

ONE

INTRODUCTION

1.1 What This Book is About

¹This book is about something which, according to science, does not exist: man's physical energy body, his etheric envelope. The thesis put forward in the book is the following: in its kind this body is as real as the organism, to which it is partially similar in appearance but from which it is quite different in functions.

²We are talking about a body, or an envelope, consisting of matter which is called etheric. The use of the term "etheric" appears to make the opposition to science even more acute, since science considers the ether to be non-existent, so that hypotheses of such a thing are said to be quite superfluous.

³Man, says science, is the mere human organism with its exclusively measurable physical, chemical, and physiological functions. Something beyond that does not exist – in any case it cannot be detected with scientific methods and instruments. And going by the pragmatic view prevalent, the latter is tantamount to the former.

⁴Yet, ideas live on to the effect that man is more than his organism, that he has several bodies, that essential man is invisible man. How is it that rational, thinking people can cling to such unscientific, pre-modern views in our "enlightened times"?

⁵Four kinds of testimony to the existence of the etheric envelope may be distinguished:

⁶*Individual observation and experience.* Many people are able to see their own etheric envelopes and those of other people. In their case the etheric envelope appears as an aura surrounding the entire body. Some people see more, others see less. Certain people see fine structures, vortices, centres, emanating currents, and other formations.

⁷A sense of being different from or more than one's body can be strongly developed in some people. In certain individuals it can be so intensified that they sometimes find that they leave their organism and exist outside of it. In their case it is no longer the case of the etheric envelope, but of an additional envelope, which is made of still finer matter, the emotional envelope, or the desire-body. There is a large repertory of accounts of such out-of-the-body experiences. It is emphasized that what is under consideration here is not a pathological condition.

⁸*Paranormal phenomena* are studied with increasing intensity using scientific methods. Such phenomena are often connected with perceptions of energetic phenomena in the form of fields around or radiations from the body being witnessed by the subjects of such experiments – both "receivers" and "transmitters". Many methods have been elaborated for the detection of such fields or radiations, such as the use of the pendulum or the dowsing rod.

⁹*Pre-modern traditions.* There was hardly any primitive tribe or civilized nation before the advent of modern times that did not possess the traditional teaching of a multiplicity of human subtle bodies, envelopes, or souls, one of which expressly is closely connected with the organism. The *umbra* or "shadow" of the Romans, the *ka* of the Egyptians, the *linga sharīra* or *prānamaya kosha* of the Hindus, and the *po* of the Chinese, are familiar to historians of culture and religion.

¹⁰In four lines ancient Roman poet Ovid summarized this teaching of man's multiple bodies and their destiny after death:

Bis duo sunt homini: manes, caro, spiritus, umbra.

Quatuor ista, loci bis duo suscipiunt.

Terra tegit carnem, tumulum circumvolat umbra,

Orcus habet manes, spiritus astra petit.

(Twice two belong to man: soul, flesh, spirit, shadow.

Four they are, twice two places take them up.

The earth covers the flesh, the shadow flies about the grave-mound,

The netherworld has the soul, the spirit seeks the stars.)

¹¹In addition we have the *iklozi* or *ithongi* of the Zulus, the *udjibbom* of the Ojibwa Indians, the *anigi* of the Central American Black Caribs, to cite only a few further examples corresponding to the *umbra*, etc. of the Romans. How can there be such a consensus between widely separate peoples if their ideas did not refer to real things?

¹²*The esoteric knowledge*, that is to say: the teaching imparted in secret knowledge schools in many nations, has a detailed explanation of a whole series of subtle material bodies or envelopes of man. In fact, the premodern traditions just mentioned can be explained also as leaks from the hidden teaching of the esoteric schools.

¹³In compiling this book I want to make a concentrated presentation of what I have perceived to be some of the most important parts of the teaching on the etheric envelope to be found in various quarters, in the older esoteric body of knowledge as well as in modern research and experience.

¹⁴Materials about the esoteric world view I have gathered mainly from the works of Henry T. Laurency, Alice A. Bailey, C.W. Leadbeater, and A.E. Powell who, in their turn, summarize a body of knowledge that is ancient and yet renews itself constantly. Besides the authors mentioned I want to give especial prominence to Shafica Karagulla, M.D.; Mrs Dora van Gelder Kunz; Lawrence J. Bendit, M.D. and Mrs Phoebe D. Bendit; and Gurudas. The data put forward in the book have been drawn from a lot of sources to which reference is made at the end of the book. I want to stress the fact that the content of the book is not in any essential part the expression of my own invention or speculation. The understanding reader probably realizes that such things would not be of any value, but that the book may be of some merit only to the extent that it conveys experience that is shared by many thinkers and researchers. I desire to appear more as a compiler than as an author.

¹⁵The basic idea of this book is that the etheric envelope is man's physical envelope proper, in its capacity of morphogenetic matrix, conveyor of energy, and centre of perception more important than the organism; that the organism is for its existence, its life, and its functions completely dependent on its energy envelope. This is not a new notion but an esoteric idea of immemorial age.

¹⁶The material presented is organized in ten sections, called One to Ten, inclusive.

¹⁷One is a general introduction to the subject, brings up certain fundamental issues, illustrates with modern findings.

¹⁸Two gives a brief presentation of the esoteric world view according to Pythagoras' mental system, so-called hylozoics.

¹⁹Three provides an introduction to the esoteric doctrine of energies. In this connection some more esoteric facts are given with a view to supplementing the material presented in Two.

²⁰Four gives, in a first overview, some basic facts about the etheric envelope.

²¹Five treats of the eight most important centres of the etheric envelope for the exchange of energies and for perception.

²²Six describes the etheric envelope in relation to man's life from conception to death.

²³Seven is about the etheric envelope in health and disease.

²⁴Eight gives an account of esoteric medicine based on the etheric envelope.

²⁵Nine sheds some light on the role of the etheric envelope in human consciousness development.

²⁶Ten puts the etheric envelope into a planetary context.

²⁷The intention is not to convince, but to assist readers who want to understand the subject to reach the clarity they desire.

²⁸It has not always been possible to present the information in a systematic sequence. Sometimes a certain issue had to be treated of in several places, in bare outline to begin with, in more detail later on. It may happen that something mentioned in an earlier section is treated more fully in a later one. The interested reader, who is prepared to penetrate the matter, will probably

find that the depth of understanding desired will come only after repeated readings of the book.

²⁹The subject is difficult. Yet much of the information given by this book may seem self-evident to the reader: “But this is how I always thought without verbalizing it!” Because there is a basic idea in esoterics saying that a person can latently possess a knowledge learnt in a former existence. The things treated of in the book are at the limit of man’s power of conception. Of course it is the matter of a knowledge of a radically different kind than all the sciences that deal exclusively with the gross physical world of the senses, disciplines studied at our colleges and universities. Where esoteric knowledge is concerned, you could speak about state-specific science, in which “state” has reference to the state of consciousness of the individual or group concerned, generally or at some specific time. The student cannot understand everything at once; perhaps he will understand something in the morning and has lost his understanding in the evening; perhaps he will understand some particular idea only after many years, and so on. Far from all individuals are prepared for any attempt at understanding. Also people who are otherwise highly educated, intelligent, or talented may prove deficient in understanding.

³⁰The difficulty of the subject entails considerable uncertainty. There are errors in the book, of course; anything else would be strange. No claim to infallibility is raised. If data are given in a categorical form, it must yet be understood that they are categorical only within the framework of that hypothesis which esoterics must be at the present stage of mankind’s consciousness development. At all events, the purpose of the book is not to foster dogmatic thinking or blind belief, but to stimulate inquisitive reflection, continuous and unceasing study, search for enriching experience, experiments with life in the widest sense.

1.2 The Term “Ethereic Envelope”

¹Other names or terms used are the “etheric body”, the “light body”, the “energy body”, and the “bioplasma body”. The “etheric body” is still the name most commonly used in contemporary esoteric and occult literature. Yet, the term “etheric envelope” is preferred here, in accord with the terminology launched by Swedish esoterician Henry T. Laurency. The etheric envelope of a living creature certainly is a kind of body, namely in the sense of being a physical material form that exists in the physical world and in physical space, delimits the individual, carries vital functions, and enables the individual to act and be aware in the physical world and so to express qualities and abilities.

²However, similarities with what in everyday speech is called the “body”, that is, the organism, practically end here. To the word “body” we have attached all our ideas and experiences of the organism. According to its generally accepted intension, the word “body” refers to something solid, densely material, grossly physical. In contrast, the word “etheric envelope”, denotes something subtle, finely material, finely physical. “Body” is something directly perceptible and tangible to our five ordinary senses. The etheric envelope is at the edge of perceptibility to vision, touch, and hearing, which implies that there are big individual differences in the ability to perceive it: some people see and feel the etheric envelope distinctly, others not at all, and some others perceive it only faintly.

³Be it admitted that the word “envelope” is not entirely satisfactory either. “Envelope” associates thought with something that encloses and protects, and that is what the etheric envelope does with the organism in relation to matter and energy of higher kinds. But the etheric envelope does not merely enclose the organism, but also penetrates it completely, which is not what an envelope ordinarily is considered to do. The most important reason for the choice of the word “envelope”, however, is that the etheric envelope, together with man’s additional envelopes of still finer matter, envelops and encloses the indwelling, immortal self, which in material respect is a primordial atom, a monad.

⁴The term “envelope” for man’s bodies of subtle matter is sanctioned by use from times immemorial. The ancient Hindu Vedic teaching called *vedānta* uses the term *kosha*, which means envelope or sheath. In *vedānta* terminology, the organism is therefore called the *annamaya-*

kosha, or the “envelope made of food”; and the etheric envelope, the *prānamayakosha*, or the “envelope made of *prāna*”, *prāna* meaning vital force.

1.3 Seven Basic Esoteric Facts About Life

¹As the teaching on the etheric envelope is presented in this book, it is not an isolated theory, but a natural and necessary component part of the esoteric world view. I will make a more detailed account of this world view later in this book, just as I did in my previous work, *The Explanation*. Yet I will here at once sum up some of the facts and principles that are of fundamental importance to this world view, since they are necessary to the argument made here by way of introduction. To begin with, seven basic esoteric facts will be stated.

²*The first fact* is that the reality studied by natural science and considered by it to be the only one is actually just one of many realities, or worlds, all of which exist in the same space and penetrate each other in the cosmos. All these worlds consist of matter and display energy phenomena, but otherwise are qualitatively different from each other.

³*The second fact* is that the qualitative differences just mentioned concern the three basic aspects of matter, consciousness, and motion, which exist in all the cosmic worlds. Expressed differently: In all the cosmic worlds there are matter, consciousness, and motion, but these aspects express themselves differently in them all. This is true also of space, which belongs to the matter aspect, and time (duration), which belongs to the motion aspect.

⁴*The third fact* is that the physical world is the lowest world, qualitatively speaking. That is to say: its matter is of the grossest kind, consisting of the coarsest particles; its consciousness is the dimmest, the most limited; its content of motion or energy is the least. In the lowest state of aggregation of the physical world, the solid state, motion ceases entirely on the macro level (crystallization, etc.), even though it continues on the micro level (atomic level).

⁵*The fourth fact* is that all the other, non-physical worlds are qualitatively higher worlds in a continuous, rising scale: The matter of the ever higher worlds consists of ever finer particles. The ever higher kinds of consciousness is ever freer, ever more inclusive, and ever more penetrating. The ever higher kinds of motion manifest themselves in ever mightier energy production.

⁶*The fifth fact* is that all the worlds are inhabited by living, intelligent beings who possess envelopes (bodies) of the matter of their worlds; and who have consciousness and will (expression of the motion aspect through active consciousness) of the kinds made possible by the matter of their envelopes. In fact, there is in the superphysical worlds nothing inanimate or lifeless. The whole cosmos is alive and life is defined as material forms possessing consciousness and energy.

⁷*The sixth fact* is that the entire cosmos makes up one continuous whole, a unity, and that this unity manifests itself in all three aspects. Matter is one and a unity. Consciousness is one and a unity. Motion is one and a unity.

⁸*The seventh fact* is that everything happens according to law. Laws, that is to say: constant relations, appear in all changes, all processes, all states and conditions.

1.4 Seven Basic Esoteric Principles About Life

¹*The first principle* is that the lower worlds with their life forms have ultimately been formed by and in the higher worlds, to be more exact: they have been formed by the intelligent beings who are active in those worlds.

²*The second principle* is that the higher the world in which an intelligence exists and is active, the higher is the degree of finality which that being can lend to the forms it creates. This ever higher degree of finality of forms is a direct function, not only of the ever higher intelligence of creative beings of ever higher categories in the ever higher worlds, but also of the ever higher kinds of consciousness that can be developed in the ever higher kinds of

matter of the ever higher worlds.

³*The third principle* is that the higher the kind of matter of which a life form is made, the more complex it can be made without becoming less stable or less durable in the process; consequently, the more multi-faceted it can be made as an instrument serving its indwelling intelligence.

⁴*The fourth principle* is that a life form in a lower world, to become durable and have finality, must have been preceded by a patterning form, an idea in the next higher world, this in its turn by an idea in the further next higher world, etc.; and that the higher the world in which the ultimate patterning form was made, the higher the degree of finality attainable by the life form in the lowest world.

⁵*The fifth principle* is that every life form existing in a lower world needs a constant supply of final, or expedient, formative, life-sustaining energies from higher worlds, not merely for its coming into existence but also for its continuance. In fact, the different worlds, the beings inhabiting them, and the forms created by those beings make up one single, gigantic hierarchy, “hierarchy” here meaning a system for the natural arrangement of life forms into higher and lower ones, a system that is maintained through the passage of controlling energies from the higher to the lower.

⁶*The sixth principle* is that this fundamental hierarchic principle can be discerned in each world, above all in a universal septenary division. Thus, for instance, the matter of the physical world has seven states of aggregation, enumerated from below: solid, liquid, and gaseous matter, followed by etheric matter of four increasingly finer kinds. In the physical world, the hierarchic principle manifests itself in such a way that no gross physical life forms – organisms – can be alive without being enveloped by etheric life forms; organisms cannot even come into being without being preceded and formed by such etheric envelopes.

⁷*The seventh principle* is that no lower world and no life forms in any lower world can be explained satisfactorily only by themselves, only by the energies working in that world or in that life form. The same principle is valid also in a lesser scale in the physical world, between the seven states of aggregation. As little as the solid state explains itself, without being related to the liquid and gaseous states, as little does this gross physical matter explain itself, without being related to the increasingly finer ethers, and as little can the organism be explained without being put in relation to its etheric envelope.

1.5 Summing Up: The Etheric Envelope

¹According to the view summed up in the above facts and principles, the etheric envelope stands out as a necessary and indivisible part of all biological life; and etheric energy, as a necessary precondition of the phenomena of nature and of life in the widest sense of the words “nature” and “life”.

²Science does not recognize any reality beyond that which can be studied by means of gross physical instruments. In this book, from now on, this conception, or rather limitation, of reality is called “physicalism”. The term is improper to a certain extent, since also etheric matter and etheric energies are physical but nevertheless are excluded from the physicalist conception of reality. It would be more correct, where science is concerned, to speak of an even narrower, or “ether-denying physicalism”, and this is what is meant when “physicalism” is discussed further on in this book. Scientific physicalism also includes mechanism of which more will be said later.

³Physicalism cannot explain how organisms, those immensely complicated and sensitive constructions, have come into existence, how they can function and endure. The doctrine of the etheric envelope offers a real explanation here. It teaches that every organism, even the most primitive unicellular ones, nay, even each cell of a multicellular organism, has its own etheric envelope, which in time precedes the organism or the cell and which is its “blueprint” as well as the framework on which it is built.

⁴Therefore, what is being discussed here is a subtle material, energetic form, which gives rise to a gross material form. This subtle material, energetic form, the etheric envelope, is the opposite of the organism in several essential respects. The organism is “more matter than energy”, the etheric envelope is “more energy than matter”. The etheric envelope is relatively resistant and difficult to destroy. The organism is very easily harmed, wears down with time, and dies. The organism evinces distinctly delimited organs and organ systems. The etheric envelope functions as a whole, as a unitary energy system. The organism is a discrete body, has a clearly marked limiting area against the surrounding world. The etheric envelope has an open communication with the surrounding etheric world, is like an individual condensation in the energetic ocean of that world.

⁵The physical concept of field is defined as a space where a measurable physical quality corresponds to each point. Scalar fields and vector fields are distinguished. In scalar fields, each point is unambiguously defined by intensity only. In a vector field, intensity as well as direction must be considered. A temperature field is an example of a scalar field; electric and magnetic fields are examples of vector fields.

⁶The etheric envelope has certain qualities in common with electric and magnetic fields as physics define them, although the energies of the etheric envelope for the most part are of other kinds than those which are measurable by gross physical instruments. The etheric energies can be detected, however, through man’s own etheric envelope, directly or indirectly. Indirect detection is done by such tools as a dowsing rod, a pointer, or a pendulum. These tools serve to reinforce very small body movements that are effects of reactions in the etheric envelope. It is the etheric envelope that affords the organism its ability of irritability, perception, and movement. If the etheric envelope is not present in the organism, this is just a dead body.

⁷The etheric envelope is the mediator, not only of vital force, the prāna of the Hindus, but in addition of all energies that enable the individual to live and be conscious in an organism. The importance of the etheric envelope is clear also from the following:

⁸Etheric consciousness is physical and is, therefore, the next in turn to be conquered in the consciousness development of the human race. This will be manifested, to begin with, in the power to see etherically and to ascertain the existence of etheric matter.

⁹Etheric matter and its energies are the field of research extending immediately before science. More and more scientists will be aware of the etheric. This will become especially important to medical science. Most of the diseases afflicting the organism are preceded by disturbances of the etheric envelope. The exclusively organic diseases are few in number. Disease mostly is due to etheric and emotional imbalances, which both entail disturbances of the etheric envelope that with time manifest themselves pathologically in the organism.

1.6 The Study of the Etheric Envelope

¹The study of the ether and the etheric envelope, etherology, is both a new and an old discipline.

²The word “ether” comes from the Greek *aither*, which in Latin became *aether* and in both languages means the “upper, purer air”, in contrast to *aer*, the “lower, impure air”. According to Greco-Roman mythology, the gods have their abode in the aether. The Greek word *aither* is, in its turn, derived from the verb *aitho*, which means “I light up, I kindle”. This associates thought with burning or shining things, the fiery or luminous element, thus a finer matter, richer in energy, than the three gross states of aggregation of physical matter, the solid, the liquid, and the gaseous states, which the ancients symbolized with earth, water, and air.

³Modern students of esoterics have as one of their main tasks to testify to the existence and immense importance of the etheric envelope. The various alternative or complementary methods of medical treatment – such as homeopathy, flower essence and gem elixir therapies, colour healing, acupuncture and acupressure, reflex zone therapy, body harmony, qi gong, and many more – are primarily based on the etheric envelope and its energies in

contradistinction to conventional medicine with its one-sided organismal approach.

⁴Medical researchers such as American Robert O. Becker and Swede Björn Nordenström have demonstrated that the organism is pervaded by electromagnetic energy fields, that complicated fractures can be healed, and that serious disease such as cancer can be successfully healed by using these energy fields, significant advances beyond the electro-therapy of olden days. Such findings, too, clear the path to a more general understanding of the etheric envelope.

1.7 The Basic Problems of Biology

¹What is life? What is a living being? Orthodox biology nowadays ruling supports the mechanistic theory of life. The word “mechanistic” is derived from the Greek *mechane*, which means “machine”. Orthodox biology views living organisms as physico-chemical machines and therefore considers that life, organisms, all phenomena of life can be explained by chemistry and physics; the origin and evolution of life can be elucidated exclusively with reference to mechanical processes such as chance mutations and natural selection.

²The successes of modern biology, above all the “breaking of the genetic code”, are cited as strong arguments for the mechanistic theory. But should the correctness of a theory be judged primarily by what it can explain? Should it not be tested chiefly by what it should, but cannot, explain? Has not all but every significant advance in the development of natural science been connected with some finding that was not compatible with a theory accepted at the time, but exploded it and so forced scientists to build a new theory that explained more things better? Should not scientists, just because of this, take an especial interest in such findings about real things as are not compatible with the current theories, precisely because those findings point out the direction in which new, revolutionary knowledge may be obtained? Is not the superiority of the mechanistic theory of a pragmatic character rather than of a theoretical one; that is to say: it explains very well such things as researchers have concentrated on for technological, medical, etc. applications, but does not explain in a satisfactory manner certain phenomena that should be important from a theoretical point of view, since they involve first principles?

³A closer examination demonstrates that there actually are many weighty questions, nay, for biology essential and fundamental questions to which the mechanistic theory cannot give a satisfactory answer. Six problems, in particular, are salient here. These are the problems of morphogenesis, behaviour, evolution, the origin of life, life and death, consciousness. Each of these problems in its turn contains other problems, subordinate to, or consequential upon them. These six problems will be discussed subsequently. For the following presentation I acknowledge the great help I have derived from the works of Rupert Sheldrake, Ph.D.; Michael Cremo; Robert O. Becker, M.D.; and Michel Bercot, M.D.

1.8 The Problem of Biological Morphogenesis

¹The problem of biological morphogenesis can be most simply formulated thus: How do living forms come into being? The problem lies in the fact that the form cannot be explained by the growth or development of structures which are present from the beginning in the seed or egg. The problem of biological morphogenesis contains three subordinate problems: those of self-regulation, regeneration, and reproduction.

²Self-regulation means that if a part of a developing organism is removed or if an additional part is added, the organism continues to develop in such a way that a fairly normal structure nevertheless is the result. In the 1890-ies, German biologist and philosopher Hans Driesch demonstrated this in a series of experiments he made on sea-urchin embryos. He killed one of the cells of an embryo at the two-celled stage (the result of the first division of the fertilized egg). The remaining cell developed, not into half a sea-urchin, but into a small but complete sea-urchin. Similarly, small but complete organisms developed after one, two, or three cells of embryos at the four-celled stage were killed. Conversely, one giant sea-urchin was the result

obtained when two young embryos were made to fuse.

³Such results show that a developing organism proceeds towards a form goal, and that it has some faculty that both determines this goal and enables the organism to reach it, even if parts of the organism are removed and normal development is disturbed.

⁴Regeneration means that an organism is able to replace or restore damaged structures. Plants and many animals display extensive abilities of regeneration. This phenomenon was described already in antiquity. Aristotle mentions that the eyes of very young swallows re-grow if they have been pricked out, and Pliny the Elder notes that lost “tails” of lizards and octopi regrow. The first detailed scientific description of regeneration was made by the great French naturalist René Antoine Ferchault de Réaumur in 1712. He demonstrated that crayfish, lobsters, and crabs could regrow a lost claw. Experiments made in modern times have shown that regeneration after such mutilations as do not occur in nature often take other paths than the first, natural development of the body-part in question. For instance, if the lens is surgically removed from a newt’s eye, a new lens regenerates from the edge of the iris, whereas in normal embryonic development the lens is formed from the skin. This makes it very clear that such regenerative processes cannot be the result of evolutionary pressure and natural selection.

⁵Another problem is that of reproduction. One cell has been detached from the father, another from the mother; they fuse and become the embryo of a new organism. Two parts become one whole; two least parts, functional parts of organisms, unite to form a complete organism.

⁶All the processes that are the factual grounds of the problems just presented can be summarily described thus: they indicate the presence of some controlling factor which is more than the sum of the parts of the developing organism and which determines the goal of the processes of development.

⁷Mechanists consider this controlling factor to be genetic programmes. They say themselves that they have elaborated this explanation by analogy with such programmes as control the work of a computer. They start from the assumption that the fertilized egg contains a ready-made programme that does not only determine the morphogenetic goal of the organism, but also controls in detail its development towards that goal. However, all the cells of the organism are identical as for their DNA structure. Therefore, the cells must have the same genetic programme, and mechanists do not recognize any other control mechanisms that would go beyond the known physico-chemical ones. But if all the cells have exactly similar programmes, they cannot develop differently by these programmes, cannot differentiate into the hundreds of various cell types existing: muscle cells, nerve cells, epithelial cells, etc. It is as though they believed that they could explain the existence of millions of different melodies exclusively with reference to the scale or keyboard.

⁸Moreover, mechanists have made a new problem for themselves: to explain the origin of the programme. The analogy of the computer programme presupposes a programmer, that is to say: an intelligence that has determined and designed in detail the goals that are put into the programme. The mechanist responds to this objection by saying that genetic programmes are not comparable with computer programmes, but with programmes for some kind of self-reproducing and self-organizing computers. Since the mechanist cannot show that such computers exist in reality, he has, by introducing one more unknown into his equation, just complicated his problem instead of solving it. And does the mechanist really want to recognize the existence of those very complex and expedient factors which must precede the formation of such computers? Quite unintentionally he presupposes precisely such creative forces, working with finality and intelligently, as he rejects on the basis of his mechanistic way of looking at things. Then his only way out is to say that the genetic programme has been built up in the course of evolution by a combination of chance mutations and natural selection. Such an argument, however, eliminates any similarity with a computer programme and makes it meaningless to invoke that analogy any more.

1.9 The Problem of Behaviour

¹The other principal biological problems appear to pose even greater difficulties, if possible, than that of morphogenesis to explanations invoking physico-chemical factors only. Special instinct in its immense richness of forms and varieties presents enigmas without end. How, for instance, are spiders able to spin webs without having learnt it from other spiders?

²How to explain the behaviour of young European cuckoos? They are hatched and reared by birds of other species, and never see their parents or other adult cuckoos. Yet they know instinctively when it is time to migrate to the south. They instinctively recognize other young cuckoos and gather with them. They instinctively find their way to their winter habitat in Southern Africa where they join the older cuckoos, which migrated there about a month earlier.

³How to explain the fact that certain Japanese songbirds are able to learn the song peculiar to their species, even when reared in captivity where they cannot learn their song from older birds of their own species? If only they hear a bird of another species singing its different song, they instinctively pick out the appropriate elements from this and finally produce a passable version of the song of their species, which they have never heard.

⁴Which are the right genes that contain the right base-sequences of DNA and so explain the instinctive knowledge of spiders and cuckoos, for example? Which are the right electrical impulses in their nerves? Which are the right patterns in which their nerves have to be “wired” to produce this behaviour? It is even more difficult to explain learning and intelligent behaviour. In these cases new patterns of behaviour arise which cannot be explained entirely in terms of preceding causes. How are all these factual processes to be explained with reference to molecular biology, biochemistry, genetics, and neurophysiology? No end of questions that mechanism does not and cannot answer.

1.10 The Problem of Evolution

¹Within all species, races and varieties are constantly changing, and this is true of the plant kingdom as well as the animal and human kingdoms. The neo-Darwinian theory of evolution claims to be able to explain this small-scale evolution in terms of random mutation, Mendelian genetics, and natural selection. There is a long step, however, from this so-called micro-evolution to macro-evolution, that is, the evolution of the species themselves, of genera, families, and the higher taxonomic divisions (taxonomy is the study of the division of species).

²Some evolutionary biologists think that all macro-evolution can be explained by long, continuous processes of micro-evolution, that is, countless small steps eventually add up to one big leap. Others reject this idea and hold that in the course of evolution there are sudden, profound mutations resulting in new species. This divergence of opinion notwithstanding, evolutionary biologists agree that evolution can in all essentials be explained by random mutation in combination with natural selection, that is, exclusively by mechanical processes.

³This theory has not been proved, but is speculative. Academic consensus does not equal proof in a scientific sense. The principal proof of evolution is the fossil record, and there is no logical compulsion of interpreting it in an exclusively mechanistic-evolutionist manner. Anyone who sees no reason to accept the prevalent view may assert that the formation of new species is not the work of chance events, but the result of an intelligent creative principle. The selection pressures which arise from the behaviour of living organisms can be attributed to an inner organizing factor which is essentially non-mechanic, final, even intelligent. At the present standpoint of science, the problem of evolution is unsolved and probably insoluble.

1.11 The Problem of the Origin of Life

¹If the problem of evolution is unsolved, then the problem of the origin of life must be said to be unsolved, too, and with even stronger force, since the former problem concerns the ongoing process of evolution, also at the present time, whereas the problem now under

discussion concerns the first beginnings of evolution in the very distant past. Science will never reach any certain knowledge of what happened in that distant past. However old discoveries they make, scientists cannot know whether still older findings remain to be unearthed. Nor can it be known whether the oldest finding known to man – the oldest in a subjective sense – is the oldest in the absolute or objective sense.

²For the sake of argument, however, let us assume that it could be demonstrated that the first organisms arose from non-living chemical aggregates or systems of chemical processes. Such a spontaneous generation in a chemical “primeval broth” is presumed in current theories. Not even if this could be established, would it be provable that this primeval generation was an exclusively mechanical event. The argument that also a vital principle or intelligent (final) formative or creative factor entered into this, the first living process is, from the logical or factual point of view, not less rational than the opposite argument.

³Most evolutionary biologists try to explain the origin of life by chance and natural selection. Some of them suggest in addition a faculty of self-organization that works mechanically. Let us now examine these hypotheses.

1.12 Chance

¹The basic building blocks of organic life are proteins. These are formed of a great number of smaller units – amino acids – linked together in long chains (DNA chains). Let us consider a simple protein composed of 100 amino acid units only. These units can bond with each other in various ways, with or without so-called peptide bonds. Peptide bonds occur randomly and mechanically in about half of the cases. For the completed protein to function properly in an organism, however, all of the amino acids making up the DNA chain must be linked together with peptide bonds. It is like a chain where no link must break. Consequently, the probability of 100 amino acid units bonding by chance exclusively with peptide bonds to form a DNA chain is about 1 in 2^{100} (2^{100} equals 2 multiplied with itself 100 times), or 1 in 10^{30} (10^{30} equals 1 followed by 30 zeroes). But that is not all.

²Each amino acid molecule exists in either of two different forms, which are like each other’s mirror images and therefore are called D (or right-handed) and L (or left-handed) amino acid. The proteins that compose organisms are made exclusively of L amino acids. Therefore, if all the 100 amino acid units to enter into the very simple DNA chain proposed here are to be of the L type, this presupposes once again a fortunate coincidence that has a probability of 1 in 10^{30} . Consequently, if a protein is to function properly in an organism, it must, through a fortunate coincidence, be composed of nothing but L amino acids linked together with peptide bonds only, thus an arrangement that has a probability not just of 1 in 10^{30} , but of 1 in 10^{60} .

³However, not even this is sufficient to produce a functional protein. Even if all the amino acid units making up the chain is of the L type and linked together with peptide bonds, they must in addition be combined in a quite specific sequence to form a protein that will be functional in a living cell. In other words, such a sequence is expedient, or final. If such a final sequence of 100 amino acid units is to be formed, a fortunate coincidence is once again necessary, this time with a probability of about 1 in 10^{65} . The compounded fortuity now required thus has a probability of 1 in ($10^{60} \times 10^{65} =$) 10^{125} . This probability, or rather improbability, is tantamount to finding one marked grain of sand thrown at random in the Sahara desert – three times in a row. Even the number 10^{65} previously mentioned corresponds, according to science, to the number of atoms in the entire known universe.

1.13 Natural Selection

¹It is clear that chance alone is an exceedingly bad explanation of how such expedient biological structures are formed as precede the genesis of living beings. The understanding of this has led some scientists to surmise that natural selection could help select among amino

acid chains to produce functional proteins, thus improving the otherwise extremely bad odds. Using such an argument, however, they just cause themselves new difficulties. First, even this natural selection, which they assume to have worked before the genesis of life, must have operated on the same material that they did not dare to entrust to chance, that is to say: on the very building blocks of life, the amino acids. Not even natural selection can run idle, but must have a ready material to work on. And it is the same mind-bogglingly improbable chance that must produce this material before natural selection can enter into the process.

²Second, natural selection requires some sort of replication of molecules, for otherwise the expedient structure obtained would be a unique phenomenon that would quickly disappear. But all replication systems known today are formed from complex and very specifically structured protein molecules. Of course, on this hypothesis, these systems must be formed by chance, since natural selection can start working on them only afterwards. However, the probability that such complex structures are formed by chance is even smaller than the probability discussed above, that of functional proteins being formed by chance. It is smaller because the complexity is greater. Therefore, they have suggested that perhaps the earliest replication system did not have to be very accurate or reliable and, therefore, that the system could use proteins that were not as specifically structured as the proteins found in organisms today. But such a lack of specificity produces “error catastrophes” that efface the accuracy of self-replication and eventually render natural selection impossible.

³It is obvious that attempts at explanation based on natural selection are far from surmounting the difficulties posed by chance as an explanation; quite the reverse, they aggravate them: trying to eliminate an exceedingly improbable chance factor by introducing an apparently expedient, or final, factor the genesis of which actually presupposes an even less probable chance factor.

1.14 Self-Organization

¹Since neither chance nor natural selection is sufficient as an explanation, it has been suggested that certain chemical systems have a property of, or a tendency to, self-organization. One amino acid would combine with another amino acid more easily than with others. Experiments that some researchers have made lend some support to this idea. Other researchers have found that such combinations are not more frequent than the ones arising through random probabilities. Furthermore it may be objected that if the properties of the twenty biological amino acids strongly determined the bonding of protein sequences, only a few kinds of proteins would be formed. But this is not the case; there are thousands of them.

²Self-organization of another kind happens when disordered molecules of a substance form crystals, for example when raindrops change into snowflakes (ice crystals). In scientific parlance this is called “spontaneously ordering near-equilibrium phase changes” (by “phase changes” are meant changes from the solid to the liquid state or conversely, by “equilibrium” is meant thermodynamic equilibrium, that is, the tendency to equalization of temperature down to the absolute zero point and immobility, heat death). When, for instance, the temperature of water sinks to the freezing point, the tendency of water molecules to interact in a disordered way ceases, and they link together in ordered patterns. In this phase transition, the water molecules tend toward a state of equilibrium. In doing so they move to where the potential energy is the lowest, and give up energy in the process. This can be illustrated by a pool table in which there is a large depression in the middle. If you tilt the table, lifting it at the corners, the balls will start moving, and roll down into the depression one by one. If you go on doing this, eventually they will all have gathered in the depression, touching each other, and being motionless. During this process energy has been lost – the process is therefore termed exothermic (Greek for “out-heating”, heat-consuming).

³The formation of complex biological molecules (biopolymers), however, is a process that in essential respects is the direct opposite of crystallization. It is a process that goes on far above thermal equilibrium. It is an endothermic (“in-heating”) process, which means that it occurs

while heat is added, so that the polymers obtained are at a higher energy potential than their original components. To return to the illustration of the pool table we say that it is as though this had a hump in the middle instead of a depression and that the balls, thanks to the additional energy generated by the process, were able to roll up on to the hump and then remain there.

⁴Actually, all living systems are characterized by the fact that the processes going on in them are endothermic, occur well above the state of equilibrium and require a continuous supply of energy to remain there. In contrast, equilibrium is connected with biological death. Attempts at explaining the origin of life by states of thermodynamic equilibrium thus are quite erroneous.

⁵Neither are phase changes such as water freezing into snowflakes relevant to processes that are necessary to generate biological information. Crystals display a high degree of order, that is true, but such an order is a repetition of simple patterns, such as the letter sequence ABABABAB. The order found in the biochemical components of living systems is not simple but highly complex and moreover very specific. This can once again be illustrated by letter sequences. The sequence ABABABAB is ordered, but it is neither complex nor specific, and does not convey information. The sequence ASDFGHJK is complex, it is true, but neither ordered nor specific, and does not convey information either. In contrast INTENTION is a sequence that is simultaneously ordered, complex, specific, and informative. Such a “specified complexity” is one of the characteristics of living systems and their components.

1.15 *The Problem of Life and Death*

¹What distinguishes living matter from lifeless matter? Or to give the problem a more definite formulation: What distinguishes a living organism from a dead one? Here I shall give a brief summary of what the teaching on the etheric envelope may contribute to the solution of this problem.

²In the last analysis physical death is connected with the cessation of heart activity. However, according to the esoteric teaching on the etheric envelope, the cessation of the activity of the organic heart is only a reflex action that occurs as the organism’s connection with a corresponding centre of the etheric envelope (quite logically called the heart centre) is severed, whereupon the etheric envelope immediately begins to separate itself from the organism, and the latter in consequence starts to decompose. According to this explanation, the etheric envelope, man’s physical energy central, is the factor necessary to make the organism a living being, to make its activity one single, extremely composite endothermic process. Or in other words: the etheric envelope supplies the life-sustaining energies to the organism. When this influx suddenly ceases, the organism dies as suddenly.

³French heart surgeon and esoterician Michel Bercot, M.D., considered it highly probable that the molecular mechanism conveying the impulse of death from the heart centre of the etheric envelope to the organic heart is the secretion of some hormonal substance, and that this could very well be discovered if it was sought for. This hormone would, for example, influence the calcium channels upon which the entire contraction work of the heart depends.

⁴There is a complete symmetry between the causal chain that activates the life of the newly formed organism and the one that directly brings about the death of the organism. In the fetus, the heart (the true organ, and not just the cardiac tissue in the fourth week of pregnancy) makes its first beats when it is attached to the heart centre of the etheric envelope, and in the dying person the heart makes its last beat when the same attachment is severed.

⁵It is necessary to clearly distinguish cause and effect. Science seeks for causes in the gross physical, the organic. But the causes of physical energies are in the etheric envelope. What we perceive as causes are only effects. In fact, the cause of death in the etheric envelope is an effect, too, namely the effect of an impulse that issues from a still higher energy envelope, the causal envelope (the *kāraṇa śarīra* of vedānta), man’s immortal soul.

⁶The death of the organism can also be described as a process in which its activity is reduced to increasingly lower levels of organization. The highest level is represented by the

organism as a functional, living, and perceiving whole and a unity. Death means that the organism loses its power of functioning as one single form, a whole and a unity. Expressed differently: it loses the principle that gives it life. The death of the organism is instantaneous, it is true. Yet some functions of life go on for a short time after; all the cells do not die simultaneously; hair and nails continue to grow, for example. Even after cellular death, there is some activity going on, though no longer on the biological level, but only on lower, chemical and molecular levels: decomposition. The process goes on implacably in one direction; it cannot be reversed once the organism has lost its life-giving principle. That principle is the etheric envelope. It is the presence or absence of the etheric envelope that makes the difference between a living organism or a piece of dead matter.

1.16 The Problem of Consciousness

¹If life and death can be defined as the presence and absence, respectively, of a life-sustaining energy principle, then this is not true of consciousness, however. In essence, consciousness is neither a material nor an energy phenomenon. Certainly material forms and structures are necessary to the expressions of consciousness in matter, and the same can be said of the turnover of energy as a necessary phenomenon concomitant to these expressions. The very consciousness or awareness, however, is the subjective experience independent of its expressions in matter and energy. Consciousness cannot be explained by categories taken from the conceptual realms of matter and energy. The phenomena of consciousness make up a category of their own. Consciousness is experienced subjectively directly, immediately, and unmediatedly; therefore, it must be said to be a particular aspect of existence.

²The thesis saying that the subjective experience of consciousness is identical with chemical and electrical processes going on in the brain is particularly absurd, since it implies that three aspects that can be directly observed and clearly distinguished by consciousness are reduced to two only. All reductionisms are very bad explanations, and this one is no exception to that rule.

1.17 Artificial Intelligence and Artificial Life

¹Contemporary research on the possibility of artificial intelligence (AI) and artificial life (Alife) has attempted to produce artificial models (“artefacts”) of life and living beings. Such attempts have not been successful. Rodney Brooks, researcher of the Artificial Intelligence Laboratory at Massachusetts Institute of Technology, summed up this negative experience:

²“Neither [research of] AI nor [that of] Alife has produced artefacts that could be confused with a living organism for more than an instant. AI just does not seem as present or aware as even a simple animal and Alife cannot match the complexities of the simplest forms of life... we are missing something fundamental and currently unimagined in our models... One possibility is that some aspect of living systems is invisible to us right now. The current scientific view of things is that they are machines whose components are biomolecules. It is not completely impossible that we might discover new properties of biomolecules, or some new ingredient... Let us call this the ‘new stuff’ hypothesis – the hypothesis that there might be some extra sort of ‘stuff’ in living systems outside our current scientific understanding... Other philosophers [Brooks mentions David Chalmers, who proposes that consciousness might be such a ‘new stuff’], both natural and religious, might hypothesize some more ineffable entity such as the soul or *élan vital* – the ‘vital force’.” (Rodney Brooks, “The Relationship Between Matter and Life”, *Nature*, 18 January, 2001).

1.18 On the Track of the Etheric Envelope: Modern Scientific Research

¹The survey made below is not exhaustive in any way, but only illustrative. I have selected a few researchers who can be said to have contributed something essential to the work of building a bridge to the study of the etheric envelope as such: Gurwitsch and his followers

Kaznachejev and Popp, Inyushin and Sedlak. Classical Chinese acupuncture must be characterized as a particularly important area of study. There the Korean researcher Kim is the big name. An interesting Western scientist was the American Burr.

²We must not expect, however, that the majority of scientists will attach any great importance to these findings or that significant breakthroughs are imminent. Academic dogmatism still is too strong. Nor are there very many researchers who have the courage to work in these unconventional areas, but there will certainly be much more of them in the future. A few drops of rain do not make the monsoon, but they presage it.

³For the survey made below I have made extensive use of Dr Vilhelm Schjelderup's and Dr Richard Gerber's presentations.

1.19 Alexander Gurwitsch's Hypotheses on Morphogenetic Fields

¹Russian histologist Professor Alexander Gurwitsch sought for answers to the question of how living organisms can function as coordinated, highly organized living systems and how animals and humans can develop according to a coherent plan from fertilized egg cells to complex and highly developed organisms. He did extensive research, being inspired by Hans Driesch's idea of how wholeness is superordinate and superior to all the component parts and is itself a real factor of development. He reached the conclusion that the form and inner structure of living organisms are determined by biological fields that correspond to the force fields studied by physics. He called these biological fields "morphogenetic fields" (from the Greek words *morphe*, "form", and *genesis*, "coming into existence").

²According to Gurwitsch's theory, morphogenetic fields are the cause of the form of the organism as well as of the forms of cells. During the development of the embryo and fetus, these fields control cell movement and cell division as well as cell differentiation to form new kinds of cells, so that tissues and organs can be formed in a regular manner. Also morphogenetic fields help coordinate vital functions of the finished organism, so that it can work as a whole.

³Gurwitsch considered that morphogenetic fields are physical and can be studied using biophysical methods. Consequently he tried to demonstrate the existence of morphogenetic fields by experiments. He made a very important discovery in 1923, when experimenting on onion plants. In the root tip of the onion there is an active growth zone, and Gurwitsch found that if he put an onion plant with its root tip close to the stalk of another plant, the result was that cell division (mitosis) increased in the latter. If he interposed a glass plate between the two plants, however, the cells of the second plant divided at a normal rate, that is: the phenomenon did not occur. But if he separated the two plants with a plate of quartz, cell division increased again. Gurwitsch concluded from this that the influence stimulating increased cell division that issued from the root tip of the onion could not be chemical in nature but had to be some kind of signals that are blocked by glass but admitted by quartz. Therefore, Gurwitsch thought that some sort of ultra-violet electromagnetic radiation must be active in this phenomenon, that is to say: some sort of invisible light. He called the radiation he had discovered "mitogenetic radiation", since it obviously stimulates mitosis, that is cell division.

⁴Gurwitsch called the phenomenon that he had discovered "biological induction". Induction is a universal electromagnetic phenomenon, which means that oscillations in a circuit or in a field can induce oscillations in another circuit, apparently independently of the distance. For induction to yield a real effect, however, there must arise a resonance between the two fields. Biological induction presupposed "biological resonance".

⁵The word "resonance" is derived from the Latin word *resonantia*, which means "echo". Resonance is an important general energy phenomenon occurring universally and in the most varied forms. For example, if two well-tuned guitars are placed in opposite corners of the same room and a string of one guitar is struck, a faint tune can be heard from the corresponding string of the other guitar. Radio is another example of the technological application

of the phenomena of induction and resonance: in a circuit of the transmitter an oscillation is produced which is repeated through resonance in a corresponding circuit of the receivers. If life is an energy phenomenon, then there must be biological resonance as well.

⁶Gurwitsch considered that there must be a very strong resonance between the ultraviolet radiation emitted by the cells of the onion root tips and the electromagnetic oscillations circuits of the receiving cells. Gurwitsch concluded that biological resonance must be an important, fundamental principle of communication between living cells within an organism as well as between organisms. However, using his measuring instruments he could not detect the very radiation, only its results.

1.20 Followers of Gurwitsch Make Further Discoveries

¹In the years 1925–1927, physicist Dennis Gabor and physician T. Reiter, both working in Berlin, made more than 125 experiments that confirmed the findings of Gurwitsch. Moreover, they found that cancer cells emit a strong mitogenetic radiation, that mitogenetic radiation is reflected against a glass plate and that it is refracted when passing from one medium to another, just as light does. This prompted them to conclude that it must be a case of ultraviolet radiation of wavelengths near visible light.

²Neither did Gabor and Reiter succeed in directly measuring the very faint radiation, however. Only in 1954, a team of Italian researchers managed to do this using photo-electric amplifiers. They were ignorant of the discovery of Gurwitsch 31 years before, when they proclaimed that they had found an exceedingly weak light radiation emitted by living cells, and gave mitogenetic radiation the new name, “ultraweak bioluminescence”.

³In Russia, however, Gurwitsch was not forgotten, but there the pioneer had many followers. Biologist Boris Tarusov worked on plants and discovered that mitogenetic radiation was not constant but ever-changing. Sometimes there were literal eruptions of radiation from plants. To Tarusov it appeared as though plants emitted signals, and consequently he tried to decipher them. He found that the radiation displayed definite patterns, which occurred when the plant had received too much or too little water, salts, or fertilizers at their roots. Other radiation patterns were associated with disease in the plants. Such pathological changes in cell radiation occurred already before the plant demonstrated visible symptoms of disease.

⁴The definitive proof of the existence of ultraweak cell radiation was delivered by Russian biophysicist S.V. Koniev in 1967. He succeeded in demonstrating that this radiation falls within the ultraviolet, the visible, and the adjacent part of the infrared spectre. The radiation is very weak, in the order of 100 to 1000 photons per cm² and second (ordinary daylight is 10¹⁶ times stronger). It should be emphasized, however, that these measurement results were obtained at some distance from the emitting cells. Within tissues, that is: between cells, the radiation should be considerably stronger.

⁵Another follower of Gurwitsch, Russian physiologist Vlail Kaznachejev, in the 1960-ies succeeded in demonstrating that diseases can be proliferated through mere cell radiation. He separated two cell cultures through a partition wall made of quartz and so prevented them from coming in chemical contact with each other. After he had contaminated the one culture with a virus, the cells of the other culture, too, were infected, and almost as rapidly as the first culture. In 1981 Kaznachejev and his co-workers presented the results of more than 10 000 experiments. It appeared that transmission of disease through ultraviolet radiation could be confirmed through microscopic examination of the cells in 80 per cent of the cases studied. Chinese researchers making the same kind of experiments have obtained similar results.

⁶In recent times, German biophysicist, Professor Fritz-Albert Popp, is one of the most important researchers and theoreticians in the field of cell radiation. In 1976, he put forward a theory according to which every living cell is surrounded by a field of two standing waves that are at right angles to each other: an electromagnetic wave of a frequency corresponding to infrared light and a sound wave (which could also be an electromagnetic wave of a lower

frequency). Popp thinks that these cell wave fields control and regulate practically all biological information at the cell level, such as the one eliminating disturbances in the internal workings of the cell, controlling biological processes, regulating growth, determining how cells are differentiated, and controlling biochemical reactions. He explains cancer as a permanent disturbance of this transmission of biological information.

1.21 *The Theory of Biological Plasma*

¹The theory of biological plasma was elaborated by Russian scientist Professor V.M. Inyushin and Polish scientist Professor W. Sedlak.

²Modern physicists study, besides solids, liquids, and gasses, also a fourth state of aggregation of physical matter, that is: plasma. In so doing, they have in practice started to penetrate into what is the ether, according to the classical definition.

³A plasma consists of charged particles that move about freely. The ionized gasses in a flame of fire are an example of a plasma, the ionized atoms and elementary particles in the interior of stars are another example, as are the atoms and molecules dispersed in outer space. In a plasma, the numbers of negatively and positively charged particles are equal, so that the plasma as a whole has a neutral electrical charge. The processes going on in a plasma are collective by nature, so that the plasma functions as a whole.

⁴Plasma states occur not only at very high temperatures and in gasses, but also at the relatively low temperatures at which organic life functions, and in solids as well as in colloids. For example, the loosely bound particles in electrical semi-conductors are plasma. The theory of biological plasma, or bioplasma, essentially deals with such a semi-conductive plasma.

⁵In 1941 prominent Hungarian physiologist, Professor Albert Szent-Györgyi declared that he had come to the conclusion that it would never be possible to explain life processes by biochemical principles only. In Prof. Szent-Györgyi's opinion, an important factor was missing, which could be electricity, but not of the kind known up to then, but semiconductor electricity. He also predicted that certain biologically important molecules would be shown to be semiconductors.

⁶Prof. Szent-Györgyi was right in his prediction. Protein molecules and many other biologically important molecules have proved to work as semiconductors. According to Prof. Sedlak, also the organs in the interior of cells (so-called cell organelles) such as the endoplasmic reticulum, mitochondria, and Golgi apparatus. The mitochondria, in particular, which function as the energy generators of the cells, have an inner structure that make them pump electrons.

⁷These modern findings thus make it possible to view living cells, tissues, and organisms as composite electronic systems in which free electrons move about in an electronic process, which is coordinated and which itself coordinates the biochemical material of which the living organism consists. Thus the electronic system controls the chemical-biological one. It is precisely this coordination of the physiological processes that, according to Prof. Szent-Györgyi, is so difficult to explain by biochemistry alone. Living tissues and organisms function as wholes and, in addition, are able to regulate and heal themselves. These are abilities that surpass mere biochemical processes but also surpass what a mere physical plasma is able to do. That is why, according to Inyushin and Sedlak, it is justified to introduce the theory of bioplasma.

⁸An ordinary physical plasma is chaotic and unstructured. In contrast, a bioplasma is ordered and highly structured thanks to interaction between electronic processes and the complex electromagnetic field generated by these processes. An ordinary physical plasma is characterized by high temperature and chaotic thermic (heat-producing) motions of component particles. What characterizes a bioplasma, on the other hand, is that the charged particles are ordered in space and that their thermic motions are minimal. Theoretically, therefore, a bioplasma can have a temperature close to the absolute zero point. Actually this is a condition of the high degree of order and structure existing in living organisms. Inyushin calls bioplasma "crystalline plasma" to emphasize the fact that it is bound in an ordered

structure like atoms in a crystal grid.

⁹Thus the theory of bioplasma is also about the idea that energy that carries information must control biochemical processes for living cells, tissues, and organisms to arise and function, and that this information-carrying energy is transferred not only as semiconductor electricity but also as electromagnetic fields and electromagnetic radiation. According to the theory, the bioplasma is the physical groundwork or the basic biophysical matrix of all life, or to quote Prof. Sedlak:

¹⁰“Bioplasma would thus constitute the ultimate substrate of both chemical and electronic processes, as well as a carrier of all information within the system. From the bioelectrical point of view, the transfer of information within the living organism is not confined to the nervous and hormonal system; this information is more general, more selective, more efficient and has an electromagnetic nature.

¹¹Electromagnetic fields are entities best suited for controlling plasma. The introduction of the concept of bioplasma adds much to what has previously been known from bioelectronics about the nature of the living system and the principles of its internal coordination. The essence of life lies in the behaviour of electric particles and electromagnetic fields.”

1.22 Acupuncture

¹In Chinese traditional medicine and health culture (taijiquan, qigong), the doctrine of qi is central. By the word qi (氣, pronounced approximately ch-hi, rhyming with “he”, not with “high”) is meant a subtle energy that pervades all nature, nurturing, building, and affording health to all living creatures. According to the Chinese theory, there is, deep within the tissues of the body, an invisible network, a system of so-called meridians through which qi is flowing. There is of old a system of medical treatment, which has only recently begun to be considered in the West: acupuncture or needleprick therapy.

²Those who practise budō (武道), Japanese martial arts, are familiar with the teaching on ki, the vital force of the organism, both in theory and practice. The name aikidō (和氣道) of a certain branch of budō actually means the “path to harmony with ki”. The Japanese mean by ki precisely the same as the Chinese by qi. The Japanese word is in fact borrowed from Chinese and is written with the same character as in Chinese. The Chinese qi and the Japanese ki is the same energy as the ancient Indians called prāna, etheric vital force.

³Qi enters the body through definite points on the meridians, and these entry points on the skin are punctured by a needle to stimulate the free flow of qi. The theory says that when this flow is impeded or becomes unbalanced, dysfunctions arise in some organ or organ system.

⁴From ancient times it has been thought that there are twelve pairs of meridians connected with different organ systems in the body. The Chinese call those meridians jing (經).

1.23 Acupuncture Theory Confirmed by Modern Research

¹In the conventional medicine of the West, acupuncture has been viewed almost exclusively as a method for alleviating pain. In its ignorance of, even inability to understand, the etheric envelope and its energies and their importance for health and disease, western medicine, in attempts at explaining how acupuncture is able to alleviate pain, has restricted itself to theories of nerve stimulation and endorphin release within the central nervous system. The Chinese doctrine of qi and jing, vital energy and meridians, has been dismissed.

²Researchers applying modern methods, however, have clearly demonstrated the existence of the meridian system. In the 1960-ies in Korea, a team of researchers headed by Professor Kim Bong Han experimented with the acupuncture meridians of animals. Professor Kim injected a radioactive isotope of phosphorus into an acupoint of a rabbit and found that the isotope was actively taken up by a system of very fine (approximately 0,5–1,5 μm in diameter) ducts, so-called tubules, which followed the path of the traditional meridians. When

Prof. Kim injected the isotope into a vein near the tubule, this had scarcely any effect at all on the tubule network, which shows that this duct system is independent of the vascular network.

³French researcher Pierre de Vernejoul and others have confirmed Prof. Kim's findings in human beings. De Vernejoul injected a radioactive isotope of technetium into the acupoints of patients, and found that the isotope migrated along meridians for a distance of 30 cm in 4–6 minutes. Injection of the isotope at random points on the skin, as well as injection into veins and lymphatic channels, did not yield comparable results, and so further confirmed that the meridian system does not have any close connection with those other circulatory systems but is a system of its own.

⁴In his studies of the fine ductule system in rabbits, Prof. Kim found that this system actually consists of two, a superficial and a deep system. In its turn, the deep system consists of various subsystems.

⁵One of the deep subsystems, which he called the internal duct system, is floating freely within the blood and lymphatic vessels, even cutting through those systems and penetrating the walls of blood and lymphatic vessels. Fluids travel in the internal duct system in the same direction as the blood and the lymph, but sometimes in the opposite direction. These facts once again suggest that the duct system has another origin than the blood and lymphatic systems, and that probably it was formed earlier in embryogenesis than the blood and lymphatic vessels. If the duct system is already there when the blood and lymphatic vessels are formed, the latter would probably grow around and through the ducts, or meridians, so that these appear to penetrate the vessels, entering and leaving them.

⁶A second duct system was called the intra-external duct system by Prof. Kim. These ducts are found along the surface of the internal organs and appear to form a network which is entirely independent of the blood, lymphatic, and nervous systems. A third duct system, the external duct system, was found to run alongside the outer surface of the walls of blood and lymphatic vessels. These ducts are also found in the skin and are known there as the superficial duct system. This latter system is the one usually used in classical acupuncture treatment. A fourth system, the neural duct system, follows the central and peripheral nervous systems.

⁷All the duct systems were eventually found to be interconnected via the terminal ductules of the different systems. This interconnectedness is similar to the arterio-venous link at the capillary tissue-bed level. Prof. Kim discovered that the terminal ductules of the meridian systems reach the tissue cells' nuclei, which are the genetic control centres of the cells. He also found special corpuscles spaced at intervals along the meridians. Those corpuscles, in the superficial duct system, seem to lie beneath, and correspond with, the acupoints.

⁸Fluid extracted from these tubules revealed high concentrations of DNA, RNA, amino acids, hylauronic acid, free nucleotides of sixteen types, adrenaline, corticosteroids, estrogen, and other hormonal substances in levels far higher than those ordinarily found in the bloodstream. For instance, the concentration of adrenaline in the meridian fluid was twice that of the bloodstream, and in an acupoint over ten times the blood level. This suggests some connection between the meridian system and the endocrine glands.

⁹Prof. Kim also made experiments that demonstrated the importance of continuous meridian flow via the deep meridians to particular body organs. He severed the meridian going to the liver in a frog and studied subsequent microscopic changes in the liver tissue. Shortly after the operation, the hepatocytes enlarged and their cytoplasm became very turbid. Within three days, blood vessels throughout the whole liver had undergone a serious degeneration. He also studied changes in neural reflexes when perineural meridian ducts were severed. Within 30 minutes of severing those ducts, reflex time was prolonged by more than 500 per cent, and this new reaction pattern persisted beyond 48 hours. These studies would tend to confirm the classical Chinese acupuncture theory saying that the meridians provide a specialized nutritive flow to the organs of the body.

¹⁰On the basis of many experiments Prof. Kim concluded that the meridian system is

connected with all cell nuclei of the tissues. In studies of chicken embryos he found that the meridian ducts were formed within fifteen hours of conception, thus at a time when even the most rudimentary organs had not yet been formed. From these two findings it should be possible to conclude that the meridian system exerts a decisive influence on where the organs under development are placed in the body. Since the meridians are connected to the genetic control centre of each cell, they should have important functions in both replication and differentiation (specialization) of the cells.

1.24 Further Findings: Burr

¹The findings of Prof. Kim can be compared with the results obtained by American Dr. Harold Saxton Burr. Dr. Burr was an expert on the anatomy of the nervous system working at Yale University. In the 1940-ies, Burr was studying the energy fields surrounding living creatures, both animals and plants. When experimenting with salamander embryos, he found that while not at all resembling adult animals they nevertheless possessed a force field roughly shaped like the adult animal. He also discovered that this force field had an electrical axis, which coincided with the brain and spinal cord. Dr. Burr sought to trace the origin of this force field and so measured it in ever younger embryos. When doing this he found that the electrical axis existed already in the unfertilized egg. This fact flatly contradicted the theories prevalent in biology in genetics. Using ink-marking with a micropipette, Dr. Burr succeeded in showing that the electrical axis in the unfertilized cell was identical with the axis in the embryo and in the adult animal.

²Dr. Burr also experimented with the electromagnetic fields surrounding tiny seedlings. In this he obtained results resembling those from the salamander embryos. The force fields around sprouts did not have the shape of the tiny growing plant, but that of the adult plant. From Dr. Burr's results we can draw the general conclusion that any organism developing into an adult individual is predestined to acquire a certain form and that the cause of this predestination is in the electromagnetic field surrounding the individual from its genesis.

1.25 Comparing the Findings of Kim and Burr

¹If the findings of Prof. Kim are compared with those of Dr. Burr, it may be concluded that the meridian system is a connecting link between the organic and electromagnetic aspects of a living being, that is to say, a mediating system between the organism and the etheric envelope. In its genesis, the meridian system precedes the organs and tissues of the body, and the electromagnetic etheric envelope, in its turn, precedes the meridian system. The meridian system supplies cellular nuclei with information about how they are to develop individually. The etheric envelope, in its turn, informs the meridian system. Borrowing a term from computer science, you could call the meridian system an interface between the etheric and the organic. This conclusion is supported by the fact that the meridian system is the carrier of both qi, or etheric vital force, and the organic substances proper to the body.

²The fact that electromagnetic energy is conveyed through the meridian system is clear also from results obtained when measuring electrical resistance in and around acupoints. Several researchers have found that this resistance at the acupoints is nearly twenty times less than the resistance in their surroundings. A well-known law of nature says that force travels the path of least resistance. Water, making up about two thirds of the body weight, is a good conductor of gross physical as well as etheric electrical energies.

³Using electronographic body scanning technology, Romanian researcher Dr. Ion Dumitrescu has found that changes in brightness of acupoints precede the onset of disease by hours, days, and even weeks. This is in agreement with the esoteric teaching that organismal disease is preceded by pathological changes in the etheric envelope, and with the traditional Chinese teaching that disease is caused by energetic imbalance in the meridians supplying the organs of the body

with vital force, qi. The changes in the meridian system reflect dysfunctions that have already occurred in the etheric envelope and only later appear in the organism as disease.

1.26 Summary and Conclusion

¹In the 20th century much important research was done on life phenomena that are at the borders of the gross physical, or organic, and the etheric, or energetic. Summing up the findings obtained through this research, the following might be said:

²There is in living organisms an energetic subtle structure that is somewhat independent of the organism and in time precedes the genesis of the organism.

³Both the form and inner structure of living organisms and cells are determined by biological fields that correspond to the force fields studied in physics.

⁴It is these biological morphogenetic fields which, during the development of the embryo and fetus, direct the movements and divisions of the cells as well as their differentiation to form new kinds of cells, so that tissues and organs can be formed according to the plan. Also morphogenetic fields help to coordinate the vital functions of the completed organism, so that it can function as a whole.

⁵Morphogenetic fields are physical and can be studied using biophysical methods.

⁶Biological induction presupposes “biological resonance”. If life is an energetic phenomenon, then such a biological resonance must exist as well.

⁷The proper radiation of cells is a real phenomenon. This is some kind of light which to all appearances is important to the communication between cells and also can transmit disease.

⁸The introduction of the theory of biological plasma has added much to our understanding of the nature of morphogenetic fields. This theory is essentially about a semi-conductor plasma, a bio-electronic system controlling chemico-biological processes. This electronic system must convey an energy-carrying information. On this theory, bioplasma is the physical groundwork or the fundamental bio-physical matrix of all life: “The essence of life lies in the behaviour of electric particles and electromagnetic fields.” (Sedlak)

⁹So far this presentation of what pioneers in the scientific research of our times have discovered. Probably, science approached the point where it will be forced to admit the existence of the etheric envelope, as it will prove to be far more difficult to deny it than to recognize it.

¹⁰Esoterics offers a comprehensive explanation of the phenomena of life. Modern philosophers and scientists are not in a position to understand the importance of hylozoics as a working hypothesis. When research has advanced so far, however, that the existence of a particular physical etheric world has been recognized and the existence of an etheric envelope attached to the organism has been discovered, so many other discoveries and so many confirmations of the facts of esoterics will follow suit that many people will accept hylozoics as the best working hypothesis.

The above text constitutes Section One of the book *The Etheric Envelope* by Lars Adelskog. Translated from the Swedish by the author. Copyright © by Lars Adelskog 2005.