follows:

From now on, we apply strictly sterile procedures. All liquids are autoclaved at 120°C.; all dry substances and instruments are dry sterilized at 180°C.

Test tubes containing a preparation of 50% bouillon and 50%

0.1n KC1 solution are autoclaved. Then we heat a small amount of coal dust on a spatula tip in a gas flame to white incandescence. While the coal dust is still white-hot it is plunged into the sterile fluid. The fluid immediately turns black and only the heavy particles of coal sink to the bottom. The lighter particles remain suspended. A *colloidal solution* has been formed, in contrast to the control experiment. Over the course of a half hour, the black fades to gray. The solution remains colloidal for three to six days, then it becomes clear. All the particles have sunk to the bottom.

The preparation completed, we draw off a small drop, using sterile procedures, and examine it under the microscope in bright- and dark-field, again starting with a magnification of 300x (*cf.* Fig. 25, Appendix), then using 2000–3000x (for PA bions seen at this magnification, *cf.* Fig. 30, Appendix). What we see is fundamentally different from what was observed in the control preparation.

The structure of the individual coal particles is primarily vesicular. With continued observation, we are able to see small vesicles approximately one micron in diameter disengaging themselves from the margins of the larger particles and moving about freely in the fluid. When the preparation is successful, movement may be observed at the margins of the particles, expanding, contracting, vibrating, etc. But even the smaller particles that move about appear to change before our eyes if we observe long enough. First, they appear "hard," the membrane black and thick. Gradually, however, the membrane becomes thinner. On the inside, we see increasingly a *blue* and *blue-green* glimmer. The vesicles become more taut and show increasing internal movement. Wave-like vibrations may be observed in many vesicles. The thinner the membrane becomes, the more intense the blue and the more elastic the movement. Soon, on the same or, still better, on the following day, we can clearly see movements of *expansion* and *contraction.* No one who has studied these preparations for any length of time can doubt the living character of these movements. We distinguish movements of the vesicles *from place to place* and *inner* movements

of their *contents,* fluctuations of the blue color, variations in brightness, protrusion and retraction. *The vesicles pulsate with an irregular rhythm.*

We pass a galvanic current of approximately 0.2–0.5 Ma. through the preparation. The vesicles move toward the cathode and therefore have a positive electric charge. After several days, when the particles are no longer in colloidal suspension, the cataphoretic phenomena fade or disappear altogether. The charge of the vesicles seems therefore to be a prerequisite for colloidal suspension and motility, as Pauli surmised. It is also a prerequisite for the capacity to form cultures (*cf. Die Bione,* pp. 54 ff.).

We try an experiment with biological stains, using Gram stain or carbol fuchsin. As a control, we stain plain coal dust. The unprepared coal does not accept any biological stain. The particles remain black. The *coal bions,* on the other hand, show a *positive* stain reaction (*blue* when Gram stain is used). It can also be observed that the staining is restricted to those particles that have attained a certain degree of bionous development (thin membrane, increased fluid, blue on the inside), while the undeveloped particles react neutrally, like those in the control preparation.

We examine the stained preparation at a magnification of 3000x, using oil immersion, and find that most of the blue vesicles that previously had every possible form have now become spherical. A new phenomenon is especially striking: alongside the large-sized vesicles, approximately one micron in diameter, there are tiny red bodies which were not visible at a magnification of 300x. The smallest of them are approximately 0.2 micron in length, i.e., only barely visible microscopically. They lie in groups around the larger round, blue vesicles and unstained crystals. They are elongated, and are pointed at one end like miniature lancets. They were not observed in the fresh, wet preparation, but can be found in a live state in other coal-bion preparations (photograph of blood-charcoal preparation at 5000x magnification, *cf.* Fig. 26. Appendix).

After long experimentation, it became clear that these Gram-

negative bodies are of the greatest significance. They are the so-called T-bacilli, which play such a crucial role in cancer. More on this subject later.

Our conclusion is that bions are biologically active forms because, in contrast to the substance from which they originate, they react to biological stain.

There is another specifically biological characteristic of bions. Non-living substances viewed under the fluorescent microscope always show only their own characteristic color: coal, *black,* sodium chloride, *yellow,* etc. Coal bions viewed fluoroscopically show not a *black* but a *blue* glimmer, as does a staphylococcus culture or any organic cell tissue. This is additional proof of the biological character of the coal bions.

Before proceeding to an investigation of other properties of the energy vesicles, we must establish whether the blue vesicles develop exclusively from carbon or from other substances as well. If they were to be found exclusively in carbon, the fundamental question concerning the nature of biological energy in non-living matter would be easy to answer. But the problem is complex, because the more substances we examine and subject to swelling, the more the following conclusion is confirmed: *All matter heated to incandescence and made to swell consists of or disintegrates into blue-glimmering vesicles:*

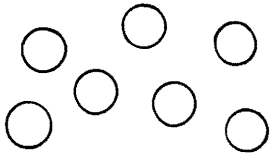
1. *Cooked foodstuffs:* Muscle, when it is cooked, loses its predominately striated structure and consists of blue, motile vesicles. The same results are obtained with every kind of vegetable. Size and shape of the vesicles may vary, but the content invariably shows a blue glimmer.

2. *Egg yolk* consists of individual blue vesicles, sometimes in the form of a heap of vesicles surrounded by a membrane. *Milk* contains, apart from fat globules, blue bions. The same applies to *cheese,* especially those varieties processed with the aid of bacterial fermentation, e.g., Kephir, Roquefort, yoghurt; and casein of every kind. *Vitamins,* examined at a magnification of 2000x, consist of

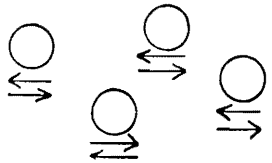
blue vesicles, irregular in shape, which refract light strongly. *Egg white* when raw is without structure; when cooked, it disintegrates into heaps of blue vesicles. *Blood serum* reacts similarly and blood platelets along with the red and white blood corpuscles show an intense blue glimmer.

The structure of *moss* and *grass* is striated without vesicles, similar to that of animal muscle. When both are cooked, they disintegrate into blue vesicles, which look like algae. This raises the question whether the algae found in stagnant ponds are not the same as our bions, namely, matter disintegrated into energy vesicles. Blue vesicles abound in stagnant water, serving as foodstuff for protozoa. The bion experiments yield a surprising answer to this question, which we will discuss in a different context.

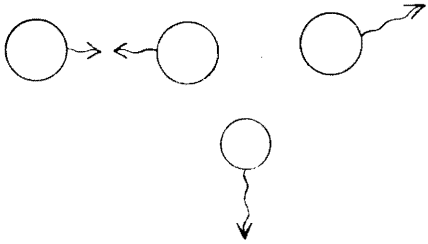
We try to find out more about the formation of bions. We mix certain structureless substances together in a certain sequence. First, we make the following solutions: (a) 100 cc. water + 50 cc. 0.1n KCl + 2 mg. dissolved gelatin + 50 cc. filtered bouillon; (b) a few drops of egg white in KCl; (c) a small amount of fresh lecithin in KCl. These solutions show no structure. Only the lecithin mixture shows space-enclosing membranes, without an inner structure. We now mix the three groups of substances. Within minutes, the blue bion vesicles are visible microscopically. Previously there had been no motion of any kind. But now the solution is swarming with moving forms. The gelatin combines a number of blue vesicles together into a heap, which contracts and expands. The effect is one of individual vesicles inside the heap straining to move in a variety of directions and thereby generating inner motility. In general, four types of motion can be distinguished:



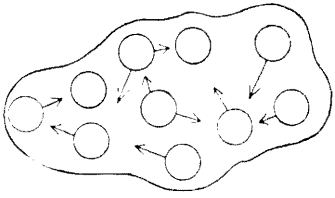
1. Non-moving vesicles



2. Vesicles moving back and forth in place



3. Vesicles moving from place to place



4. Heap of vesicles showing amoeboid motility, "protozoan" (amoeba)

FIGURE 2. Forms of movement visible in bions

If we now add finely pulverized blood charcoal, we can follow the development of highly motile coal bions. We witness the carbon absorbing the fluid containing egg white. The previously empty lecithin tubes fill with vesicles. The whole scene is one swarming with "life." We then autoclave the mixture; the movements become even stronger. Now the T-bacilli appear. The biological stain reaction (carbon fuchsin, Giemsa or Gram) is now positive.

In January 1937, I rendered an account of this experiment (No. 6) to the Academy of Sciences in Paris. In January 1938, I received word from Professor Lapique that, after one year, the autoclaved preparation still showed life-like movement and contained contractile forms. The news was all the more surprising since the preparation was sterile and sealed, air-tight. Here is Professor Lapique's letter:

Université de Paris — Sorbonne, le 25 Janvier 1938
Faculté des Sciences
Laboratoire de Physiologie Générale
1, rue Victor-Cousin (5e Arr.)

Monsieur le Docteur,

Chargé par l'Académie d'étudier votre communication du 8 Janvier de l'année dernière, j'ai d'abord attendu le film que vous annonciez. Puis, ne le recevant pas, j'ai examiné au microscope les échantillons que vous aviez joints à votre premier envoi. J'ai constaté, en effet, les mouvements d'apparence vitale que vous annonciez. Il y a là quelque chose de curieux, en raison du long délai depuis la préparation.

Je suis disposé a proposer a l'Académie de publier brièvement votre constatation en la faisant suivre d'une courte note de moi-même confirmant le fait avec une interprétation physico-chémique n'engageant que moi. Laissant de côté votre théorie électrique qui n'a rien a faire avec l'expérience, voulez-vous accepter que votre communication soit insérée simplement sous forme de l'extrait ci-joint qui en réalité, est un résumé de la partie importante? Il me semble qu'ainsi vous recevriez satis-

faction pour votre désir de voir vos recherches prendre place dans nos Comptes-Rendus.

Veuillex agréer, Monsieur, l'assurance de ma considération distinguée.

Dr. Louis Lapique
Professeur honoraire à la Sorbonne
Membre de l'Académie des Sciences

Translation of preceding:

University of Paris, Sorbonne, January 25, 1938
Faculty of Sciences
Laboratories for General Physiology,
1, rue Victor-Cousin (5ème)

My dear Doctor,

Requested by the Academy to study your communication of January 8 of last year, I first waited for the arrival of the film you were to send. Then since I did not receive it, I examined microscopically the samples you included with your initial communication. I have in fact verified the life-like movements that you described. That fact itself is remarkable considering the length of time that has elapsed since the preparations were made.

I should like to propose to the Academy the publication of your findings in brief, together with a short annotation by myself confirming the fact and offering a physical-chemical interpretation representing my own personal viewpoint. Would you agree to the publication of your contribution in the excerpted form attached, which is actually a résumé of the important part, while leaving out your electrical theory, which has nothing to do with the experiment? It seems to me that this arrangement would be in accord with your wish to have your research recorded in our bulletin.

Permit me to convey to you my sincerest respects,

Dr. Louis Lapique
Honorary Professor, University of Paris
Member, Academy of Sciences

I withdrew my consent for publication in the bulletin of the French Academy of Sciences on the following grounds:

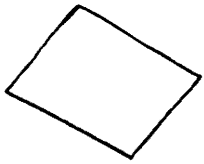
1. The physical-chemical interpretation would have obscured the *biological* character of the experiment.
2. During 1937, I produced bion cultures that were confirmed experimentally by Prof. DuTeil in Nice.* This decisively important fact would not be published.
3. The résumé proposed for publication in no way represented the detailed report I had submitted to the Academy. Its publication could only have led to misunderstandings, and unsuccessful control experiments would have been the result.

Soft iron filings are the most suitable metallic substance for our experiment. Only a few minutes after introducing sterile filings into our standard bouillon–KCl solution, delicate vesicles develop from the iron particles. This process can be followed microscopically. A single iron particle is placed on a slide and a small amount of potassium chloride added. Within a short time, bions are produced whose motility lasts only approximately ten minutes. Like tiny magnets they order themselves along lines of magnetic force and cling to each other (*cf.* Figs. 27 and 28, Appendix).

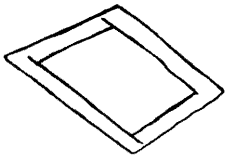
A solution of iron bions becomes colloid within a few days. The particles consist of heavy, angular, intensely blue energy vesicles which become progressively "softer" and more elastic (*cf.* Fig. 3). The blue vesicles can form cultures, but this subject will be discussed later.

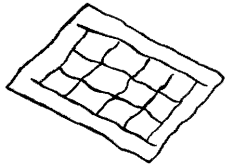
Humus is composed of mostly motile vesicles having an intense blue glimmer. Soil subjected to autoclavation disintegrates completely into energy vesicles. The progressive disintegration can be observed microscopically each day. (*cf.* Fig. 29, Appendix).

* Professor Roger DuTeil conducted control experiments on the bions at the university in Nice. [Ed.]

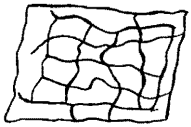


1. Angular form, showing in the dark-field a fine, vesicular structure with striations

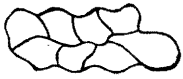




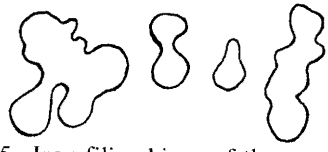
2. Appearance of marked striations with typical rectangular and rhomboidal figures



3. Apparent softening and bending of striated structure



4. Advanced stage of development into bion heaps. Content between the structures shows intense blue glimmer. The heap already shows motility



5. Iron-filing bions of the PA type. Motile, contractile, with a blue glimmer. Cultivatable

FIGURE 3. Changes in the structure of iron filings in bouillon and potassium chloride during the swelling process

These experiments are difficult and require great patience and persistence. One cannot simply throw some substances into bouillon and wait for the development of bions, as did a biologist I knew. Nor can these experiments be performed without knowledge of the underlying process.

2. THE QUESTION OF "BROWNIAN MOVEMENT"

A few fundamental problems must be cleared up before we can draw any conclusions from our observations. The concept of "Brownian movement" has been invoked as an objection to the claim that specific *bio-energetic* forces account for the motility of bions. Physicists have known for a long time that the smallest colloidal particles are in motion, i.e., that they move in the field in various directions. These movements have even been calculated. They are attributed to collisions between the molecules in the solution and the larger colloidal particles.

This interpretation is purely *physical* and *mechanistic*. Nothing in it is consistent with the biological energy manifestations of pulsation. Can this interpretation be applied to the phenomena observed in bionous energy vesicles? An interpretation is valid only if it makes new phenomena comprehensible. It is invalid if it conflicts with the observations. And when it directly contradicts the observations and can be replaced by another interpretation that offers a more satisfying explanation of the phenomena, it is useless.

The mechanical Brownian movement is defended by physicists as a dogma. Insofar as it is directed against mystical interpretations of living phenomena this defense is justified. But experience shows just as clearly that the "molecular movement" interpretation is itself not without irrational motives. Otherwise, the physicist who sees all around him only Brownian movements of a purely physical nature would not so stubbornly refuse to consider a few facts that contradict his interpretation in certain instances. I do not believe I will

ever be able to convince these physicists, but I know that the blind alleys into which the purely mechanistic viewpoint leads will one day force science to face up to new facts and arguments.

Doubtless, there exist movements of extremely fine particles that allow a mechanical interpretation. For example, I myself believe that the movement of the vesicles (*cf.* Fig. 2) back and forth in place is not of a biological nature. Whether molecules are moving them back and forth I do not know, since I have never seen molecules, any more than have the proponents of the purely mechanical Brownian movement.

Now, let us clarify what the physical-mechanical interpretation advocates. Since neither the particles nor the molecules ever disappear in the solution, the molecular impulses should, logically, continue indefinitely, as should the movement of the particles. In addition, all particles in approximately the same size range would have to be in motion. Finally, the only type of movement possible under these circumstances would be from place to place.

Contraction and expansion of the contents of the particles cannot be explained by the mechanical interpretation. *How could an impulse from a molecule outside the particle cause vibration or an expansion inside?* Later, we will become familiar with other properties of the bions that could not conceivably be explained in mechanical terms.

These observations can be seen only at magnifications of at least 2000x. This is the absolute minimum requirement. Actually, reliable conclusions require a magnification of 3000–4000x. Just as indispensable is the microscopic examination of a *living* preparation before it is destroyed by biological stain. The Copenhagen biologist A. Fischer became very upset and even somewhat hostile when he was unable to achieve a magnification greater than 1500x, as I had insisted he must in order to be able to see what I claimed as fact. The Giemsa stain of the bions done at his institute in 1936 was positive. Under the correct conditions, the following phenomena, which cannot be interpreted mechanistically, manifest themselves:

1. Movement is sometimes present, sometimes absent. It occurs, then stops. Bion vesicles appear at the margin of coal or moss particles and exhibit movement once there is a sufficient degree of tension and charge. Certain bionous preparations show no movement at all. What has happened to the molecular impulses in such cases? The molecules have not gone away and neither have the particles! And mechanistic science does not postulate a third factor in the origin of the movements. *The external motion of the energy vesicles must therefore be related to their inner charge.*
2. The internal motility of many bions, their expansion, contraction, vibration, and glimmering, is a fact that cannot be ascribed to external impulses, only to shifts in internal energy. Thus *the inner motility must also be connected with internal charge.*
3. Bion research comprehends living red blood corpuscles as orgonotic vesicles. Examined at a magnification above 2000x they are *blue* and pulsate. Dead red corpuscles are not blue but black. They are non-motile and do not pulsate.

   The motility of red corpuscles originates in the internal charge only, not in external impulses. With the disappearance of the blue, orgonotic color, motility also ceases.

The fundamental question of all biology concerns the origin of the inner impulses in the living organism. No one doubts that the living is distinguished from the non-living by the internal origin of the motor impulses. The internal motor impulse can be ascribed only to an *energy* active within the organism. The question of the origin of this energy itself is answered by the bion experiment.

The biologically effective energy, within the organism, that generates the impulses originates from the same matter as the bion.

I introduced the term "orgone" for the energy observable in motile, bionous matter, deriving it from the words "organism" and "orgastic." Henceforth, the expression "orgonotic" encompasses all energy phenomena and processes specifically pertaining to the energy governing living matter. Every living organism is a membranous structure containing a quantity of orgone energy in its body fluids; it constitutes an "orgonotic system."

Moreover, the purely physical-mechanical interpretation fails to clarify a single one of the specific biological reactions. We have freed ourselves from any suspicion that we are dealing with a supranatural life force transcending energy and matter. Therewith, we acknowledge a connection between the energy vesicles and Einstein's *functional* theory of matter and energy. We have observed some fundamental processes that indicate the manner in which orgone originates from matter, specifically, the processes of disintegration of matter and the swelling of the disintegrating particles. *The solution to the enigma of the way life functions is contained in these processes.* The essential objective functions of biological energy correspond to the essential functions of living matter. The basic functions of highly developed organisms are the same as those of the smallest bits of contractile plasma. Every mechanistic or chemical approach fails completely here. It is not a matter of substances, but of biological energy *functions.* In this viewpoint, we are in accord with many biologists. Üxküll, for instance, writes:

> Animal biology today owes its existence to the introduction of physiological experimentation into the study of lower animals. In these experiments the physiologists' expectations of new research horizons were not fulfilled. . . . The breaking down of living phenomena into chemical and physical processes did not advance matters at all . . . for all those scientists who see the essential element of biology in the life process itself and not in its reduction to chemistry, physics, and mathematics. [*Umwelt und Innenwelt der Tiere,* Berlin: Springer, 1921, p. 2]

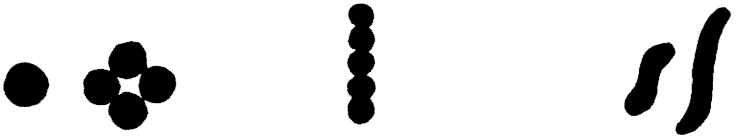
3. THE T-BACILLI

In my account of the experiment on coal bions, I mentioned the discovery, using Gram stain, of tiny bodies, shaped like lancets. These bodies were given the name "T-bacilli," i.e., *Todes* bacilli, because of their dual connection with the process of dying:

a) *T-bacilli develop from the degeneration and putrid disintegration of living and non-living protein.*
b) *Injected in strong doses, T-bacilli are capable of killing mice within twenty-four hours.*

If staphylococcus cultures or rot bacteria (B-proteus, etc.) are allowed to stand for a sufficient length of time, a greenish margin forms around the edge of the culture. Against the light, this margin is seen to have a blue glimmer which tends to spread. At the beginning of the experiment, we established that the culture was pure, containing nothing but staphylococci. After a few weeks or months, we take a sample from the bluish-green margin, and find that although there are now very few cocci, the culture is swarming with a variety of much smaller bacilli moving in lively zigzag patterns. These are roughly 0.2–0.5 micron in length, and examined at a magnification of at least 2000x, appear slightly oval-shaped (*cf.* Fig. 4-c). Inoculated in bouillon, they develop a culture fluid with a strong blue-green glimmer and an acrid, ammoniacal odor. The longer the bouillon culture is allowed to stand, the denser it becomes and the deeper its blue or green-blue color. After a few days, rot bacteria cultures (B-proteus, B-subtilis, and staphylococci) (*cf.* Fig. 4-b) agglutinate at the bottom of the test tube or as a membrane on the surface. The agglutination of the T-bacilli, on the other hand, does not occur for months. In the case of a mixed culture, all other bacilli agglutinate very rapidly, whereas the T-bacilli remain alive.

a) Blue bions. About 2 to 10 μ



b) Staphylococci Streptococci Bacilli

About 1 μ diameter About 4 to 8 μ long

c) T-bacilli. About 0.2 to 0.5 μ

FIGURE 4. Typical forms of blue bions, black cocci and bacilli, and T-bacilli

T-bacilli can be obtained from degeneration of every kind of protein substance. To date, T-bacilli, identical in form and reactions, have been cultivated from fifteen different sources. *T-bacilli are therefore the product of degenerative putrid processes in tissues.* Following is a list of some sources of T-bacilli:

Blood of cancer patients: T-bacilli can be cultivated from the blood of patients with advanced cancer by simple inoculation in bouillon. In our laboratory, this process became one of our most important tests for cancer.

Cancer tissue: Every kind of cancer tissue, fresh or old, shows T-bacilli on microscopic examination, and yields T-bacilli cultures in bouillon and on agar. When boiled, it disintegrates almost totally into T-bodies with the characteristic red Gram-stain reaction.

Precancerous cells and tissue: These also yield T-bacilli; i.e., they disintegrate into T-bodies or already contain them fully developed. Epithelium from the vagina, tongue, skin, or from sputum is normally without structure. In the precancerous state, it shows extremely fine T-bodies on dark-field examination.

Degenerating blood (experiment): 2 to 3 cc. of blood are spread on a sterilized Petri dish and dried for twenty-four hours in an incubator. The dried blood is then dusted with blood charcoal that has been heated to incandescence. After a further twenty-four hours, enough potassium chloride and bouillon are added to cover the substance. Microscopic examination and biological stain reaction immediately confirm the presence of T-bacilli.

T-bacilli of every origin generate cancerous, destructive, and infiltrating growths in healthy mice. However, I would like to deal separately with this element of the bion experiment and restrict myself here to the essential, biologically significant reactions pertaining to the problem of orgone energy.

Bion preparations regularly yield two types of bions: the blue PA bions described earlier and the small black T-bacilli. These two types are antagonistic to each other in the biological experiment; *the PA bions are capable of killing or immobilizing the black T-bacilli.* This process occurs in the drop under the microscope as well as in the living mouse (*cf.* Fig. 4-a).

We place a drop of solution of earth and iron or coal bions on a hanging drop slide and add a small drop from a T-bacillus culture. At 400x in the dark-field, or more clearly at 2000x in ordinary light, we can see that the T-bacilli in the vicinity of the blue bions become agitated, spinning around and around, then remain on one spot, quivering, and finally become immobile. In time, more and more T-bacilli accumulate around the blue bions: they agglutinate. The "dead" bacilli seem to attract and to be lethal to those still living. The orgone energy experiments with cancer had their origin in this significant fact.

Subtilis or proteus bacilli, which are five to eight times the size of T-bacilli, are affected in the same way. In these organisms, the lethalness of the blue bions can be observed much more clearly. Ultimately, the whole field is covered with dead bacilli.

Between January 1937 and January 1939, injection experiments with PA bions and T-bacilli were carried out on 178 healthy mice. The following table shows the results:

Injection	*Number of Mice*	*Dead in 1 Week*	*Dead in 15 Months*	*Sick after 15 Months*	*Healthy after 15 Months*
T-bacilli	84	30	30	24	0
PA bions then T-bacilli	45	0	9	–	36
PA bions	39	0	0	–	39
T-bacilli then PA bions	10	0	8 (2 killed)	–	0
	178				

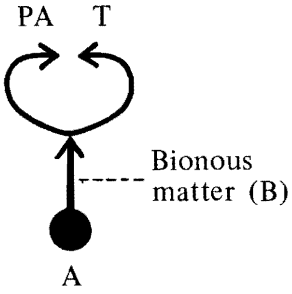
Of the 30 T-mice that died within fifteen months of the T-bacilli injection, 25 were carefully examined for cancerous growths. Seven mice revealed ameboid cancer cells in various tissues; 13 revealed destructive, infiltrative, cellular growths of a cancerous nature. The remaining 5 had chronic inflammatory growths. The cancer tumors were furthest advanced in the mice that had survived the T-bacilli injection for the longest period.

The connection between T-bacilli and cancer is of crucial importance and will be discussed later.

For an evaluation of orgone energy, the results of the experiments have the following significance:

1. *Theoretical:* At the basis of the life process, at the boundary between non-living and living, we encounter a way of functioning that is completely encompassed by our generally valid schema of biological functioning: *All life functions obey the natural law of the dissociation of the unitary and the functional antithesis and unity of the dissociated.*

Out of non-living matter A, motile bions B, containing orgone energy, develop. These bions divide into two groups: the PA group and the T-group. *The two groups have an antithetical relationship in that the PA bions paralyze the T-bions.* There is only one plausible explanation of this fact in the context of our knowledge of the physical functions of orgone energy: *The PA bions are fully developed, highly charged orgone units. T-bions, on the other hand,*



represent products of degeneration, appearing when tissues, cells, or bacteria begin to lose their orgone charge. They contain only small quantities of orgone and therefore are very weak orgonotic systems.

Since the stronger orgonotic system always attracts the weaker and draws off its charge,[1] the paralyzing of T-bions by PA bions is easily explained: The biophysical functional connection between PA and T is derived from the purely physical functions of orgone energy.

2. *Practical:* The T are produced either by *degenerative processes,* i.e., through loss of orgone energy in highly developed forms, or *they originate because of an insufficient amount of mass-free orgone inside the energy vesicle.*

T-bacilli were produced in my laboratory from the degeneration of the following tissues and bion preparations: dried blood, dried feces, autoclaved cancer tissue, autoclaved egg medium that had been dusted with incandescent charcoal and covered with potassium hydroxide, tongue epithelium damaged by dental bridgework, degenerated vaginal epithelial cells, degenerated spermatozoa, degenerated rot bacteria, coal bion preparations of all kinds, and from egg medium treated with potassium cyanide.

The deficient orgone content of T-bacilli manifests itself in a strange phenomenon which I would like to designate as "orgone hunger." The observations are as follows:

We filter blood that has been diluted about ten times with the usual potassium chloride solution. (A Berkefelt filter with a pore size of not more than 0.25 micron catches whatever T-bacilli might be present.) Microscopic examination at a magnification of 2000–4000x reveals only fluid, with no structures at all. We add to the serum a tiny drop of pure T-bacillus culture, containing no PA bions. Within a few minutes, an extremely exciting spectacle unfolds, one which in all probability holds the secret of "immune bodies" in the serum.

[1] This phenomenon, known as the reversed orgonomic potential, is discussed elsewhere from a purely physical standpoint.

At first, we see only T-bacilli moving around in the field. Before long, however, large blue vesicles appear here and there, with more and more T-bacilli surrounding them, exactly as in a mixture of PA and T. The T seem to have stimulated the formation of the blue PA bions; a control serum without T does not show any PA. The PA bions, once formed, exercise a paralyzing effect on the T, which begin to agglutinate.

A second, even more astonishing process now begins. The heap of agglutinated T is black; there is no evidence of blue. But within fifteen to thirty minutes, *this dead black heap begins to take on a strong blue coloring and to form membranous vesicles.* They are nothing other than PA bions. The dead T have drawn off orgone from the serum and transformed themselves into PA bions.

These two phenomena have not yet been thoroughly studied. On the one hand, they are connected to the immunity factor and, on the other hand, to the vesicular structuring or the vesicular disintegration of tissues that come into contact with the T-bacilli.

A few days after a healthy mouse is inoculated subcutaneously with T-bacilli, a non-purulent swelling appears on the skin, which, under microscopic examination, proves to be tissue in a state of vesicular disintegration. By the same process, the degeneration of epithelial cells in cancer is marked by the appearance first of T-bacilli; then of large numbers of blue PA bions in the surroundings.

At this point I would like to interrupt the account of these observations, which yield so much information about organismic orgone energy, and await the results of further experiments before deciding what conclusions to draw. Nevertheless, it is certain that *T-bacilli stimulate bionous disintegration* and that *cancer cells are organized from bionously disintegrated tissue,* just as amoebae and other protozoa are formed from moss bions.

THE T-BLOOD TEST

The biological vigor, i.e., functioning power, of a cell is determined neither by its structure nor by its chemical composition.

Disintegration of structure and chemical composition must be regarded as consequences rather than causes of the biological degeneration. The structure, along with the biochemical equilibrium of the cell, is the expression of the cell's biological vigor, but the biological function itself has hitherto been a mystery. The orgonotic charge of the cell now provides us with the possibility of determining it experimentally.

The red blood corpuscles of two persons can be alike in structure and chemical make-up while differing sharply in biological function. Under the microscope, both may have the same form; the red corpuscle count and the hemoglobin content may well be normal and identical for both persons.

Let us now expose blood samples from each person to the same destructive agent. We autoclave a few drops of blood from each person in bouillon and potassium chloride for thirty minutes at a temperature of 120°C. with steam pressure 15 lbs. per sq. in. Microscopic examination may now yield two very different results. The autoclaved blood of one person has disintegrated into large blue bion vesicles. The blood of the other person yields no blue vesicles, only T-bacilli. Gram stain confirms this difference: one blood sample produces blue, Gram-positive vesicles (*cf.* Fig. 31, Appendix), the other, red, Gram-negative T-bacilli (for T-bacilli from a sarcoma, *cf.* Fig. 32, Appendix). This conclusion may be drawn:

The former blood sample shows a strong orgonotic charge of the red cells. The charge reveals itself, after autoclavation, in the blue bions ("B-reaction"). The latter blood sample shows a weak or minimal orgone charge of the red cells. The lack of orgonotic charge manifests itself, after autoclavation, in the absence of blue bions and in the presence of T-bacilli, which result from the degeneration of the red corpuscles ("T-reaction").

The T-reaction is typical for cases of advanced cancer in which the orgone content of the blood has been totally consumed in the organism's struggle against the systemic disease (cancer biopathy) and the local tumor. This T-reaction is usually present *before* any

symptoms of anemia and often reveals the cancer process long before a perceptible tumor has formed.

On the other hand, red corpuscles weak in orgone energy absorb it greedily when it is supplied to the organism by the orgone accumulator. Subsequent autoclavation tests yield a shift from the T-reaction to the B-reaction; i.e., the red blood corpuscles have become more resistant to autoclavation; they contain more orgone.

The red corpuscles can be charged by atmospheric orgone energy. (The effects of solar radiation are based on the same principle.) This can be confirmed experimentally. On a microscope slide, we mix biologically (i.e., orgonotically) weak blood with rot bacteria or T-bacilli. The blood, being energetically weak, does not destroy or agglutinate the bacteria or the T-bacilli. However, once the organism has been orgonotically charged (the degree of charge can be ascertained by means of the autoclavation test), the blood has a decidedly paralyzing and agglutinating effect on the same pathogenic micro-organisms. Smaller protozoa respond in the same fashion; that is, they are not damaged by orgonotically weak blood but are paralyzed by orgonotically strong blood.

The red corpuscle is an orgonotic system in miniature, contain-

weak *strong*

Orgone margin narrow
Blue color weak
Membrane often shriveled
("poikilocytosis")

Orgone margin wide
Blue color intense

FIGURE 5. Red blood corpuscles showing weak and strong orgonotic charge (in the living specimen at 4500x)

ing a small quantity of orgone energy inside its membrane. At 4000x magnification, the red blood corpuscles show a deep blue glimmer and lively vibration of their contents. They expand and contract and are therefore not rigid, as is usually thought. They carry atmospheric orgone energy from the lungs to the tissues. The nature of the relationship between atmospheric oxygen and orgone energy can only be surmised at this time. Whether orgone is identical with the chemical particles of the air or fundamentally different from them is unknown.

The orgonotic charge is also revealed in the shape and structure of the red blood corpuscles. Cells with a weak charge are more or less shrunken and have a narrow blue margin which glimmers feebly. Once the organism is charged, the red blood cells swell, while the blue margin intensifies and widens, sometimes including the entire cell. No pathogenic micro-organism can survive in the vicinity of these orgonotically highly charged red blood cells.

How these facts are connected to immunity against infectious diseases, colds, etc., is still obscure; but finding the connection should not be too difficult. Probably, the orgonotic charge of the tissues and blood cells determines the degree of susceptibility to infections, the "disposition to disease."

The fact that during the process of destroying the pathogenic micro-organisms the erythrocytes gradually lose their blue coloration, turn black, and sometimes degenerate into T-bodies demonstrates that the orgone charge of the red blood corpuscles actually kills protozoa and bacteria. Examination of tissue from tumors in treated mice shows that when charged red blood corpuscles permeate cancer tissue it disintegrates into non-motile T-bodies. In this process, the red blood corpuscles disappear and only T-bodies can be seen. The cancer tumor shows large cavities which are filled with T-bodies, visible on dark-field examination at 300–400x. Macroscopically, the content of the cavities at first appears blood red, but gradually turns a rust brown due to hemosiderosis. The iron pigment has separated from the disintegrated corpuscles, which have lost their charge of biological energy. The typical

secondary anemia of cancer patients is the expression of the loss of biological energy from the blood in the struggle against the T-bacilli and the cancer cells.

More details on this subject will be presented later in connection with our cancer experiments. What is important here is to learn how the orgonotic charge of the blood cells acts under a variety of conditions. To put it briefly: *Erythrocytes with a strong orgone charge act upon bacteria and small protozoa in exactly the same way as do earth, iron, coal, and other bions.* Since they originate in bone marrow, it must be assumed that the bone marrow has the capacity to generate bions constantly. Energy vesicles are basic to both animal and plant tissue. Taken together, these facts form the basis for the orgone therapy experiments on cancer patients. *The introduction of orgone energy from the outside relieves the organism of the burden of consuming its own body orgone in the struggle against the disease.* This is a further proof of the identity of atmospheric and organismic orgone energy.

Experiment reveals the following:

1. A grass infusion develops no protozoa, or very few, when kept from the beginning in the orgone accumulator. Clearly, orgone energy charges the grass tissue and prevents its disintegration into protozoa.
2. Fully developed protozoa are not destroyed in the orgone accumulator.
3. T-bacilli are not destroyed in the orgone accumulator but, on the other hand, a cancer patient's blood can be cleared of T-bodies within a few days if the patient is exposed to intense orgone irradiation.

4. LUMINATION AND ATTRACTION

It is a generally known fact, first discovered by Gurwitsch, that animal blood radiates. Since, from the point of view of orgone biophysics, erythrocytes are nothing but orgone energy vesicles, it is

CHAPTER V

The Carcinomatous Shrinking Biopathy

1. DEFINITION OF BIOPATHIES

The cancer tumor is merely a visible symptom of the disease we call "cancer." Localized treatment of the cancer tumor by surgery or irradiation with radium or X-ray therefore constitutes treatment of a symptom only, not of the disease itself. In this regard, death from cancer is not the result of the presence of one or more tumors. It is rather the final result of the systemic biological disease "cancer," which is caused by a disintegrative process in the total organism. Medical literature gives no information about the *nature* of this systemic disease. So-called *cancer disposition* indicates merely that deadly processes, uninvestigated up to now, are at work behind the cancer tumor. The typical cancer cachexia, the last stage of the disease, should be regarded only as the ultimate, visible phase of the unknown systemic process "cancer."

The term "cancer disposition" is meaningless. We would therefore like to replace it with the term *carcinomatous biopathy,* or *cancer biopathy.* The purpose of the following chapter is to demonstrate the process that is at the basis of the cancer biopathy.

The term *biopathies* refers to all disease processes caused by a basic dysfunction in the autonomic life apparatus. Once started, this dysfunction can manifest itself in a variety of symptomatic disease patterns. A biopathy can result in a carcinoma (carcinomatous biopathy), but it can just as easily lead to angina pectoris, asthma, cardiovascular hypertension, epilepsy, catatonic or paranoid schizophrenia, anxiety neurosis, multiple sclerosis, chorea, chronic alco-

holism, etc. We are still ignorant of the factors that determine the direction in which a biopathy will develop. Of prime importance to us, however, is the *common denominator* of all these diseases: *a disturbance in the natural function of pulsation in the total organism.* Fractures, local abscesses, pneumonia, yellow fever, rheumatic pericarditis, acute alcoholic poisoning, infectious peritonitis, syphilis, etc., are, accordingly, *not* biopathies. They do not develop from disturbances in the autonomic pulsation of the total life apparatus; they are circumscribed and can only secondarily bring about a disturbance of the biological pulsation. The results of recent orgone-biophysical research, however, have raised questions about the exclusion of pneumonia and some heart diseases from the realm of biopathies. Further investigation will prove or disprove my assumption that the *disposition* to pneumonia, or to valvular heart diseases caused by "rheumatic fever," may be due to a chronic extension of the bony chest structure, resulting from the typical inspiratory fixation of the chest. For the present, however, we will use the term "biopathy" only where it is definite that the disease process begins with a disturbance of pulsation, no matter what secondary disease pattern results. Consequently, we can distinguish a schizophrenic biopathy from a cardiovascular biopathy, and these from an epileptic or carcinomatous biopathy, etc.

This addition to medical terminology is justified by the fact that we cannot understand any of the many specific diseases of the autonomic life apparatus unless:

1. We distinguish them from typical infectious and traumatic surgical diseases.
2. We look for and discover their common mechanism, the disturbance of biological pulsation.
3. We learn to understand their differentiations into the various disease patterns.

Cancer is particularly well suited to a study of the fundamental mechanisms of biopathies, because it manifests many of the dis-

turbances treated in everyday general medical practice. It reveals pathological cell growth; it has as one of its essential characteristics bacterial intoxication and putrefaction; it develops from chemical as well as bio-electric disturbances of the organism; it is related to emotional and sexual disturbances; it generates a number of secondary processes, such as anemia, which otherwise develop as independent diseases; it is a disease decisively influenced by our "civilized" mode of living; it is of as much concern to the nutritionist as to the endocrinologist or the virus researcher.

The many manifestations of cancer, like the multiplicities of neuroses and psychoses, conceal a single common denominator: *sexual stasis.* This leads us directly to our thesis: *Sexual stasis represents a fundamental disturbance of biological pulsation.* Sexual excitation is a primal function of the living plasma system. *The sexual function is demonstrably the productive life function per se.*[1] A *chronic* disturbance of this function must of necessity coincide with a biopathy.

The stasis of biosexual excitation is manifested in two ways principally: *indirectly,* as emotional disturbance of the psychic apparatus, i.e., as a neurosis or psychosis; or *directly,* as a functional disturbance of the organs, in which case it appears as an organic disease. According to our present knowledge, it cannot actually generate infectious diseases.

The central mechanism of a biopathy is a disturbance in the discharge of biosexual excitation. This statement requires the most detailed substantiation. But it should come as no surprise that physical and chemical processes as well as emotional factors are at work in biopathies. The psychosomatic harmony of the total biological system is most clearly evident in biosexual emotion. It is only logical, therefore, that disturbances in the discharge of biosexual energy, wherever they appear, form the basis for disturbances of biological functioning, that is, a biopathy.

[1] *Cf.* Wilhelm Reich, *The Function of the Orgasm.*

2. BIOPATHIC SHRINKING

The living process in man is fundamentally the same as in the amoeba.[2] Its main characteristic is *biological* pulsation, the alternation of *contraction* and *expansion*. This process can be observed in single-celled organisms in the rhythmical contractions of the vacuoles or the contractions and serpentine movements of the plasma. In metazoa, its most obvious manifestation is in the cardiovascular system, where the pulse beat is clear evidence of pulsation. Its manifestation in the organism as a whole varies according to the structure of the individual organs. In the intestines, for example, it appears as "peristalsis," waves of alternating expansion and contraction. In the urinary bladder, the biological pulsation functions in response to the stimulus of mechanical expansion caused by the filling of the bladder with urine. The process also manifests itself in the muscular functions, namely as contraction in the striated muscles and as undulating peristalsis in the smooth muscles. It permeates the entire organism in the orgastic convulsion (the orgasm reflex).

Neither the pulsatory movements of the body organs, nor their disturbances, such as blocking, shrinking, etc., are compatible with the prevailing notion that the nerves act merely as conductors of impulses, while they themselves remain rigid and immobile. *Autonomic movements can be comprehended only if the autonomic nervous system is itself mobile.* This can be proven by direct observations. We place a small, sufficiently transparent worm (e.g., a meal worm) under a good microscope, so arranged that both the ganglion and its *fibers* are in focus. Since the worm is constantly in motion and reacts sharply to the stimulus of light, focusing requires repeated movement of the fine adjustment screws. This experiment will provide convincing evidence that *the autonomic nervous system is not rigid but actually contracts and expands.* The movements of

[2] *Cf.* Wilhelm Reich, "Der Urgegensatz des vegetativen Lebens" (1934).

the nerves are serpentine, slowly undulating, and occasionally jerky. They consistently precede the corresponding movements of the total organism by a fraction of a second: first the nerve and its rami contract, followed by the contraction of the musculature. Expansion proceeds in the same fashion. As the worm dies, the nervous system gradually shrinks, and there occurs a bending of the organism. This process of gradual shrinking is interrupted by occasional contractions. After a period of complete immobility, the rigid contraction (rigor mortis) abates, the organism grows slack, together with the nerves, and movement fails to return.

Biopathic shrinking begins with a chronic preponderance of contraction and an inhibition of expansion in the plasma system. This manifests itself most clearly in the respiratory disturbances of neurotic and psychotic patients in whom pulmonary and thoracic pulsation (the alternation of expansion and contraction) is restricted, and in whom an inspiratory attitude predominates. The general contraction (sympatheticotonia) is not confined to individual organs. It encompasses entire organ systems, their tissues, the blood system, the endocrine system, as well as the character structure. It is manifested in a variety of forms, according to its locality, e.g., as high blood pressure and tachycardia in the cardiovascular system, as shrinking of the red blood corpuscles (formation of T-bacilli, poikilocytosis, anemia) in the blood system, as affect block and character armoring in the realm of emotions, as spastic constipation in the alimentary canal, as pallor in the skin, as orgastic impotence in the sexual function, etc.

Here the attentive reader will raise an objection: Can one speak of "shrinking," he will ask, if the autonomic life apparatus is merely in a state of chronic contraction? Is it not possible that the contraction will yield and the function of complete pulsation be reestablished? Should a distinction not be made between "chronic contraction" and "shrinking" of the autonomic nervous system? Could not the shrinking very well be a *result* of the chronic contraction of the autonomic nerves, that is, a gradual withering of the life apparatus, a gradual, premature dying?

The objection is correct. *Biopathic shrinking in cancer is in fact the consequence of a gradual, chronic contraction of the autonomic life apparatus.*

3. SEX-ECONOMIC PREMISES

The following facts, familiar to us from our sex-economic clinical practice, connect the sexual function to cancer:

1. Poor external respiration which results in a disturbance in internal respiration in the tissues.
2. Disturbances in the orgonotic charge-discharge functions of the autonomic organs, especially the sexual organs.
3. Chronic spasms of the musculature.
4. Chronic orgastic impotence.

The connection between disturbances in the discharge of sexual energy and cancer has not been carefully examined. However, experienced gynecologists are aware of the existence of such a connection. Respiratory disturbances and muscular spasms are direct consequences of an acquired fear of sexual excitation (orgastic impotence). Poorly charged, spastic organs or organs with insufficient respiration develop a biological weakness that renders them highly vulnerable to cancer-producing stimuli of all kinds. Organs that function in a biologically natural manner resist the same stimuli. This is an obvious and necessary assumption.

The clinically established findings of deficient biological charge, muscular spasm, and reduced external and internal respiration give the concept of "cancer disposition" a tangible content. I now want to show how discoveries in sex-economic clinical practice prepare the way to cancer research.

The sex-economic examination of character neuroses revealed

again and again the crucial role of *muscular spasms and their devitalizing effect upon the organism.* Muscular spasm and deficiency in orgonotic charge are felt subjectively as "deadness." Muscular hypertension, resulting from chronic sexual stasis, regularly causes a decrease of organ sensations, to the point where the individual feels dead. This process corresponds to a block of bioenergetic activity in the affected organ. The blocking of biosexual excitation in the genitals, for instance, is accompanied by spasm of the pelvic musculature, as in the uterine spasms of frigid and neurotic women which frequently lead to menstrual disturbances and pain, polypous tumors, and myomata. Spasm in the uterus has no other function than to prevent the biosexual energy from being felt in the vagina. Spasms inhibiting the free flow of plasmatic currents affect particularly the *annular* musculature, e.g., in the throat, at the entrance and exit of the stomach, in the anus, etc. These are areas in the organism where cancer occurs with particular frequency. Disturbance in the biological charge in a gland, mucous membrane, or a particular area of the skin is caused by a muscular block close to the affected point which cuts off the plasmatic current. A woman I treated orgone-therapeutically had an incipient, carcinomatous lesion, confirmed by X-ray, of the fourth costal cartilage on the right side. This condition was the result of spastic contraction, occurring over several decades, of the right pectoralis muscle due to a strong holding-back in the shoulders, brought about by repressed beating impulses. She had never experienced orgasm and suffered from compulsive flirting.

In the practice of orgone therapy, we see not only character-neurotic disturbances but also, quite routinely, schizophrenia, epilepsy, Parkinson-like disease, rheumatic and cancerous manifestations. An organic disease may emerge during treatment or develop later, recalling early evidence that foreshadowed it: for example, the spasms of the pelvic musculature that occur so frequently in women, usually resulting in the development of benign tumors in the genital organs.

In our clinical practice, we have been faced with the important

question of what happens to the *somatic* sexual excitation when it is not regularly discharged. We know only that biosexual excitation can be restricted and bound up in chronic muscular tension. In female patients this tension manifests itself in knot-like inspissations in the uterus and can be felt as lumps above the pubis. The muscular spasm of the uterus usually spreads to the anal sphincter and the vagina, then to the adductors of the thigh. The pelvis is regularly retracted and the sacral spine is often stiff and ankylosed. Lumbago and lordosis are typical of this condition. No organ sensations are felt in the pelvis. During exhalation, the wave of vegetative excitation is blocked by the rigidly elevated chest or the tense abdomen. The excitation of the large abdominal ganglia does not penetrate through to the genital organs. Consequently there is a disturbance of biological functioning. The genitals are no longer susceptible to biological excitation.

Many women suffering from genital tension and vaginal anesthesia complain of feeling that "something is not right down there." They report having experienced during puberty the familiar signs of biosexual excitation, itching and prickling, and having learned to combat these excitations by holding their breath, with the consequence that they no longer felt anything. Later, they typically relate, they began to feel a sensation of "deadness" or "numbness" in the genitals, which worried them. Since the biological state of the organs is mirrored in organ sensations, we must impute serious significance to such descriptions for the evaluation of somatic processes.[3]

The sexual inhibition commonly found in women is responsible for the prevalence of breast and genital cancer. In countless cases, this inhibition may be present for decades before it takes the form of cancer.

The following case illustrates in a particularly simple manner the direct connection between character armoring, muscular spasm, and the appearance of a cancer tumor.

[3] Women are usually unable to understand their own organ sensations. Character-analytical exploration is needed to enable them to do so.

A forty-five-year-old man came to my laboratory for treatment of a total obstruction of the esophagus caused by a carcinomatous growth. The intake of solid foods had become impossible for him, and he would immediately vomit liquids. X-rays showed a shadowy area the size of a small fist and a complete obstruction in the middle of the esophagus. Emaciation and weakness had already appeared, as had severe anemia and T-bacilli intoxication. The patient's history revealed the following facts: Several months before the first occurrence of the cancer symptoms, his son, whom he especially loved, had been drafted into military service. This worried him and he became deeply depressed. (Characterologically, he tended to be depressive.) In a few days, he developed a spasm of the esophagus. He experienced difficulties in swallowing, which, however, disappeared when he drank water. These complaints, accompanied by a feeling of pressure in the chest, came and went for some time, until one day they became irreversible. The difficulties in swallowing increased rapidly. He visited a physician, who established the existence of the constriction and a small growth. X-ray treatment proved ineffective, and after a few months the man was on the verge of death from starvation. It should be noted that from childhood this patient had suffered severe rigidity of the jaw musculature; his face bore a stiff, grim expression. Passive movement of the jaws was markedly curtailed. His speech was correspondingly restricted; he spoke through his teeth.

It is not yet possible to gauge the full extent of the somatic devastation resulting from an inhibition of the natural biological rhythm manifest in respiration, and in sexual tension and gratification. Poor breathing must do severe damage to the internal respiration of the organs, i.e., to the supply of oxygen and the elimination of carbon dioxide. Several years ago, when I recognized the significant part played by respiratory deficiencies in emotional disturbances, I remembered that *in cancerous tissue there is a marked oxygen deficiency.*

The Viennese scientist Warburg discovered that the various cancer stimuli have one common feature, namely the production of

a local oxygen deficiency, which in turn causes a *respiratory disturbance* in the affected cells.[4] According to his hypothesis the cancer cell is a poorly breathing cell, deficient in tissue oxidation. Warburg sees this oxygen deficiency which leads to respiratory disturbance of the cells as one cause of cancer. He reasoned that in certain affected, localized areas the only cells capable of survival and further development will be those which overcome the respiratory disturbance caused by the oxygen deficiency, thereby assuming the metabolism of the cancer cells. The process is, basically, a disturbance of the energy metabolism. The respiratory disturbance is a property of all known malignant tumors, including the Rous sarcoma. *Cancer metabolism, is, therefore, to be viewed as the metabolism of normally growing cells in a condition of anoxia.*

However, we cannot conclude from Warburg's correct findings that the cancer cell is just a normal cell assuming a different kind of growth because of oxygen deficiency. Biologically, the cancer cell is basically different from the normal cell; it is nothing but a protozoal formation.

These findings provide the factual link between the autonomic life functions and cancer.

4. FROM THE CASE HISTORY OF A CANCER PATIENT: AN EXPERIMENT IN ORGONE THERAPY

I would now like to submit the case history of a cancer patient that is particularly revealing of the nature of the shrinking biopathy.

The patient's brother stated that the illness had set in three years before, in the form of excruciating pain in the right hip bone. The pain was incessant and "pulling." At this time, the patient weighed 125 lbs. She could not raise herself from a supine position. Her physician diagnosed a sacroiliac spasm and gave her injections

[4] *Cf.* Otto Warburg in *Biochemische Zeitschrift*, Bd. 317, a.o.