

THE COSMOLOGY  
OF MAN'S  
POSSIBLE EVOLUTION

## FOREWORD

'After this Gurdjieff went on to explain man's various functions and centres controlling these functions in the way that they are set out in the psychological lectures. These explanations and all the talks connected with them, took a fairly long time... there is no possibility of giving all these talks in the way they actually took place. For this reason I collected all the psychological and all the cosmological material in two separate series of lectures.

In this connection it must be noted that the ideas were not given us in the form in which they are set out in the lectures.'

P. D. Ouspensky, *In Search of the Miraculous, Fragments of an Unknown Teaching* (pp. 54-5 English text)

# CONTENTS

## *Foreword*

### THE COSMOLOGICAL LECTURES

#### *FIRST LECTURE*

*p. 3*

Fundamental laws of the universe. The law of three principles or three forces. Necessity of three forces for the appearance of a 'phenomenon'. The third force. Why we do not see the third force. Three forces in ancient teachings. The creation of the world by the will of the Absolute. A chain of worlds, or the Ray of Creation. The number of laws in each world.

#### *SECOND LECTURE*

*p. 21*

The Ray of Creation and its growth from the Absolute. A contradiction of scientific views. The moon as the end of the Ray of Creation. The will of the Absolute. The idea of miracle. Our place in the world. The moon feeds on organic life. The influence of the moon and liberation from the moon. Different 'materiality' of different worlds. The world as a world of 'vibrations'. Vibrations slow down proportionately to the distance from the Absolute. Seven kinds of matter. Fragments of ancient teachings. The study of relativity. Where is the earth? The three forces and the cosmic properties of matter. Atoms of complex substances. Definition of a substance according to the forces manifested through it. 'Carbon', 'oxygen', 'nitrogen', and 'hydrogen'. The three forces and the four matters.

#### *THIRD LECTURE*

*p. 38*

The study of man is parallel to the study of the world. Following upon the *law of three* comes the fundamental law of the universe. The *law of seven* or the *law of octaves*. The absence of continuity in vibrations. Necessity for additional shocks. What occurs in the absence of additional shocks. *Octaves*. The seven tone scale. The law of intervals. In order to *do* it is necessary to be able to control additional shocks. Inner octaves. Organic life in the place of an

'interval'. Planetary influences. The lateral octave sol-do. The meaning of the notes la, sol, fa. The meaning of the notes do, si. The meaning of the notes mi, re. The role of organic life in changing the earth's surface.

#### *FOURTH LECTURE*

*p. 65*

The process of creation never stops. Influences are transmitted down the Ray of Creation by radiations. The Three Octaves of Radiation: Absolute to sun, sun to earth, and earth to moon. The universe considered in this form explains matters and forces of different planes of the world as they relate to our own life. 'Intervals' in the three octaves. 'Shocks' that fill the intervals. The concept of 'a point in the universe'. The 'frequency of vibrations' of matters is opposite to their densities. According to the law of three, twelve triads produce hydrogens of densities ranging from 6 to 12288. 'Hydrogens' represent categories of matter. Graduation of the universe from the Absolute to the moon. Modification of this scale to correspond with matters found in the human organism. Revised table of hydrogens to classify matter in relation to life and to the functioning of our organism.

#### *FIFTH LECTURE*

*p. 82*

Categories of matter in the table of hydrogens. Each hydrogen represents a definite 'cosmic group'. Table of atomic weights. Concept of an 'atom'. Man's functions in relation to planes of the universe. To 'do' anything requires the right kind and amount of energy. The human mechanism is designed to produce a very large output of energy by transforming coarse matters into finer ones. In normal life circumstances, the output of energy never reaches its full potential. The human organism is sustained by three kinds of 'food': physical food; air; and impressions. The two processes by which this 'food' is transformed: automatically, to stay alive; and consciously, to fulfil our potential.

Normal limit of energy production in the human organism. Possibility of increased energy. First conscious shock. Attracting fine substances. Second conscious shock. Three-storied factory and the centres. Alchemy as allegory. Transformation of the emotions. Work of higher and lower centres. Purposes of the hydrogens in our organism. It is the lower centres that are undeveloped. Higher centres inaccessible. Production and use of energy to connect the lower centres to the higher. All psychic processes are material.

'Our aim must be to construct a new, more correct and more living picture of the world. Whether we achieve this aim does not depend on our volition. But it does depend on us whether we seek it. And this work of seeking is necessary whether or not it be crowned with success today or tomorrow. For even if someone came today who knew the answer to all unsolved problems, we should not understand him if our own need had not already driven us to put the questions which he answers. No help comes where need has not been felt.'  
(C. F. von Weizsacker, *World View of Physics*)

The texts that follow are taken from the manuscripts P. D. Ouspensky used when he was lecturing. They are now in the library of Yale University in the United States of America.

In the manuscripts the first three lectures are quite clear together with Ouspensky's characteristic of starting a chapter with a neat and immaculate summary of it.

However, the last three lectures in the manuscript all come under the heading 'Lecture Four', and have no summary. But from the experience of attending these lectures in the London of the 1930's they were given as three lectures. And so they have been given to the reader, with summaries.

# THE COSMOLOGICAL LECTURES

## *FIRST LECTURE*

### MAN AND THE WORLD

Fundamental laws of the universe. The law of three principles or three forces. Necessity of three forces for the appearance of a 'phenomenon'. The third force. Why we do not see the third force. Three forces in ancient teachings. The creation of the world by the will of the Absolute. A chain of worlds, or the Ray of Creation. The number of laws in each world.

**E**very system of philosophy and every serious student at a certain stage of their work or development must come to the conclusion that it is impossible to study man without the study of the universe, exactly as it is impossible to study the universe without the study of man. Man is an image of the world. He was created by the same laws which created the whole of the world. By knowing and understanding himself, he will know and understand the whole world, all the laws that create and govern the world. And at the same time, by studying the world and the laws that govern the world, he will learn and understand the laws that govern him. In this connection some laws are understood and assimilated more easily by studying the objective world, while man can only understand other laws by studying himself. The study of the world and the study of man must therefore run parallel, one helping the other.

In relation to the term 'world' it is necessary to understand from the very outset that there are many worlds, and that we live not in one, but in several worlds. This is not readily understood because in ordinary language the term 'world' is generally used in the singular and if the plural 'worlds' is used, it is used merely to emphasise, as it were, the same idea, or to express the idea of various worlds existing parallel to one another. Our language does not have the idea of worlds contained one within the other. And yet the idea that we live in different worlds precisely implies worlds contained one within another to which we stand in different relations.

If we desire an answer to the question 'what is the world or worlds in which we live?' we must first of all ask ourselves what it is that we may call world in the nearest and most immediate relation to us.

To this we must answer certainly that we give the name of world to the world of man, to humanity, of which we form a part. But humanity forms an inseparable part of organic life on the earth, therefore it would be right to say that the world nearest to us is *organic life on the earth*, the world of man, animals and plants.

But organic life is also in the world. What then is the world for organic life?

To this we can answer that for organic life our planet, the earth, is world.

But the earth is also in the world. What then is world for the earth?

The world for the earth is the *planetary world* of the solar system, of which it forms a part.

What is the world for all the planets taken together?

Certainly the *sun*, or the sphere of the sun's influence, or the solar system, of which the planets form a part.

For the sun in its turn, the world is our world of stars, or the *Milky Way*, an accumulation of a vast number of solar systems.

Furthermore, from an astronomical point of view, it is quite possible to presume a multitude of worlds existing at enormous distances from one another in the space of '*all worlds*'. These worlds taken together will be 'world' for the *Milky Way*.

Further, passing to philosophical conclusions, we may say that 'all worlds' must form some, for us, incomprehensible and unknown *Whole* or *One* (as an apple is one). This *Whole*, or *One*, or *All*, may be called the *Absolute* or the '*Independent*', because, including everything within itself, it is not dependent on anything. This is world for 'all worlds'. Logically it is quite impossible to think of a state of things where *All* forms a single whole. Such a whole will certainly be the *Absolute*, which means the *Independent*, because it, that is, the *All*, is infinite and indivisible.

The *Absolute*, that is, the state of things when the *All* constitutes one whole is, as it were, the primordial state of things, out of which, by division and differentiation, arises the diversity of the phenomena observed by us.

Man lives in all these worlds but in different ways.

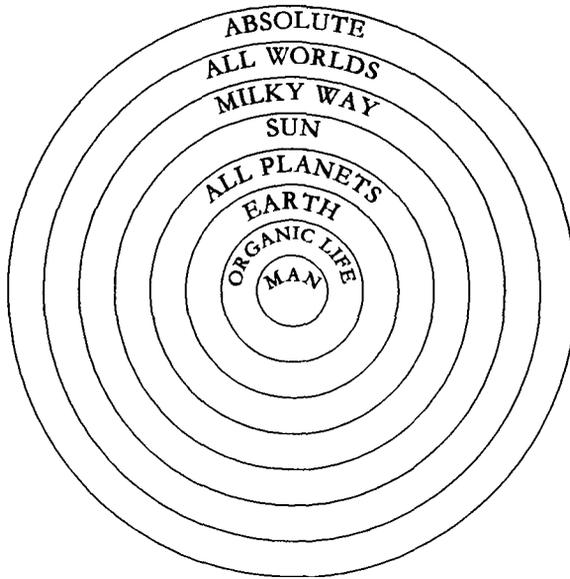


Figure 1:  
The worlds  
in which  
man lives.

This means that he is first influenced by the *nearest* world, the one immediate to him, of which he forms a part. Worlds further away also influence man, directly as well as through other intermediate worlds, but their action is diminished in proportion to their remoteness or to the increase in difference between them and man. As will be seen further on, the *direct* influence of the Absolute does not reach man. But the influence of the next world to the Absolute, and the influence of stars, sun and planets are already perfectly clear in the life of man, although many of these influences are certainly unknown to science.

But before examining these influences we must examine the *fundamental law* that creates all phenomena in all the diversity or unity of all universes.

This is the law of *Three Principles* or *Three Forces*. Every phenomenon, on whatever scale and in whatever world it may take place, from molecular to cosmic phenomena, is the result of the combination or meeting of three different and opposing forces. Contemporary thought realizes the existence of two forces and the necessity of these two forces for the production of a phenomenon: force and resistance, positive and negative magnetism, positive and negative electricity, male and female cells, and so on. But it does not observe even these two forces always and everywhere. No question has ever been raised as to the third force, or if it has been raised it has scarcely been heard.

According to real, exact, or objective knowledge, one force, or two forces can never produce a phenomenon. The presence of three forces is necessary, for it is only with the help of the third force that the first two can produce what may be called a phenomenon, no matter in what sphere.

The teaching of the three forces is at the root of all ancient systems. The first force is called *active* or *positive*; the second, *passive* or *negative*; the third *neutralising*. But these are merely names, for in reality all three forces are equally active and appear as active, passive and neutralising only at their meeting points, that is to say, *only in relation to one another at a given moment*. The first two are more or less comprehensible to us and the third may sometimes be discovered either at the point of application of the forces, or in the 'medium', or in the 'result'. But, speaking in general, the third force is not easily accessible to direct observation and understanding. The reason for this is to be found in the functional limitations of man's ordinary psychological activity and in the fundamental categories of our perception of the phenomenal world,

that is, in our sensation of space and time resulting from these limitations. People cannot perceive and observe the third force directly any more than they can spatially perceive the fourth dimension.

But by studying himself, the manifestations of his thought, consciousness, activity—his habits, desires etc.—man may learn to observe and to see in himself the action of the three forces. Let us suppose, for instance, that a man decides to work on himself in order to change certain of his characteristics, to attain a higher level of being. His desire, his initiative, is the active force. The inertia of all his habitual psychological life which shows opposition to his initiative will be the passive or the negative force. The two forces will either counterbalance one another, or the opposing one will completely conquer the other, but, at the same time, become too weak for any further action. Thus the two forces will, as it were, revolve one around the other, one absorbing the other and producing no result whatever. This may continue for a lifetime. A man may feel desire and initiative, but all this initiative may be absorbed in overcoming the habitual inertia of life, leaving nothing for the purpose to which the initiative ought to be directed. And so it may go on until the third force makes its appearance, in the form, for instance, of *new knowledge*, showing at once the advantage or the possible results or the necessity of work on oneself and, in this way, supporting and strengthening the initiative. Then the initiative, with the support of this third force, may conquer inertia and the man become active in the desired direction.

Examples of the action of the three forces and the moments of entry of the third force may be discovered in all manifestations of our psychic life, in all the phenomena of the life of human communities and of

humanity as a whole, and in all the phenomena of nature around us.

But at the beginning it is enough to understand the general principle: every phenomenon, of whatever magnitude it may be, is inevitably the manifestation of three forces; one or two forces cannot produce a phenomenon, and if we observe a stoppage in anything, or an endless hesitation at the same place, we can then say that, at the given place, the third force is lacking. In trying to understand this, it must be remembered at the same time that people cannot observe phenomena as manifestations of three forces because they cannot observe the objective world in our subjective states of consciousness. And in the subjectively observed phenomenal world we see, in phenomena, only the manifestations of one or two forces. If we could see the manifestation of three forces in every action, we should then see the world as it is (things in themselves); only it must be remembered here that a phenomenon which appears to be very simple may actually be very complicated, that is, it may be a very complex combination of triads. But we know that we cannot observe the world as it is and this should help us to understand why we cannot see the third force. The third force is a property of the real world. The subjective or phenomenal world of our observation is only relatively real, at any rate it is not complete, because we see only a part of it.

Returning to the world in which we live, we may now say that in the Absolute, as in everything else, three forces are active: the active, the passive and the neutralising forces. But since by its very nature everything in the Absolute constitutes one whole, the three forces also constitute one whole. Moreover, in forming one

independent whole, the three forces possess a full and independent will, full consciousness, full understanding of themselves and of everything they do.

The idea of the unity of the three forces in the Absolute forms the basis of many ancient teachings—consubstantial and indivisible Trinity, Trimurti, Brahma, Vishnu and Siva, etc.

The three forces of the Absolute, constituting one whole, separate and unite by their own will and by their own decision, and at the points of junction they create phenomena, or 'worlds'. These worlds, created by the will of the Absolute, depend entirely upon this will in everything that concerns their own existence. In each of these worlds the three forces again act.

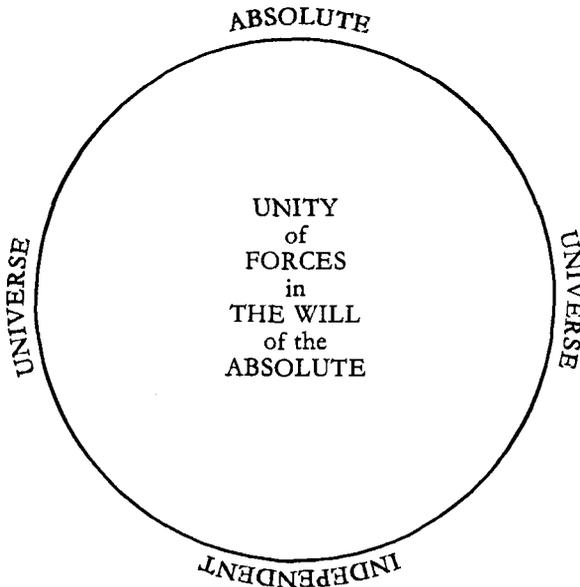


Figure 2: The Law of Three Forces.

*World one.*

World of the First Order-Absolute.

The unity of three forces in one Will forming one independent whole designated as *world one* according to the laws to which it is subject—the Will of the Absolute.

Since, however, each of these worlds is now not the whole, but only a part, the three forces in them do not form a single whole. It is now a case of three wills, three consciousnesses, three unities. Each of the three forces contains within it the possibility of all three forces, but at the meeting point of the three forces each of them manifests only one principle—active, passive or neutralising. The three forces together form a triad which produces new phenomena. But this triad is different, it is not that which was in the Absolute, where the three forces formed an indivisible whole and possessed one single will and one single consciousness. In the worlds of the second order the three forces are now divided and their meeting points are now of a different nature. In the Absolute, the moment and the point of their meeting is determined by their single will. In the worlds of the second order, where there is no longer a single will but three wills, the points of issue are each determined by a separate will, independent of the others, and the meeting point therefore becomes *accidental or mechanical*. The will of the Absolute creates the worlds of the second order and governs them, but it does not govern their creative work, in which a mechanical element makes its appearance.

Let us imagine the Absolute as a circle and in it a number of other circles, worlds of the second order. Let us take one of these circles. The Absolute is designated by the number 1, because the three forces constitute one whole in the Absolute, and the small circles will be designated by the number 3, because in a world of the second order the three forces are already divided.

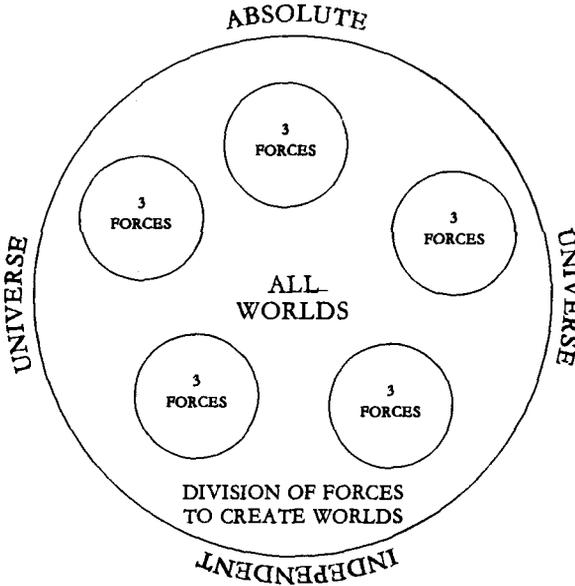


Figure 3: The Law of Three Forces.

*World three.*

Worlds of the Second Order-*All Worlds.* Birth of the laws of the Universe.

Designated as *World Three* according to the laws to which it is subject-the Three Forces.

The three divided forces in the worlds of the second order, meeting together in each of these worlds, create new worlds of the third order. Let us take one of these worlds. The worlds of the third order, created by the three forces acting semi-mechanically, no longer depend on the single will of the Absolute, but upon three mechanical laws. These worlds are created by three forces and having been created they manifest three new forces of their own.

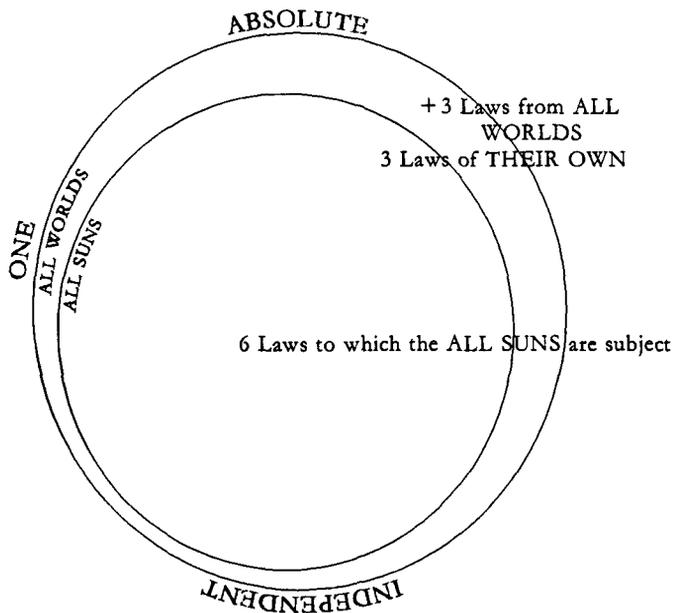


Figure 4:  
The Law of  
Three  
Forces.

*World six.*  
Worlds of  
the Third  
Order-All  
Suns.

Designated  
as *world six*  
according  
to the laws  
to which it  
is subject.

Thus the number of forces acting in the worlds of the third order will be six. On the diagram, the circle of the third order is designated by the number 6 (3 + 3). In these worlds are created worlds of a new order, the fourth order. In the worlds of the fourth order, there act three forces of the world of the second order, six forces of the world of the third order and three of their own, twelve forces altogether.

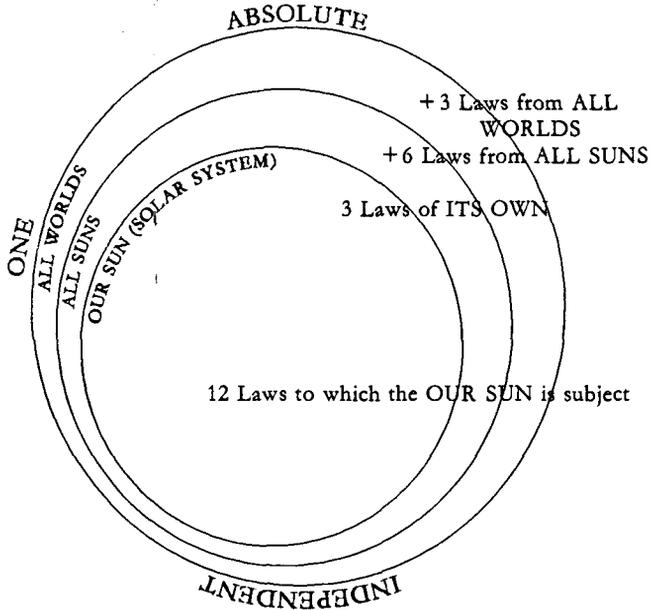


Figure 5:  
The Law of  
Three  
Forces.  
*World  
twelve.*  
World of  
the Fourth  
Order-Our  
*Sun* (Solar  
System).  
Designated  
as *world  
twelve*  
according  
to the laws  
to which it  
is subject.

Let us take one of these worlds and designate it by the number 12 (3 + 6 + 3). Being subject to a greater number of laws, these worlds stand still further away from the single will of the Absolute and are still more mechanical. The worlds created within these worlds will be governed by twenty-four forces (3 + 6 + 12 + 3).

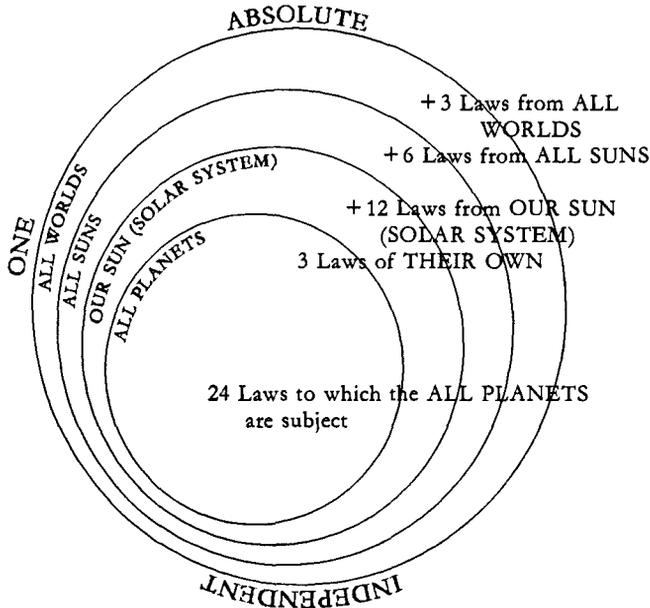


Figure 6:  
The Law of  
Three  
Forces.  
*World  
twenty-four.*  
World of  
the Fifth  
Order-*All  
Planets.*  
Designated  
as *world  
twenty-four*  
according  
to the laws  
to which it  
is subject.

The worlds created within these worlds will be governed by forty-eight forces, the number forty-eight being made up as follows: three forces of the world immediately following the Absolute, six of the next one, twelve of the next, twenty-four of the one after and three of its own (3 + 6+12 + 24 +3), forty-eight in all.

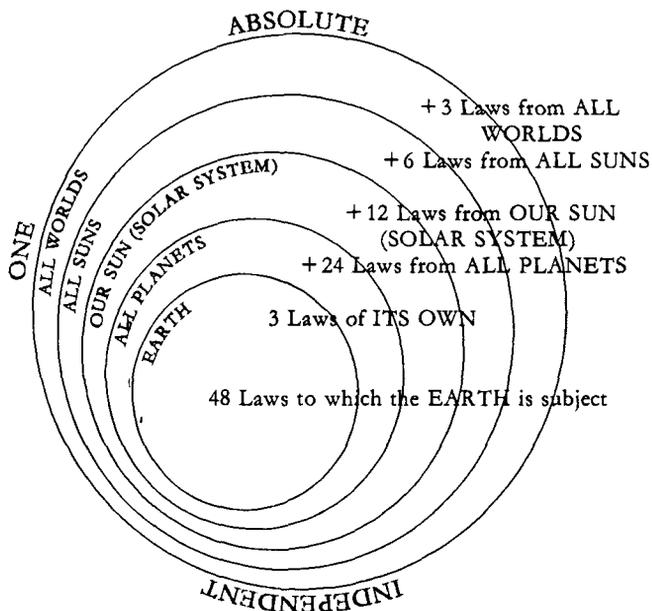


Figure 7:  
The Law of Three Forces.  
*World forty-eight.*  
World of the Sixth Order-*Earth.*  
Designated as *world forty-eight* according to the laws to which it is subject.

Worlds created within worlds 48 will be governed by ninety-six forces (3 + 6 + 12 + 24 + 48 + 3). The worlds of the next order, if there are any, will be governed by one hundred and ninety-two forces and so on.

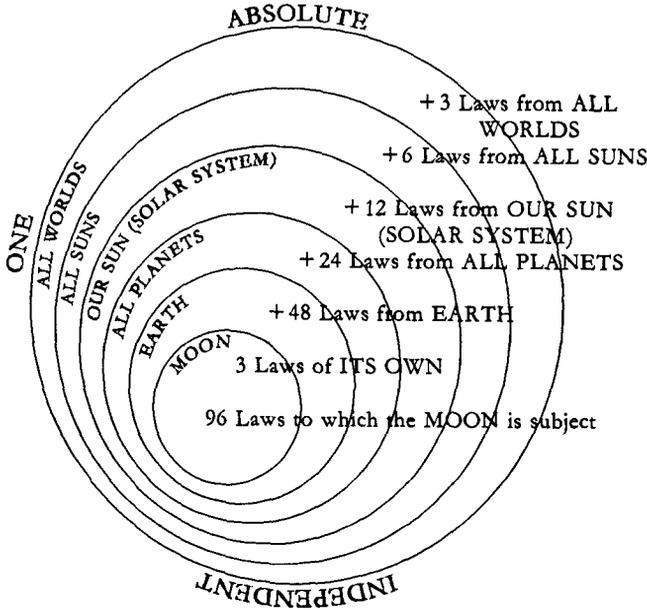


Figure 8:  
The Law of  
Three  
Forces.  
*World  
ninety-six.*  
World of  
the Seventh  
Order-  
Moon.  
Designated  
as *world  
ninety-six*  
according  
to the laws  
to which it  
is subject.

If we take one of the many worlds created in the Absolute that is, world 3, it will be the world representing the total number of starry worlds similar to our Milky Way. If we take world 6, it will be one of the worlds created within this world, namely, the accumulation of stars which we call the Milky Way. World 12 will be one of the suns that compose the Milky Way, our sun. World 24 will be the planetary world, that is to say, all the planets of the solar system. World 48 will be the earth. World 96 will be the moon. If the moon had a satellite, it would be world 192, and so on.

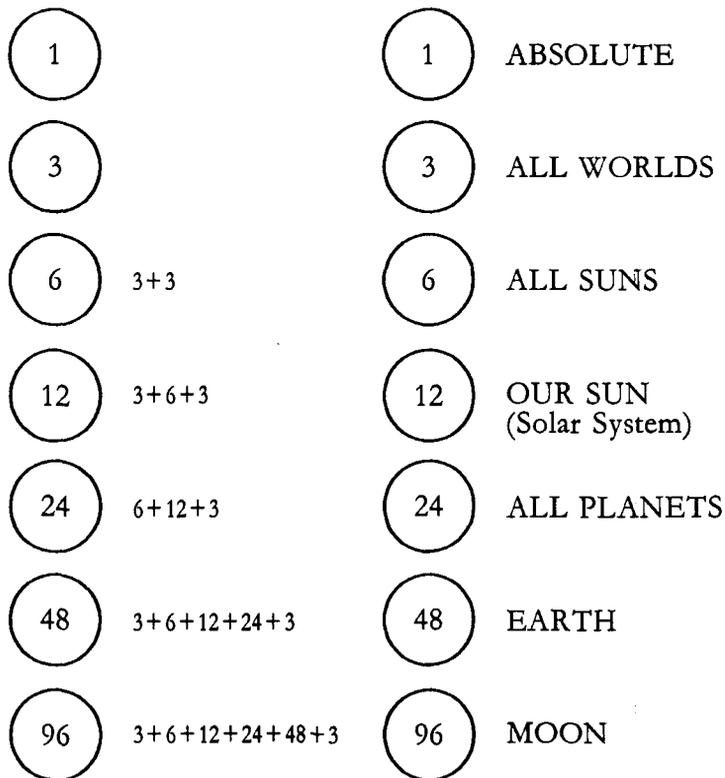


Figure 9: The Ray of Creation according to the Law of Three Forces.

The chain of worlds, the links of which are the Absolute, all worlds, all suns, the sun, the planets, the earth and the moon, form the 'ray of creation' in which we find ourselves. The ray of creation is for us the world in the widest sense of the term. Of course, the ray of creation does not include the *world* in the full sense of the term, since the Absolute gives birth to a number, perhaps to an infinite number, of different worlds, each of which begins a new and separate ray of creation. Furthermore, each of these worlds contains a number of worlds representing a further breaking up of the ray and again of these worlds we select only one—our Milky Way: the Milky Way consists of a number of suns, but of this number we select one sun, that which is nearest to us, upon which we immediately depend, and in which we live and move and have our being. Each of the other suns means a new breaking up of the ray, but we cannot study these rays in the same way as our ray, that is, the ray in which we are situated. Further, within the solar system the planetary world is nearer to us than the sun itself, and within the planetary world the nearest of all to us is the earth, the planet on which we live. We have no need and no possibility to study other planets in the same way as we study the earth. It is sufficient for us to take them all together, that is to say, on a considerably smaller scale than that on which we take the earth. The number of forces in each world, 1, 3, 6, 12 and so on, indicates the number of laws to which the given world is subject.

The fewer laws there are in a given world, the nearer it is to the will of the Absolute; the more laws there are in a given world, the greater the mechanicalness, the further it is from the will of the Absolute. We live on the earth, in a world subject to 48 orders of laws, that is to say, very far

from the will of the Absolute and in a very dark and remote corner of the universe.

In this way, the ray of creation helps us to determine and to realize our place in the world. But we have not yet come to questions about influences. In order to understand the difference between the influences of various worlds, we must better understand the law of three and then, further, still another fundamental law—the law of octaves or the *law of seven*.

We must realize also that Organic Life on the earth, which is our first world, does not enter in the chain of worlds forming the Ray of Creation. Organic Life is on the earth. It is a sort of film covering the earth and, as we shall see later, it serves a definite purpose in the Ray of Creation.

# THE COSMOLOGICAL LECTURES

## *SECOND LECTURE*

### THE RAY OF CREATION

The Ray of Creation and its growth from the Absolute. A contradiction of scientific views. The moon as the end of the Ray of Creation. The will of the Absolute. The idea of miracle. Our place in the world. The moon feeds on organic life. The influence of the moon and liberation from the moon. Different 'materiality' of different worlds. The world as a world of 'vibrations'. Vibrations slow down proportionately to the distance from the Absolute. Seven kinds of matter. Fragments of ancient teachings. The study of relativity. Where is the earth? The three forces and the cosmic properties of matter. Atoms of complex substances. Definition of a substance according to the forces manifested through it. 'Carbon', 'oxygen', 'nitrogen', and 'hydrogen'. The three forces and the four matters.

In order to understand the structure of the universe, we begin by taking the universe as three-dimensional, and regard it as the world of matter and force in the simplest and the most elementary meaning of these words. Higher dimensions and new scientific theories of matter and energy, space and time, as well as other categories of knowledge of the world which are unknown to modern science, we will discuss later.

First of all we must visualise the world in which we live in the diagrammatic form of the Ray of Creation, from the Absolute to the moon.

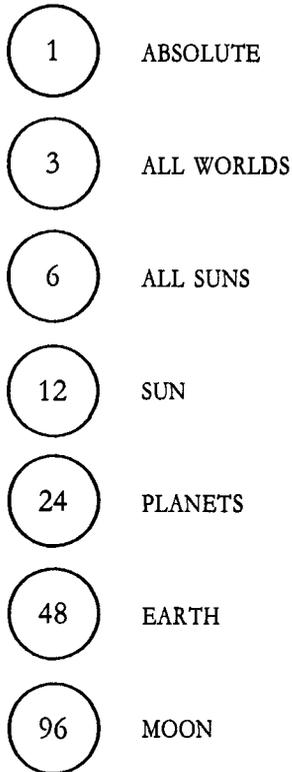


Figure 10: The Ray of Creation

The 'Ray of Creation' seems at first glance to be a very elementary plan of the world, but actually, as one studies it further, it becomes clear that with the help of this simple plan it is possible to bring into accord, and to make into a single whole, a multitude of various and conflicting philosophical, as well as scientific and even religious views of the world. The idea of the Ray of Creation belongs to ancient knowledge and many of the naive geocentric systems of the world known to us are actually either incompetent expositions of the idea of the Ray of Creation or distortions of this idea due to literal or incomplete understanding.

It must be observed that the idea of the Ray of Creation and its growth from the Absolute contradicts some of the modern views. Take, for instance, the stage: sun, earth, moon. According to the usual views, the moon is a cold, dead celestial body which was once like the earth, that is to say, it possessed internal heat and at a still earlier period was a molten mass like the sun.

The earth according to this view, was once like the sun, and is also gradually cooling down and, sooner or later, will become a frozen mass like the moon. It is usually supposed that the sun is also cooling down and that it will become, in time, similar to the earth and later on to the moon. Many people think that this is 'science'.

First of all, of course, it must be understood that this view cannot be called scientific in the strict sense of the term, because in science, that is in astronomy, or rather, in astrophysics, there are many and contradictory hypotheses and theories on the subject, none of which has any serious foundation. But this view is the most widely spread and the one which has become the view of the average man of modern times in regard to the world in which we live.

The idea of the Ray of Creation and its growth from the Absolute contradicts these general views of our day.

According to this idea, the moon is a newly born planet, one that is not fully developed yet. It is becoming warm gradually and in time (given a favourable development of the Ray of Creation) will become like the earth and have a satellite of its own, i.e. a new moon. A new link will have been added to the Ray of Creation. The earth, too, is not getting colder. It is getting warmer and may in time become like the sun. We observe such a process, for instance, in the system of Jupiter, which is a sun for its satellites.

Summing up all that has been said before about the Ray of Creation from world 1 down to world 96, it must be added that the figures by which the worlds are designated indicate the number of forces, or the number of orders of laws which govern the worlds in question. In the Absolute, the three forces are one and there is only one law—the single and independent will of the Absolute. In the next world, where the forces have separated, there are three forces or orders of laws. In the next, there are six orders of laws; in the following world twelve; and so on. In our world, that is, the earth, forty-eight orders of laws are operating, to which we are subject and by which our whole life is governed. If we lived on the moon we should be subject to ninety-six orders of laws, that is, our life and activity would be still more mechanical and we should not have the possibility of escape from mechanicalness that we now have.

As has already been said, the will of the Absolute is only manifested in the immediate world created by it within itself, that is, in world 3; the immediate will of the Absolute does not reach world 6 and in this world it is manifested only in the form of mechanical laws. Further

on, in worlds 12, 24, 48 and 96 the will of the Absolute has less and less possibility of manifesting itself. This means that in world 3 the Absolute creates, as it were, a general plan of all the rest of the universe, which is then further developed mechanically. The will of the Absolute apart from this plan cannot manifest itself in subsequent worlds and, in manifesting itself according to this plan, it takes the form of mechanical laws. This means that if the Absolute wanted to manifest its will, say in our world, in opposition to the mechanical laws operating there, it would have to destroy all the worlds intermediate between itself and our world.

There is a not very respectful school story which illustrates this law. The story is about a student of a seminary who, at a final examination, does not understand the idea of God's omnipotence.

'Well, give me an example of something that the Lord cannot do', said the examining bishop.

'It won't take long to do that, your Eminence', answered the seminarist. 'Everyone knows that even the Lord himself cannot beat the ace of trumps with the deuce.'

Nothing could be more clear.

There is more sense in this silly story than in a thousand theological treatises. The laws of a game make the essence of the game. A violation of these laws would destroy the entire game. The Absolute can as little interfere in our life and substitute other results in the place of the natural results of causes created by us or created accidentally as he can beat the ace of trumps with the deuce. Turgeneff wrote somewhere that all ordinary prayers can be reduced to one: 'Lord, make it so that twice two be not four.' This is the same thing as the ace of trumps of the seminarist.

The idea of a miracle in the sense of a violation of laws by the will that made them is not only contrary to common sense but to the very idea of will itself. A 'miracle' can only be a manifestation of laws which are unknown to man or rarely met with. This means that a miracle is the manifestation in a lower world of the laws of a higher world.

On the earth we are very far removed from the will of the Absolute; we are separated from it by forty-eight orders of mechanical laws. If we could free ourselves from one half of these laws, we should find ourselves subject to only twenty-four orders of laws, i.e. the laws of the planetary world, and then we should be one stage nearer to the Absolute and to its will. If we could then free ourselves from half of these laws, we should be subject to the laws of the sun (twelve laws) and consequently should be one stage nearer to the Absolute. If again we could free ourselves from one half of these laws, we should be subject to the laws of the starry world and separated by only one stage from the immediate will of the Absolute.

And the possibility for man thus gradually to free himself from mechanical laws exists.

Can the forty-eight laws to which man is subject be defined?

They can and they cannot. The study of the forty-eight orders of laws to which man is subject cannot be abstract like the study of astronomy; they can be studied only by observing them in oneself and by *getting free from them*. At the beginning a man must simply understand that he is quite needlessly subject to a thousand petty but irksome laws which have been created for him by other people and by himself. When he attempts to get free from them he will see that he cannot. Long and persistent attempts to gain freedom from them will convince him of his

slavery. The laws to which man is subject can only be studied by struggling with them, by trying to get free from them. But a great deal of knowledge is needed in order to become free from one law without creating for oneself another in its place.

The orders of laws and their forms vary according to the point of view from which we consider the Ray of Creation.

In our system the end of the ray of creation, the growing end, so to speak, of the branch, is the moon. The energy for the growth, that is, for the development of the moon and for the formation of new shoots goes to the moon from the earth, where it takes form through the joint action of the sun, of all the other planets of the solar system, and of the earth itself. This energy is collected and preserved in a huge accumulator, situated on the earth's surface. This accumulator is organic life on the earth. Organic life on the earth feeds the moon. Everything living on the earth—people, animals, plants—is food for the moon. The moon is a huge living being feeding upon all that lives and grows upon the earth. The moon could not exist without organic life on the earth, any more than organic life on the earth could exist without the moon. Moreover, in relation to organic life the moon is a huge electro-magnet; and everything that happens in organic life happens under the influence of this electro-magnet. If the action of this electro-magnet were suddenly stopped, organic life would crumble to nothing.

Another good example which shows the relation of the moon to organic life is the following. The moon is the weight on a clock. Organic life is the mechanism of the clock brought into motion by the weight. The gravity of the weight, the pull of the chain on the cog-wheel, sets in motion the wheels and the hands of the clock. If the

weight is removed all movements in the mechanism of the clock will at once stop. The moon is a colossal weight hanging onto organic life and thus setting it in motion. Whatever we may be doing, whether it is good or bad, clever or stupid, all the movements of the wheels and the hands of our organism depend upon this weight, which is continually exerting its pressure upon us.

The process of the growth and the warming of the moon is connected with life and death on the earth. Everything living sets free at its death a certain amount of the energy that had 'animated' it; this energy, or the 'souls' of everything living—plants, animals, people—is attracted to the moon as though by a huge electromagnet, and this energy brings to it the warmth and the life upon which its growth depends, i.e. the growth of the ray of creation. In the economy of the universe nothing is lost, and a certain energy, having finished its work on one plane, goes to another.

The souls that go to the moon, possessing perhaps even a certain amount of consciousness and memory, find themselves there under ninety-six laws, in the conditions of mineral life, or, to put it differently, in conditions from which there is no escape apart from general evolution in immeasurably long planetary cycles. The moon is 'at the extremity', at the end of the world; it is the 'outer darkness' of the Christian doctrine 'where there will be weeping and gnashing of teeth'.

The influence of the moon upon everything living manifests itself in all that happens on the earth. The moon is the chief, or rather the nearest, the immediate motive force of all that takes place in organic life upon the earth. All movements, actions and manifestations of people, animals and plants depend upon the moon and are controlled by the moon. The sensitive film of organic life

which covers the earthly globe is entirely dependent upon the influence of the huge electro-magnet that is sucking out its vitality. Man, like every other living being, cannot, in the ordinary conditions of life, tear himself free from the moon. All his movements and consequently all his actions are controlled by the moon. If he kills another man, the moon does it; if he sacrifices himself for others, the moon does that also. All evil deeds, all crimes, all self-sacrificing actions, all heroic exploits, as well as all the actions of ordinary everyday life, are controlled by the moon.

The liberation which comes with the growth of mental powers and faculties is liberation from the moon. The mechanical part of our life depends upon the moon, is subject to the moon. If we develop in ourselves consciousness and will, and subject our mechanical life and all our mechanical manifestations to them, we shall escape from the power of the moon.

The next idea which it is necessary to master is the materiality of the universe which is taken in the form of the 'ray of creation'. Everything in this universe can be weighed and measured. The Absolute is as material, as weighable and measurable as the moon, or as man. If the Absolute is God, it means that God can be weighed and measured, resolved into component elements, calculated, and expressed in the form of a definite formula.

But the concept 'materiality' is as relative as everything else. If we recall how the conception 'man' and all that refers to him—good, evil, truth, falseness etc.—is divided into different categories (man number one, man number two and so on) it will be easy for us to understand that the concept 'world' and everything that refers to the world is also divided into different categories. The ray of creation establishes seven planes in the world, seven worlds one

within another. Everything that refers to the world is also divided into seven categories, one category within another. The materiality of the Absolute is a materiality of a different order from that of 'all worlds'. The materiality of 'all worlds' is of an order different from the materiality of 'all suns'. The materiality of 'all suns' is of an order different from the materiality of our sun. The materiality of our sun is of an order different from the materiality of 'all planets'. The materiality of 'all planets' is of an order different from the materiality of the earth and the materiality of the earth is of an order different from the materiality of the moon. This idea is at first difficult to grasp. People are accustomed to think that *matter* is everywhere the same. The whole of physics, of astro-physics, of chemistry, such methods as spectro-analysis, etc., are based on this assumption. And it is true that matter is the same, but materiality is different. And different degrees of materiality depend directly upon the qualities and properties of the energy manifested at a given point.

Matter or substance necessarily presupposes the existence of force or energy. This does not mean that a dualistic conception of the world is necessary. The concepts of matter and force are as relative as everything else. In the Absolute, where all is one, matter and force are also one. But in this connection matter and force are not taken as real principles of the world in itself, but as properties or characteristics of the phenomenal world observed by us. To begin the study of the universe it is sufficient to have an elementary idea of matter and energy, such as we get by immediate observation through our organs of sense. The 'constant' is taken as material, as matter, and 'changes' in the state of the 'constant' or of matter, are called manifestations of force or energy. All

these changes can be regarded as the result of vibrations and undulatory motions which begin in the centre, that is, in the Absolute, and go in all directions, crossing one another, colliding and merging together, until they stop altogether at the end of the ray of creation.

From this point of view, then, the world consists of vibrations and matter, or of matter in a state of vibration, of vibrating matter. The rate of vibration is in inverse ratio to the density of matter.

In the Absolute the vibrations are the most rapid and matter is the least dense. In the next world vibrations are slower and matter denser; and further on matter is still more dense and vibrations correspondingly slower.

'Matter' may be regarded as consisting of 'atoms'. Atoms in this connection are taken also as the result of the final division of matter; in every order of matter they are simply certain small *particles* of the given matter which are indivisible only on the given plane. The atoms of the Absolute alone are really indivisible; the atom of the next plane, that is, of world 3, consists of three atoms of the Absolute or, in other words, it is three times bigger and three times heavier, and its movements are correspondingly slower. The atom of world 6 consists of six atoms of the Absolute merged together, as it were, and forming one atom. Its movements are correspondingly slower. The atom of the next world consists of twelve primordial particles, the next worlds' of twenty-four, forty-eight and ninety-six. The atom of world 96 is of an enormous size compared with the atom of world 1; its movements are correspondingly slower and the matter which is made up of such atoms is correspondingly denser. The seven worlds of the 'ray of creation' represent seven orders of materiality. The materiality of the moon is different from that of the earth; the materiality

of the earth is different from the materiality of the planetary world; the materiality of the planetary world is different from the materiality of the sun, and so on.

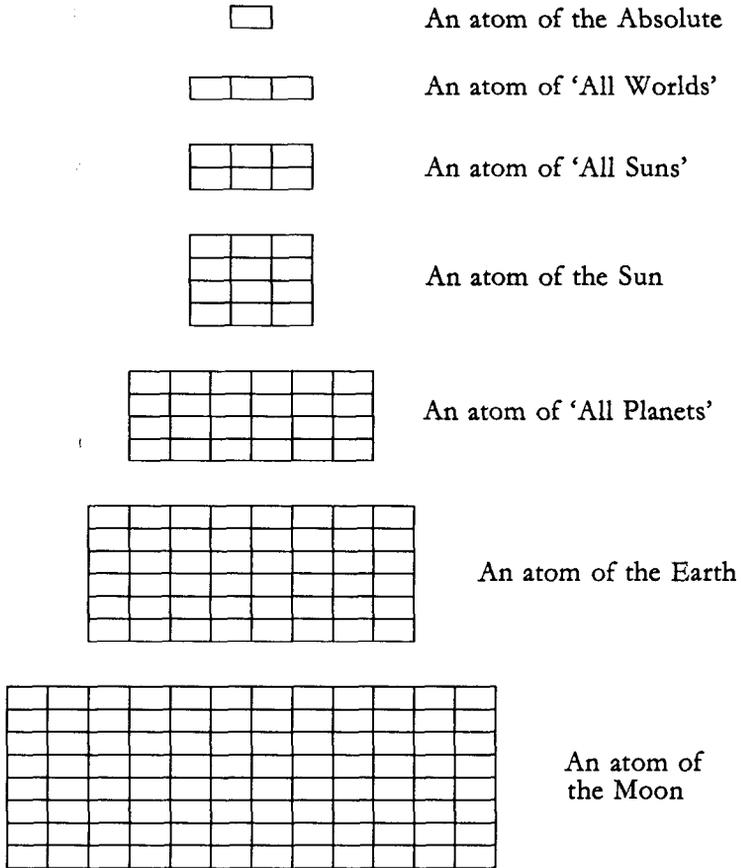


Figure 11: Relative densities

Thus, instead of one concept of matter, we have seven kinds of matter, but our ordinary concept of materiality only with difficulty embraces the materiality of worlds 96 and 48. The matter of world 24 is much too rarefied to be regarded as matter from the scientific point of view of our physics and chemistry; such matter is practically hypothetical. The still finer matter of world 12 has, for ordinary investigation, no characteristics of materiality at all. All these matters belonging to the various orders of the universe are not separated into layers but are intermixed, or, rather, they interpenetrate one another. We can get an idea of similar interpenetrations of matter of different densities from the penetration of one matter by another matter of different densities known to us. A piece of wood may be saturated with water, water in its turn may be filled with gas. Exactly the same relation between different kinds of matter may be observed in the whole of the universe; the finer matters permeate the coarser ones.

Matter that possesses characteristics of materiality comprehensible to us is divided for us into several states according to its density: solid, liquid, gaseous; further gradations of matter are: radiant energy, that is, electricity, light and so on, 'psycho-physical emanations', 'animal magnetism' and so on. But on every plane, that is to say, in every order of materiality, similar relations and divisions of the various states of a given matter may be found; but as has been already said, matter of a higher plane is not material at all for the lower planes.

All the matter of the world that surrounds us, the food that we eat, the water that we drink, the air that we breathe, the stones that our houses are built of, our own bodies—everything is permeated by all the matters that exist in the universe. There is no need to study or

investigate the sun in order to discover the matter of the solar world: this matter exists in ourselves and is the result of the division of our atoms. In the same way we have in us the matter of all other worlds. Man is, in the full sense of the term, a miniature universe; in him are all the matters of which the universe consists; the same forces, the same laws that govern the life of the universe, operate in him; therefore, in studying man we can study the whole world, just as in studying the world we can study man.

But a complete parallel between man and the world can only be drawn if we take man in the full sense of the word, that is, a man whose inherent powers are developed. An undeveloped man, a man who has not completed the course of his evolution, cannot be taken as a complete picture or plan of the universe—he is an unfinished world.

There are many theories, made up of fragments from ancient teachings which are current among the masses. Some of these theories speak at considerable length of the various levels or planes of the universe, and of the different bodies of man which consist of substances from higher planes. A great deal in these teachings and theories with regard to the finer bodies of man is very near the truth, but at the same time they stand in need of substantial corrections. The introduction of the concept of relativity is necessary.

As has been said already, *the study of oneself must go side by side with the study of the fundamental laws of the universe*. The laws are the same everywhere and on all planes. But the very same laws manifesting themselves in different worlds, that is, under different conditions, produce different phenomena. The study of the relation of laws to

the planes on which they are manifested brings us to the study of *relativity*.

The idea of relativity occupies a very important place in this teaching and, later on, we shall have to return to it. But before anything else it is necessary to understand the relativity of each thing and each manifestation *according to the place it occupies in the cosmic order*.

We are on the earth and we depend entirely upon the laws that are operating on the earth. The earth is a very bad place from the cosmic point of view—it is like the most remote part of northern Siberia, very far from everywhere; it is cold, life is very hard. Everything that in another place either comes by itself or is easily obtained is here acquired only by hard labour; everything must be fought for.

**T**he chief law is the *law of three*. One must learn to find the manifestations of this law in everything we do and in everything we study. The application of this law in any sphere at once reveals much that is new, much that we did not see before. Take for instance chemistry. Ordinary science does not know of the law of three and studies matter without taking into consideration its cosmic properties. Besides ordinary chemistry there exists another, a special chemistry, or *alchemy* if you like, which studies matter taking into consideration its cosmic properties. As has been said before, the cosmic properties of each substance are determined first, *by its place*, and secondly by the force which is acting through it at a given moment. Even in the same place the essence of a given substance undergoes a great change dependent upon the force which is being manifested through it. Each substance can be the conductor of any of the three forces and, in accordance with this, can be *active, passive* or

*neutralising*. And it can be neither the first, nor the second, nor the third if no force is manifesting through it at the given moment or if it is taken without relation to the manifestation of forces.

In this way every substance appears, as it were, in four different aspects or states. In this connection it must be noted that when we speak of matter we do not speak of chemical elements. The special chemistry of which I speak looks upon every substance having a separate function, even the most complex, as an element. In this way only is it possible to study the cosmic properties of matter, because all complex compounds have their own cosmic purpose and significance. From this point of view an atom of a given substance is the smallest amount of the given substance which retains all its chemical, physical and *cosmic* properties. Consequently the size of the 'atom' of different substances is not the same. And in some cases an atom may be a particle visible even to the naked eye.

The four aspects or states of every substance have definite names.

When a substance is the conductor of the first or active force, it is called Carbon, and like the carbon of chemistry, it is designated by the letter C.

When a substance is the conductor of the second or passive force, it is called Oxygen, and like the oxygen of chemistry, it is designated by the letter O.

When a substance is the conductor of the third or neutralising force, it is called Nitrogen, and like the nitrogen of chemistry, it is designated by the letter N.

When a substance is taken without relation to the force manifesting itself through it, it is called Hydrogen and, like the hydrogen of chemistry, it is designated by the letter H.

The active, passive and neutralising forces are designated by the figures 1, 2, 3, and the substances by the letters C, O, N and H, or sometimes by the figures 1, 2, 3 and 4. But it is very important to understand and remember that these last figures do not fully correspond to the figures designating forces.

Active force and the matter through which it works, i.e. carbon, are both designated by the figure 1.

Passive force is designated by the figure 2, but the matter through which it works, i.e. oxygen, is designated 3, because it is the densest of the three matters.

Neutralising force is designated by the figure 3, but the matter through which it works, i.e. nitrogen, is designated by the figure 2, because by density it stands between carbon (1) and oxygen (3).

In the old alchemy, matters C, O, N and H were called respectively fire, water, air and earth.

# THE COSMOLOGICAL LECTURES

## *THIRD LECTURE*

### THE LAW OF SEVEN

The study of man is parallel to the study of the world. Following upon the *law of three* comes the fundamental law of the universe. The *law of seven* or the *law of octaves*. The absence of continuity in vibrations. Necessity for additional shocks. What occurs in the absence of additional shocks. *Octaves*. The seven tone scale. The law of intervals. In order to *do* it is necessary to be able to control additional shocks. Inner octaves. Organic life in the place of an 'interval'. Planetary influences. The lateral octave sol-do. The meaning of the notes la, sol, fa. The meaning of the notes do, si. The meaning of the notes mi, re. The role of organic life in changing the earth's surface.

**I**n right knowledge, the study of man must proceed on parallel lines with the study of the world, and the study of the world must run parallel with the study of man. Laws are everywhere the same, in the world as well as in man. Having mastered the principles of any one law we must look for its manifestation in the world and in man simultaneously. Moreover, some laws are more easily observed in the world, others are more easily observed in man. Therefore in certain cases it is better to begin with the world and then to pass on to man, and in other cases it is better to begin with man and then to pass on to the world.

This parallel study of the world and of man shows the student the fundamental unity of everything and helps him to find analogies in phenomena of different orders.

This number of fundamental laws which govern all processes both in the world and in man is very small. Different numerical combinations of a few elementary forces create all the seeming variety of phenomena.

In order to understand the mechanics of the universe, it is necessary to resolve complex phenomena into these elementary forces.

The first fundamental law of the universe is the law of three forces, or three principles, or as it is often called, the *law of three*. According to this law every action, every phenomenon in all worlds without exception is the result of the simultaneous action of three forces—the positive, the negative and the neutralising. Of this we have already spoken and in future we will return to this law with every new line of study.

The next fundamental law of the universe is, the *law of seven* or *law of octaves*.

In order to understand the meaning of this law it is necessary to regard the universe as *consisting of vibrations*. These vibrations proceed in all kinds, aspects and densities of the matter which constitutes the universe, from the finest to the coarsest; they issue from various sources and proceed in various directions, crossing one another, colliding, strengthening, weakening, arresting one another and so on.

In this connection, according to the usual views accepted in the West, vibrations are continuous. This means that vibrations are usually regarded as proceeding uninterruptedly, ascending or descending so long as there continues to act the force of the original impulse which caused the vibration and which overcomes the

resistance of the medium in which the vibration proceeds. When the force of the impulse becomes exhausted and the resistance of the medium gains the upper hand, the vibrations naturally die down and stop. But until this moment is reached, that is, until the beginning of the natural weakening, the vibrations develop uniformly and gradually and in the absence of resistance can even be endless. So that one of the fundamental propositions of our physics is the *continuity of vibrations*, although it has never been precisely formulated because it has never been opposed. In certain of the newest theories this proposition is beginning to be shaken. Nevertheless, physics is still very far from a correct view on the nature of vibrations or what corresponds to our conception of vibrations in the real world.

In this instance the view of ancient knowledge is opposed to that of contemporary science, because at the base of the understanding of vibrations is placed the principle of the *discontinuity of vibrations*. The principle of the *discontinuity of vibrations* means the definite and necessary characteristic of all vibrations in nature, whether ascending or descending, to develop *not uniformly* but with periodical accelerations and retardations.

This principle can be formulated still more precisely if we say that the force of the original impulse in vibrations does not act uniformly but, as it were, becomes alternately stronger and weaker. The force of the impulse acts without changing its nature and the vibrations develop in a regular way only for a certain time determined by the nature of the impulse, the medium, the conditions, and so forth. But at a certain moment a kind of change takes place in it and the vibrations, so to speak, cease to obey it and for a short

time they slow down and to a certain extent change their nature or direction; for example, ascending vibrations at a certain moment begin to ascend more slowly, and descending vibrations begin to descend more slowly. After this temporary retardation, both in ascending and descending, the vibrations again enter the former channel and for a certain time ascend or descend uniformly up to a certain moment, when a check in their development again takes place. In this connection it is significant that the periods of uniform action of the momentum are not equal and that the moments of retardation of the vibrations are not symmetrical. One period is shorter, the other is longer.

In order to determine these moments of retardation or rather, the checks on the ascent and descent of vibrations, the lines of development of vibrations are divided into periods corresponding to the *doubling* or *halving* of the number of vibrations in a given space of time.

Let us imagine a line of increasing vibrations. Let us take them at the moment when they are vibrating at the rate of one thousand a second. After a certain time the number of vibrations is doubled, that is, reaches two thousand.



Approximately:



The laws which govern the retardation or the deflection of vibrations from their primary direction were known to ancient knowledge. These laws were duly incorporated into a particular formula or diagram which has been preserved up to our times. In this formula the period in which vibrations are doubled was divided into *eight* unequal steps corresponding to the rate of increase in the vibrations. The eighth step repeats the first step with double the number of vibrations. This period of the doubling of the vibrations, or the line of development of vibrations between a given number of vibrations and double that number, is called an *octave*, that is to say, composed of eight.

The principle of dividing the period in which the vibrations are doubled into seven unequal parts is based upon the observation of the non-uniform increase of vibrations in the entire octave, and separate 'steps' of the octave show acceleration and retardation at different moments of its development.

In the guise of this formula ideas of the octave have been handed down from teacher to pupil, from one school to another. In very remote times one of these schools found that it was possible to apply this formula to music. In this way was obtained the seven-tone musical scale, which was known in the most distant antiquity, then forgotten, then 'invented' or 'found' again.

The seven-tone scale is the formula of a cosmic law which was worked out by ancient schools and applied to music. At the same time, however, if we study the

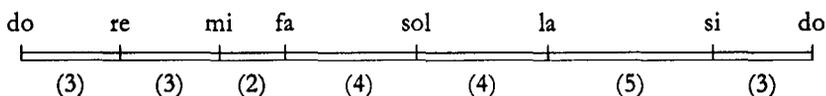
manifestations of the law of octaves in vibrations of other kinds, we shall see that the laws are everywhere the same, and that light, heat, chemical, magnetic and other vibrations are subject to the same laws as sound vibrations. For instance, the light scale is known to physics; in chemistry, the periodic system of the elements is without doubt closely connected with the principle of octaves, although this connection is still not fully clear to science.

A study of the structure of the seven-tone musical scale gives a very good foundation for understanding the cosmic law of octaves.

Let us again take the ascending octave, that is, the octave in which the frequency of vibrations increases. Let us suppose that this octave begins with a thousand vibrations a second. Let us designate these thousand vibrations by the note 'do'. Vibrations are growing, that is, their frequency is increasing. At the point where they reach two thousand vibrations a second there will be a second 'do', that is, the 'do' of the next octave.

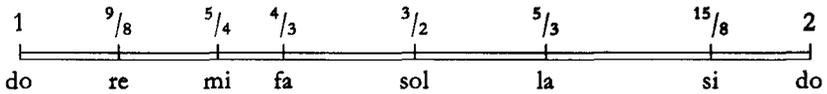


The period between one 'do' and the next, that is, an octave, is divided into seven *unequal* parts because the frequency of vibrations does not increase uniformly.



The ratio of the pitch of the notes or of the frequency of vibrations will be as follows:

If we take 'do' as 1, then 're' will be  $9/8^{\text{ths}}$ , 'mi'  $5/4^{\text{ths}}$ , 'fa'  $4/3^{\text{rds}}$ , 'sol'  $3/2$ , 'la'  $5/3$ , 'si',  $15/8$  and 'do' 2.



The difference in the acceleration or increase in the notes or the difference in tone will be as follows:

between do and re	$9/8$	:	1	=	$9/8$	
between re and mi	$5/4$	:	$9/8$	=	$10/9$	
between mi and fa	$4/3$	:	$5/4$	=	$16/15$	(retarded)
between fa and sol	$3/2$	:	$4/3$	=	$9/8$	
between sol and la	$5/3$	:	$3/2$	=	$10/9$	
between la and si	$15/8$	:	$5/3$	=	$9/8$	
between si and do	2	:	$15/8$	=	$16/15$	(retarded)

The difference in the notes or the differences in the pitch of the notes are called *intervals*. We see that there are three kinds of intervals in the octave:  $9/8$ ,  $10/9$  and  $16/15$ , which in whole numbers correspond to 405, 400 and 384. The smallest interval,  $16/15$ , occurs between mi and fa and between si and do. These are precisely the places of retardation in the octave.

In relation to the musical (seven-tone) scale, it is generally considered (theoretically) that there are two semi-tones between each two notes with the exception of the intervals mi-fa and si-do which have only one semi-tone and in which one semi-tone is regarded as being left out:

do	do sharp	—	re flat
re	re sharp	—	mi flat
mi	—————		fa flat
fa	fa sharp	—	sol flat
sol	sol sharp	—	la flat
la	la sharp	—	si flat
si	—————		do flat

In this manner *twenty* notes are obtained, eight of which are fundamental: do, re, mi, fa, sol, la, si, do; and twelve intermediate, two between each of the following two notes:

do	—————	re
re	—————	mi
fa	—————	sol
sol	—————	la
la	—————	si

and one between each of the following two notes:

mi	—————	fa
si	—————	do

But in practice, that is, in music, instead of twelve intermediate semi-tones only five are taken, that is, one semi-tone between:

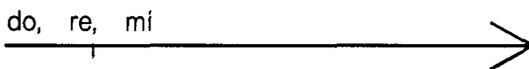
do	—————	re
re	—————	mi
fa	—————	sol
sol	—————	la
la	—————	si

Between mi and fa and between si and do the semi-tone is not taken at all. In this way the structure of the musical seven-tone scale gives a scheme of the cosmic law of intervals or absent semi-tones.

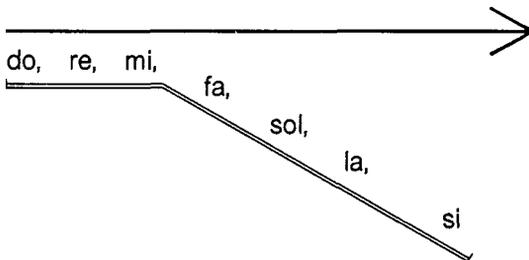
In this respect, when octaves are spoken of in a 'cosmic' or a 'mechanical' sense, only those intervals between mi and fa and si and do are called *intervals*.

If we grasp its full meaning, the law of octaves gives us an entirely new explanation of the whole of life, of the progress and development of phenomena on all planes of the universe observed by us. This law explains why there are no straight lines in nature, and also why we can neither think nor do, why everything with us *is thought*, why everything with us *happens* and happens usually in a way opposite to what we want or expect. All this is the express and direct effect of the intervals or retardations in the development of vibrations.

What precisely does happen at the moment of the retardation of vibrations? A deviation from the original direction takes place. The octave begins in the direction shown by the arrow:

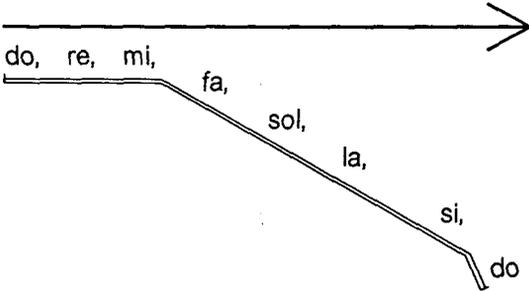


But a deviation takes place between mi and fa; the line begun at do changes its direction

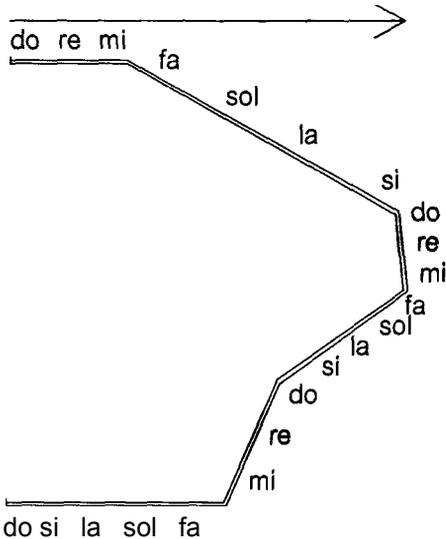


and through fa, sol, la and si it descends at an angle to its original direction, shown by the first three notes.

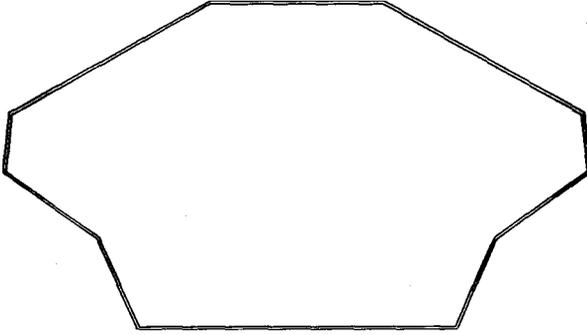
Between si and do the second interval occurs—a deviation, a further change of direction.



The next octave gives an even more marked deviation, the one following that a deviation that is more marked still, so that the line of octaves may at last turn completely round and proceed in a direction opposite to the original direction:



In developing further, the line of octaves or the line of development of vibrations may return to the original direction, in other words, make a complete circle.



This law shows why straight lines never occur in our activities and why, having begun to do one thing we constantly do something entirely different, often the opposite of the first thing, although we do not notice this and continue to think we are doing the thing we began to do.

All this can only be explained by the help of the law of octaves, together with an understanding of the role and significance of 'intervals', which cause the line of development of force constantly to change, to go in a broken line, to turn off, to become its own opposite, and so on.

Such a course of things, that is, a change in the direction first taken, we can observe literally in everything. After a certain period of energetic activity or strong emotion or right understanding, there comes always and everywhere a reaction, work becomes tedious and uninteresting; moments of fatigue and indifference enter into feeling, instead of right thinking a search for

compromise begins, suppression, evasion of difficult problems. But the line continues to develop, though now not in the same direction as at the beginning. Work becomes mechanical, feeling becomes weaker and weaker, descends to the level of the common events of the day; thought becomes dogmatic, literal. Everything proceeds in this way for a certain time, then again there is reaction, again a stop, again a deviation. The development of the force may continue, but the work which was begun with great zeal and enthusiasm has become an obligatory and useless formality; a number of entirely foreign elements have entered into feeling—considering, vexation, irritation, hostility; thought goes round in a circle, repeating what was known before, and the way out which had been found becomes more and more lost.

The same thing happens in all spheres of human activity. In literature, science, art, philosophy, religion, in individual and above all in social and political life we can observe how the development of forces deviates from its original direction and goes, after a certain time, in a diametrically opposite direction, *still preserving its former name*. A study of history from this point of view shows the most astonishing facts, which mechanical humanity is far from desiring to notice. Perhaps the most interesting examples of such change of direction in the line of development of forces can be found in the history of religion, particularly in the history of Christianity, if studied dispassionately. Think how many turns the line of development of forces must have taken to come from the gospel preaching of love to the Inquisition; or to go from the ascetics of early centuries studying *esoteric* Christianity to the scholastics who calculated how many angels could be placed on the point of a needle.

The law of octaves explains many phenomena in our lives which are incomprehensible.

First is the principle of the deviation of forces.

Second is the fact that nothing in the world stays in the same place, or remains what it was; everything moves, everything is going somewhere, is changing, and *inevitably either develops or goes down*, weakens or degenerates, that is to say, moves either along an ascending or along a descending line of octaves.

And third, that in the actual development itself both of ascending and of descending octaves, fluctuations, rises and falls are constantly taking place.

We have spoken so far chiefly about the *discontinuity of vibrations and about the deviation of forces*. We must now clearly grasp two other principles; the inevitability of either ascent or descent in every line of development of forces, and the periodic fluctuations, that is, rises and falls, in every line, whether ascending or descending.

Nothing can develop by staying on one level. Ascent or descent is the inevitable cosmic condition of any action. We neither understand nor see what is going on around and within us, either because we do not allow for the inevitability of descent when there is no ascent, or because we take descent to be ascent. These are two of our fundamental reasons for self-deception. We do not see the first one because we continually think that things can remain for a long time at the same level, and we do not see the second because *ascents* where we see them are in fact impossible, as impossible as it is to increase consciousness by mechanical means,

Having learned to distinguish ascending and descending octaves in life, we must learn to distinguish ascent and descent within the octaves themselves. Whatever sphere of our life we take we can see that

nothing can ever remain level and constant; everywhere and in everything proceeds the swinging of the pendulum, everywhere and in everything the waves rise and fall. Our energy in one or another direction which suddenly increases and afterwards as suddenly weakens; our moods which 'become better' and 'become worse' without any visible reason; our feelings, our desires, our intentions, our decisions—all from time to time pass through periods of ascent or descent, become stronger or weaker.

And there are perhaps a hundred pendulums moving here and there in man. These ascents and descents, these wave-like fluctuations of moods, thoughts, feelings, energy, determination, are periods of the development of forces between intervals in the octaves as well as the intervals themselves.

Upon the law of octaves in its three principle manifestations depend many phenomena both of a psychic nature as well as those immediately connected with our life. Upon the law of octaves depends the imperfection and the incompleteness of our knowledge in all spheres without exception, chiefly because we always begin in one direction and afterwards without noticing it proceed in another.

As has been said already, the law of octaves in all its manifestations was known to ancient knowledge. Even our division of time, that is, the days of the week into work days and Sundays, is connected with the same properties and inner conditions of our activity which depend upon the general law. The biblical myth of the creation of the world in six days and of the seventh day in which God rested from his labours is also an expression

of the law of octaves or an indication of it, though an incomplete one.

Observations based on an understanding of the law of octaves show that 'vibrations' may develop in different ways. In interrupted octaves they merely begin and fall, drowned or swallowed up by other stronger vibrations which intersect them or which go in an opposite direction. In octaves which deviate from the original direction the vibrations change their nature and give results opposite to those which might have been supposed at the beginning.

And it is only in octaves of a cosmic order, both descending and ascending, that vibrations develop in an orderly and consecutive way, following the same direction in which they started.

Further observations show that a right and consistent development of octaves, although rare, can be observed in all the occasions of life and in the activity of nature and even in human activity. The right development of these octaves is based upon *accident*. It sometimes happens that octaves going parallel to the given octave, intersecting or meeting it, in some way or other *fill up its intervals* and make it possible for the vibrations of the given octave to develop in freedom and without checks. Observation of such rightly developing octaves establishes the fact that if at the necessary moment, that is, at the moment when the given octave passes through an interval, there enters into it an additional 'shock' which corresponds in force and character, it will develop further without hindrance along the original direction neither losing anything nor changing its nature.

In such cases there is an essential difference between ascending and descending octaves.

In an ascending octave the first interval comes between mi and fa. If corresponding additional energy enters at this point the octave will develop without hindrance to si, but between si and do it needs a *much stronger additional shock* for its right development than between mi and fa, because the vibrations of the octave at this point are of considerably higher pitch, and to overcome a check in the development of the octave a greater intensity is needed.

In a descending octave, on the other hand, the greatest 'interval' occurs at the very beginning of the octave, immediately after the first do, and the material for filling it is very often found either in do itself or in the lateral vibrations evoked by do. For this reason a descending octave develops much more easily than an ascending octave and in passing beyond si it reaches fa without hindrance; here an additional shock is necessary, though *considerably less strong* than the first shock between do and si.

In the big cosmic octave which reaches us in the form of the *ray of creation*, we can see the first complete example of the law of octaves. The ray of creation begins with the Absolute. The Absolute is the all. *The All* possessing full unity, full will and full consciousness, creates worlds within itself, in this way beginning the *descending* world octave. The Absolute is the do of this octave. The worlds which the Absolute creates in itself are si. The interval between do and si is filled in this case by the *will of the Absolute*. The process of creation is developed further by the force of the original impulse and an additional shock. Si passes into la, which for us is our starry world the *Milky Way*. La passes into sol—our sun, the solar system. Sol passes into fa—the planetary world. And here between the planetary world as a whole and our Earth occurs an *interval*. This means that the planetary radiations carrying various influences to the earth are

not able to reach it or, to speak more correctly, they are not received, the earth reflects them. In order to fill the interval at this point of the ray of creation, a special apparatus is created for receiving and transmitting the influences coming from the planets. This apparatus is *organic life on earth*. Organic life transmits to the earth all the influences intended for her and makes possible the further development and growth of the earth, mi of the cosmic octave, and then of the moon, or re, after which follows another *do* —*Nothing*. Between *All* and *Nothing* passes the ray of creation.

**Y**ou know the prayer Holy God, Holy the Firm, Holy the Immortal? This prayer comes from ancient knowledge. *Holy God* means the Absolute, or All. *Holy the Firm* also means the Absolute, or Nothing. *Holy the Immortal* signifies that which is between them, that is, the six notes of the ray of creation with 'organic life'. All three taken together make one. This is the co-existent and indivisible Trinity.

**W**e must now dwell on the idea of the 'additional shocks' which make it possible for the lines of forces to reach a projected aim. As I said before, shocks may occur accidentally. Accident is of course a very uncertain thing. But those lines of development of forces that are straightened out by accident and which man can sometimes see, or suppose, or expect, create in him more than anything else the illusion of *straight lines*. That is to say, he thinks that straight lines are the rule, and broken and interrupted lines the exception. This in its turn creates in him the illusion that it is possible *to do*; possible to attain a projected aim. In reality a man can do nothing. If by accident his activity gives a result, even though it

resembles only in appearance or in name the original aim, a man assures himself and others that he has attained the aim which he set before himself and that anyone else would also be able to attain his aim; and others believe him. In reality this is illusion. A man *can* win at roulette. But this would be accident. Attaining an aim which one has set before oneself in life or in any particular sphere of human activity is just the same kind of accident. The only difference is that in regard to roulette a man at least knows for certain whether he has lost or won on each separate occasion, that is, on each separate stake. But in the activities of his life, particularly activities of the kind in which many people are concerned and when years pass between the beginning of an activity and its result, a man can very easily deceive himself and take the result obtained as the result desired, that is, believe that he has won when actually he has lost.

The greatest insult for a 'man machine' is to tell him that he can do nothing, can attain nothing, that he can never move towards any aim whatever and that in striving towards one aim he will inevitably create another. Actually of course it cannot be otherwise. The 'man machine' is in the power of accident. His activities may fall by accident into some sort of channel which has been created by cosmic or mechanical forces and they may by accident move along this channel for a certain time, giving the illusion that aims of some kind are being attained. Such accidental correspondences of results with aims we have set before us or the attainment of aims in small things *which can have no consequences* create in mechanical man the conviction that he is able to attain any aim, 'is able to conquer nature', as it is called, is able 'to arrange the whole of his life', and so on.

As a matter of fact he is of course unable to do anything of the kind because not only has he no control over things outside himself but he has no control even over things within himself. This last must be very clearly understood and assimilated; at the same time it must be understood that control over things begins with control over things in ourselves, *with control over ourselves*. A man who cannot control himself, or the course of things within himself, can control nothing.

In what way can control be attained?

The technical part of this is explained by the law of octaves. Octaves can develop consecutively and continuously in the desired direction if additional shocks' enter them at the moments necessary, that is, at the moments when vibrations slow down. If 'additional shocks' do not enter at the necessary moments octaves change their direction. To entertain hopes of accidental 'shocks' coming from somewhere of themselves at the moments necessary is of course out of the question. There remains for a man the choice either of finding a direction for his activities which corresponds to the mechanical line of events of a given moment—in other words, 'of going where the wind blows' or 'swimming with the stream', even if this contradicts his inner inclinations, convictions and sympathies, or of reconciling himself to the failure of everything he starts out to do; or he can learn to recognize the moments of the intervals in all lines of his activity and learn to *create* the 'additional shocks', in other words learn to apply to his own activities the method which cosmic forces make use of in *creating additional shocks* at the necessary moments.

The possibility of artificial, that is, specially created 'additional shocks' gives a practical meaning to the study of the law of octaves and makes this study obligatory and

necessary if a man desires to step out of the role of passive spectator of that which is happening to him and around him.

The man-machine can do nothing. To him and around him everything *happens*. In order *to do* it is necessary to know the law of octaves, to know the moments of the intervals and be able to create necessary additional shocks.

It is only possible to learn this in a *school*, that is to say, in a rightly organized school which follows all esoteric traditions. Without the help of a school a man by himself can never understand the law of octaves, the points of the intervals and the order of creating shocks. He cannot understand because certain conditions are necessary for this purpose, and these conditions can only be created in a school *which is itself created upon these principles*.

How a 'school' is created on the principles of the law of octaves will be explained in due course. And this in its turn will explain to you one aspect of the union of the *law of seven* with the *law of three*. In the meantime it can only be said that in school teaching a man is given examples of both descending (creative) and ascending (or evolutionary) cosmic octaves. Western thought, knowing neither about octaves nor about the law of three, confuses the ascending and descending lines and does not understand that the line of evolution is opposed to the line of creation, that is to say, goes against it as though against the stream.

In the study of the law of octaves it must be remembered that octaves in their relation to each other are divided into *fundamental* and *subordinate* octaves. The fundamental octave can be likened to the trunk of a tree giving off branches of lateral octaves. The seven fundamental notes of the octave and the two 'intervals',

*the bearers of new directions*, give altogether nine links of a chain, three groups of three links each.

The fundamental octaves are connected with the secondary or subordinate octaves in a certain definite way. Out of the subordinate octaves of the first order come the subordinate octaves of the second order, and so on. The construction of octaves can be compared with the construction of a tree. From the straight basic trunk there come out boughs on all sides which divide in their turn and pass into branches, becoming smaller and smaller and finally are covered with leaves. The same process goes on in the construction of the leaves, in the formation of the veins, the serrations and so on.

In order better to understand the significance of the law of octaves, it is necessary to have a clear idea of one property, of vibrations, namely the so-called 'inner vibrations'. This means that within vibrations other vibrations proceed and that every octave can be resolved into a great number of inner octaves.

Each note of any octave can be regarded as an octave on another plane.

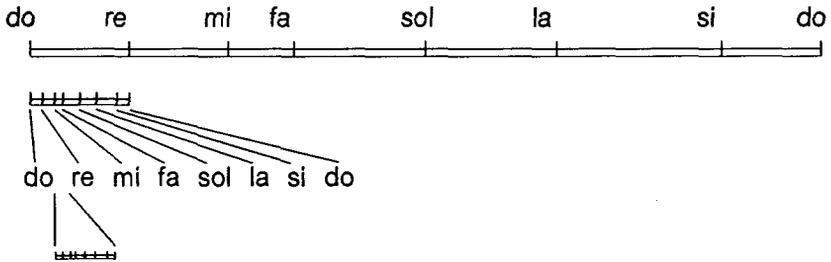
Each note of these inner octaves again contains a whole octave and so on, for some considerable way but *not ad infinitum*, because there is a certain definite limit to the development of octaves (see diagram opposite).

These inner vibrations proceed simultaneously in 'media' of different density, interpenetrating one another; they are indeed reflected in one another, give rise to one another; stop, impel or change one another.

Let us imagine vibrations in a substance or a medium of a certain definite density. Let us suppose this substance

1. A paragraph on measurements of the human body in relationship to the law of octaves was deleted in pencil in the manuscript and is therefore omitted here.

of medium to consist of the comparatively coarse atoms of world 48, each of which is, so to speak, an agglomeration of forty-eight primordial atoms. The vibrations which proceed in this medium are divisible into octaves and the octaves are divisible into notes. Let us imagine that we have taken one octave of these vibrations for the purpose of some kind of investigation. We must realize that within the limits of this octave proceed the vibrations of a finer substance. The substance of world 48 is saturated with the substance of world 24.



These are the 'inner octaves'.

The substance of world 24 is, in its turn, permeated with the substance of world 12. In this substance also there are vibrations and each note of the vibrations of world 24 contains a whole octave of the vibrations of world 12. The substance of world 12 is permeated with the substance of world 6. The substance of world 6 is permeated with the substance of world 3. World 3 is permeated with the substance of world 1. Corresponding vibrations exist in each of these worlds and the order remains always the same, namely, each note of the vibrations of a coarser substance contains a whole octave of the vibrations of a finer substance.

If we begin with vibrations of world 48, we can say that one note of the vibrations in this world contains an octave or seven notes of the vibrations of the planetary world. Each note of the vibrations of the planetary world contains seven notes of the vibrations of the world of the sun. Each note of the vibrations of the world of the sun will contain seven notes of the vibrations of the starry world and so on.

The study of inner octaves, the study of their relation to outer octaves and the possible influence of the former upon the latter constitutes a very important part of the study of the world and of man.

The 'Ray of Creation', like every other process which is complete at a given moment, can be regarded as an octave. This would be a descending octave in which do passes into si, si into la and so on.

The Absolute or *All* (world 1) will be do; all worlds (world 3)—si; all suns (world 6)—la; our sun (world 12) — sol; all planets (world 24)—fa; the earth (world 48)—mi; the moon (world 96)—re. The Ray of Creation begins with the Absolute. The Absolute is *All*. It is do.

Absolute	①	do
All worlds	③	si
All suns	⑥	la
Sun	⑫	sol
All planets	⑫	fa
Earth	④⑧	mi
Moon	⑨⑥	re
Absolute	▽	do

The 'Ray of Creation' ends in the moon. Beyond the moon there is *nothing*. This also is the Absolute—do.

In examining the 'Ray of Creation' or 'cosmic octave', we see that intervals should come in the development of this octave; the first between do and si, that is between world 1 and world 3, between the Absolute and 'all worlds', and the second between fa and mi, that is, between world 24 and world 48, between 'all planets' and the earth. But the first interval is filled by the will of the Absolute. One of the manifestations of the will of the Absolute consists precisely in the filling of this interval by means of a conscious manifestation of neutralising force which fills up the interval between the active and the passive forces. With the second interval the situation is more complicated. Something is missing between the planets and the earth. Planetary influences cannot pass to the earth consecutively and fully. An additional shock is indispensable; the creation of some new conditions to ensure a proper passage of forces is indispensable. The conditions to ensure the passage of forces are created by the arrangement of a special mechanical contrivance between the planets and the earth. This mechanical contrivance, this 'transmitting station' is 'organic life on earth'. 'Organic life on earth' was created to fill the interval between the planets and the earth.

Organic life represents, so to speak, the *earth's organ of perception*. Organic life forms something like a sensitive film which covers the whole of the earth's globe and takes in those influences coming from the planetary sphere which otherwise would not be able to reach the earth. The vegetable, animal and human kingdoms are equally important for the earth in this respect. A field merely covered with grass takes in planetary influences of a definite kind and transmits them to the earth. The same

field with a crowd of people on it will take in and transmit other influences. The population of Europe takes in one kind of planetary influences and transmits them to the earth. The population of Africa takes in planetary influences of another kind and so on.

All great events in the life of the human masses are caused by planetary influences, are the results of the taking in of planetary influences. Human society is a highly sensitive mass for the reception of planetary influences. And any accidental small tension in planetary spheres can be reflected for years in an increased animation in one or another sphere of human activity. Something accidental and very transient takes place in planetary space. This is immediately received by the human masses and people begin to hate and to kill one another, justifying their actions by some theory of brotherhood, or equality, or love, or justice.

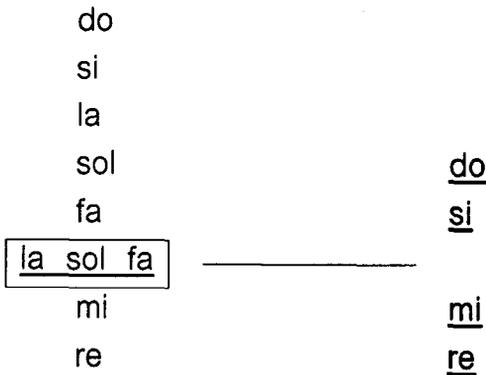
Organic life is the organ of perception of the earth and it is, at the same time, an organ of radiation. With the help of 'organic life' each portion of the earth's surface occupying a given area sends every moment certain kinds of rays in the direction of the sun, the planets and the moon. In connection with this the sun needs one kind of radiations, the planets another kind and the moon another. Everything that happens on earth creates radiations of this kind. And many things *happen* just because certain kinds of radiations are required from a certain place on the earth's surface.

No matter what takes place in the thin film of organic life it always serves the interests of the earth, the sun, the planets and the moon; nothing unnecessary and nothing independent can happen in it because it was created for a definite purpose and is merely subordinate.

Organic life forms part of an additional or lateral octave that starts in the sun. The sun, sol of the cosmic octave, begins at a certain point to sound as do, *sol-do*.

It is necessary to realize that every note of any octave, in the present instance every note of the cosmic octave, may represent *do* of some other lateral octave issuing from it. Or it would be still more exact to say that any note of any octave may at the same time be any note of any other octave passing through it.

In the present instance *sol* begins to sound as *do*. Descending to the level of the planets, this new octave passes into *si*; descending still lower, it produces three notes: *la, sol, fa*; which create and constitute organic life on earth in the form that we know; *mi* of this octave blends with *mi* of the cosmic octave, that is, with the *earth* and *re* with the *re* of the cosmic octave, that is, with the *moon*.



First of all, this lateral octave shows that organic life, represented in the diagram by three notes, has two higher notes, one on the level of the planets and one on the level of the sun, and that it *begins in the sun*. This last is a most important point because it contradicts the usual modern idea of life having originated so to speak from *below*. According to this explanation life comes from above.

The question arises what are the notes mi, re of the lateral octave. Re is clearly connected with the idea of food for the moon. Some product of the disintegration of organic life goes to the moon; this must be re. In regard to mi, it is possible to speak quite definitely. Organic life undoubtedly penetrates into the earth. The role of organic life in the structure of the earth's surface is indisputable. There is the growth of coral islands and limestone mountains, the formation of coal seams and the accumulation of petroleum, the alteration of the soil under the influences of vegetation, the growth of vegetation in lakes, the 'formation of rich arable lands by worms', change of climate due to the draining of swamps and the destruction of forests, and many other things that we know of and do not know of.

But in addition to this the 'lateral octave' shows with particular clarity how easily and correctly things are classified in the system we are studying. Everything anomalous, unexpected and accidental disappears, and an immense and strictly thought out plan of the universe begins to make its appearance.

# THE COSMOLOGICAL LECTURES

## *FOURTH LECTURE*

### THREE OCTAVES OF RADIATIONS and TABLE OF HYDROGENS

The process of creation never stops. Influences are transmitted down the Ray of Creation by radiations. The Three Octaves of Radiation: Absolute to sun, sun to earth, and earth to moon. The universe considered in this form explains matters and forces of different planes of the world as they relate to our own life. 'Intervals' in the three octaves. 'Shocks' that fill the intervals. The concept of 'a point in the universe'. The 'frequency of vibrations' of matters is opposite to their densities. According to the law of three, twelve triads produce hydrogens of densities ranging from 6 to 12288. 'Hydrogens' represent categories of matter. Graduation of the universe from the Absolute to the moon. Modification of this scale to correspond with matters found in the human organism. Revised table of hydrogens to classify matter in relation to life and to the functioning of our organism.

So far we have spoken of the forces that create worlds, of the process of creation proceeding from the Absolute. We will now speak of the processes which take place in the already created and existing world. But you must remember that the process of creation never stops, although, on a planetary scale, growth proceeds so slowly that if we reckon it in our time planetary conditions can be regarded as permanent for us.

Therefore, let us take the 'ray of creation' after the universe has already been created.

The action of the Absolute upon the world, or upon the worlds created by it or within it, continues. The action of each of these worlds upon subsequent worlds continues in exactly the same way.

'All suns' of the milky way influences our sun. The sun influences the planets. 'All planets' influence our earth and the earth influences the moon. These influences are transmitted by means of radiations passing through interstellar and interplanetary space.

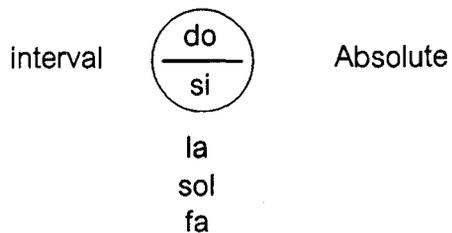
In order to study these radiations let us take the 'ray of creation' in an abridged form: Absolute-sun-earth-moon, or in other words let us imagine the 'ray of creation' in the form of *three octaves of radiations*: the first octave between the Absolute and the sun, the second between the sun and the earth and the third between the earth and the moon. And let us examine the passage of radiations' between these four fundamental points of the universe.

We have to find our place and understand our functions in this universe which is taken in the form of three octaves of radiations between four points.

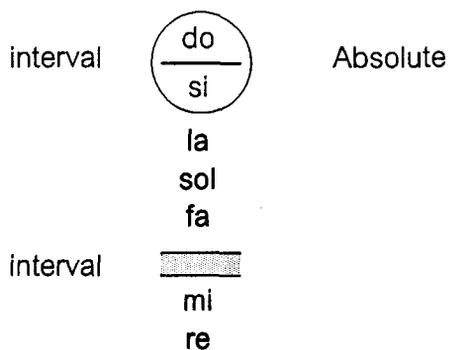
In the first octave the Absolute will include two notes: do and si, with the interval between them.



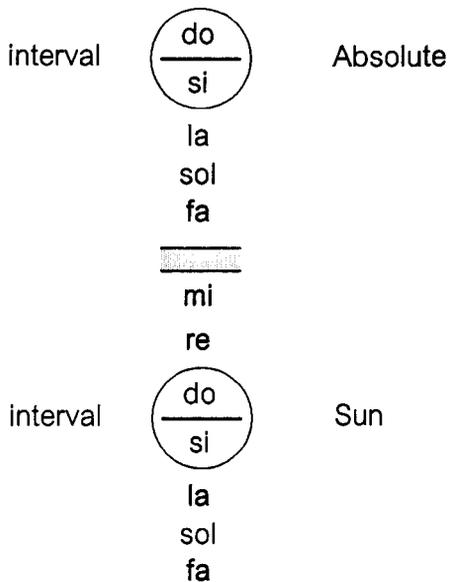
Then will follow the notes la, sol, fa: That is,



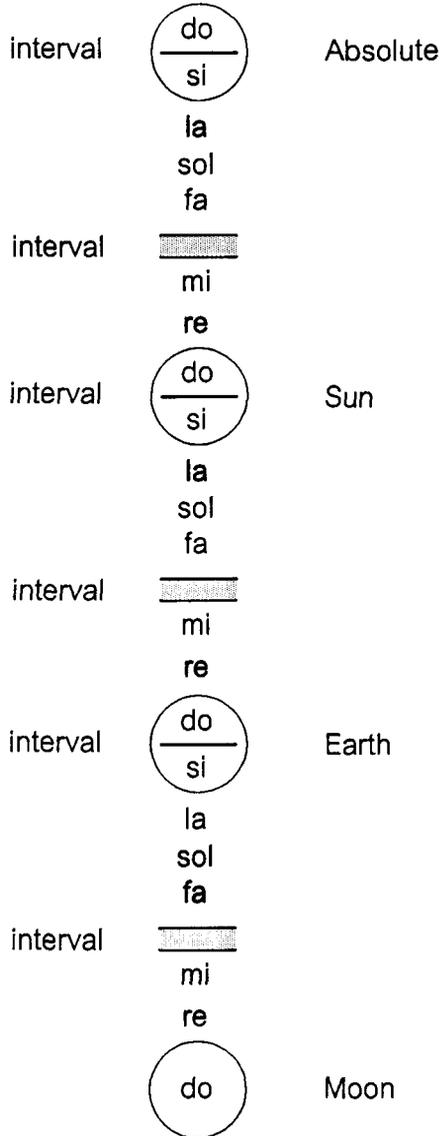
then an interval, then mi, re:



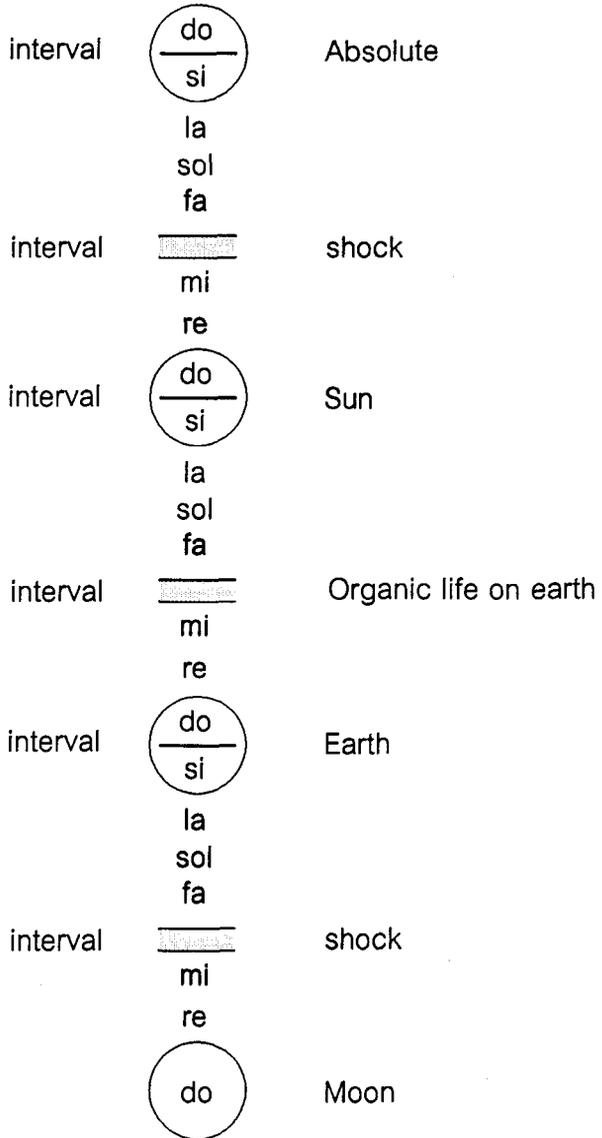
The radiations reach the sun. Two notes are included in the sun itself, do, an interval, and si: then follow la, sol, fa—radiations going towards the earth.



Then an interval, then mi, re. The earth: do, an interval, and si; then la, sol, fa—radiations going towards the moon; then again an interval, then mi, re, and the moon, do.



These three octaves of radiations, in which form we shall now imagine the universe, will enable us to explain the relations of matters and forces of different planes of the world to our own life.



It must be observed that, although there are six intervals in these three octaves, only three of them actually require to be supplemented from outside. The first interval between do and si is filled by the *will of the Absolute*. The second, do, si is filled by the influence of the sun's mass upon radiations passing through it. And the third interval, do, si is filled by the action of the earth's mass upon radiations passing through it. Only the intervals between fa and mi have to be filled by additional shocks. These additional shocks can come either from other octaves which pass across the given point or from parallel octaves which start from higher points. We know nothing about the nature of the shock between *fa-mi* in the first octave Absolute-Sun. But the shock in the octave Sun-Earth is *organic life on Earth*, that is the three notes *la, sol, fa* of the octave which starts in the sun. The nature of the shock between *fa and mi* in the octave Earth-Moon is unknown to us.

It must be noted that the term 'a point of the universe' which has been used has a quite definite meaning, namely: a 'point' represents a certain combination of hydrogens organized in a definite place and fulfilling a definite function in one or another system. The concept 'point' cannot be replaced by the concept 'hydrogen' because 'hydrogen' means simply matter not limited in space. A 'point' is always limited in space. At the same time, a 'point of the universe' can be designated by the *number* of the hydrogen which predominates in it or is central in it.

If we now examine the first of these three octaves of radiations, that is, the octave Absolute-sun, from the point of view of the law of three, we shall see that the note do will be the conductor of the active force, designated by the number 1, while the matter in which

this force acts will be 'carbon (C). The 'active' force which creates the note *do* in the Absolute represents the maximum frequency of vibrations or the greatest density of vibrations.

The expression 'density of vibrations' corresponds to 'frequency of vibrations' and is used as the opposite to 'density of matter', that is to say, the higher the 'density of matter', the lower 'the density of vibrations', and vice versa, the higher the 'density of vibrations' the lower 'the density of matter'. The greatest 'density of vibrations' is to be found in the finest, the most rarefied matter. And in the densest matter possible the vibrations slow down and come almost to a stop. Therefore the finest matter corresponds to the greatest 'density of vibrations'.

The active force in the Absolute represents the maximum 'density of vibrations', while the matter in which these vibrations proceed, that is, the first 'carbon', represents the minimum density of matter.

The note *si* in the Absolute will be the conductor of the passive force, designated by the number 2. And the matter in which this passive force acts or in which sounds the note *si* will be 'oxygen' (O).

The note *la* will be the conductor of the neutralising force, designated by the number 3, and the matter in which sounds the note *la* will be 'nitrogen' (N).

In the order of the action of the forces they will stand in the succession 1, 2, 3, that is, corresponding to the matters 'carbon', 'oxygen', 'nitrogen'. But by density of matter they will stand in the order: 'carbon', 'nitrogen', 'oxygen', that is, 1, 3, 2, because nitrogen, by retaining its number 3, that is to say, by being the conductor of the neutralising force, stands by its density of matter between carbon and oxygen, and oxygen appears as the densest of the three.

Carbon, oxygen and nitrogen together will give matter of the fourth order or 'hydrogen' (H), whose density we will designate by the number 6 (as the sum of 1, 2, 3), that is H6.

*The first triad:*

do	C	1	1	1	}	H6
si	O	2	3	2		
la	N	3	2	3		

C, O, N retain their numbers 1, 2, 3. Carbon is always 1, oxygen is always 2, nitrogen is always 3.

But being more active than oxygen, nitrogen enters as the active principle in the next triad and enters with a density of 2. In other words, nitrogen has a density of 2 and oxygen a density of 3.

So that the note la of the first triad is the conductor of the active force in the next triad which it enters with a density of 2. If carbon enters with a density of 2, then oxygen and nitrogen must correspond to it in densities, repeating the ratio of densities, 1, 2, 3; in the second triad it should be 2, 4, 6, that is, carbon of the second triad will possess a density of 2, nitrogen a density of 4 and oxygen a density of 6. Taken together they will give hydrogen 12 (H12).

*The second triad:*

do	C	2	2	2	}	H12
si	O	4	6	4		
la	N	6	4	6		

According to the same plan and order, the following triad will be constructed: fa, 'shock', mi. Carbon which was nitrogen in the second triad enters with a density of 4; the nitrogen and oxygen corresponding to it must have

a density of 8 and 12 ; together they will give hydrogen 24 (H24).

*The third triad:*

fa	C	4	4	4	}	H24
—	O	8	12	8		
mi	N	12	8	12		

The next triad, mi, re, do, by the same plan and order will give hydrogen 48 (H48).

*The fourth triad:*

mi	C	8	8	8	}	H48
re	O	16	24	16		
do	N	24	16	24		

The triad do, si, la will give hydrogen 96 (H96).

*The fifth triad:*

do	C	16	16	16	}	H96
si	O	32	48	32		
la	N	48	32	48		

The triad la, sol, fa will give hydrogen 192 (H192).

*The sixth triad:*

la	C	32	32	32	}	H192
sol	O	64	96	64		
fa	N	96	64	96		

fa, 'shock', mi will give hydrogen 384 (H384).

*The seventh triad:*

fa	C	64	64	64	}	H384
—	O	128	192	128		
mi	N	192	128	192		

mi, re, do will give hydrogen 768 (H768)

*The eighth triad:*

mi	C	64	64	64	} H768
re	O	256	384	256	
do	N	384	256	384	

do, si, la will give hydrogen 1536 (H1536)

*The ninth triad:*

do	C	256	256	256	} H1536
si	O	512	768	512	
la	N	768	512	768	

la, sol, fa will give hydrogen 3072 (H3072)

*The tenth triad:*

la	C	512	512	512	} H3072
sol	O	1024	1536	1024	
fa	N	1536	1024	1536	

fa, 'shock', mi will give hydrogen 6144 (H6144)

*The eleventh triad:*

fa	C	1024	1024	1024	} H6144
—	O	2048	3072	2048	
mi	N	3072	2048	3072	

mi, re, do will give hydrogen 12288 (H12288)

*The twelfth triad:*

mi	C	2048	2048	2048	} H12288
re	O	4096	6144	4096	
do	N	6144	4096	6144	

Twelve hydrogens are obtained with densities ranging from 6 to 12288.

do	C	1	1	1	} H6					do	} H6			
si	O	2	3	2						si				
la	N	3	2	3						la				
sol						C	2	2	2	} H12	} H12			
fa	C	4	4	4		O	4	6	4					
—	O	8	12	8		N	6	4	6					
mi	N	12	8	12	} H24					} H24	} H24			
re							C	8	8			8		
do	C	16	16	16			O	16	24			16		
si	O	32	48	32	} H96					} H96	} H96			
la	N	48	32	48			N	24	16			24		
sol							C	32	32			32		
fa	C	64	64	64		O	64	96	64	} H192	} H192			
—	O	128	192	128	} H384									
mi	N	192	128	192			N	96	64			96		
re							C	128	128	128				
do	C	256	256	256		O	256	384	256	} H768	} H768			
si	O	512	768	512	} H1536									
la	N	768	512	768			N	384	256			384		
sol							C	512	512	512				
fa	C	1024	1024	1024		O	1024	1536	1024	} H3072	} H3072			
—	O	2048	2048	2048	} H6144									
mi	N	3072	2048	3072			N	1536	1024			1536		
re							C	2048	2048	2048				
do						O	4096	6144	4096	} H12288	} H12288			
						N	6144	4096	6144					

These twelve hydrogens represent twelve categories of matter contained in the universe from the Absolute to the Moon, and if it were possible to establish exactly which of these matters constitute man's organism and act in it, this alone would determine what place man occupies in the world.

But at the place where we are situated, within the limits of our ordinary powers and capacities, hydrogen 6 is irresolveable: we can take it therefore as hydrogen 1; the next hydrogen, hydrogen 12, as hydrogen 6. Reducing all the hydrogens that follow by 2, we obtain a scale from hydrogen 1 to hydrogen 6144.

do	}	H6	H1
si			
la	}	H12	H6
sol			
fa	}	H24	H12
—			
mi	}	H48	H24
re			
do	}	H96	H48
si			
la	}	H192	H96
sol			
fa	}	H384	H192
—			
mi	}	H768	H384
re			
do	}	H1536	H768
si			
la	}	H3072	H1536
sol			
fa	}	H6144	H3072
—			
mi	}	H12288	H6144
re			
do			

But hydrogen 6 is nevertheless still irresolvable for us. Therefore we can take it also as hydrogen 1, take the next after it as hydrogen 6 and reduce all the following again by two. The scale obtained in this way from 1 to 3072 can serve us for the study of man.

do	}	H6	H1	
si				
la	}	H12	H6	H1
sol				
fa	}	H24	H12	H6
—				
mi	}	H48	H24	H12
re				
do	}	H96	H48	H24
si				
la	}	H192	H96	H48
sol				
fa	}	H384	H192	H96
—				
mi	}	H768	H384	H192
re				
do	}	H1536	H768	H384
si				
la	}	H3072	H1536	H768
sol				
fa	}	H6144	H3072	H1536
—				
mi	}	H12288	H6144	H3072
re				
do	}			

All matters from hydrogen 6 to hydrogen 3072 are to be found and play a part in the human organism. Each of these hydrogens includes a very large group of chemical substances known to us, linked together by some function in connection with our organism. In other words, it must not be forgotten that the term 'hydrogen' has a very wide meaning. Any simple element is a 'hydrogen' of a certain density, but any combination of elements which possesses a definite function, either in the world or in the human organism, is also a 'hydrogen'.

This kind of definition of matters enables us to classify them in the order of their relation to life and to the function of our organism.

Let us begin with hydrogen 768. This hydrogen is defined as *food*, in other words, hydrogen 768 includes all substances which can serve as food for man. Substances which cannot serve as food, such as a piece of wood, refer to hydrogen 1536; a piece of iron to hydrogen 3072. On the other hand, a 'thin' matter, with poor, nutritive properties, will be nearer to hydrogen 384.

Hydrogen 384 will be defined as *water*.

Hydrogen 192 is the air of our atmosphere which we breathe.

Hydrogen 96 is represented by rarified gases which man cannot breathe, but which play a very important part in his life; and further, this is the matter of animal magnetism of emanations from the human body, of n-rays, hormones, vitamins and son on; in other words, with hydrogen 96 ends what is called matter or what is regarded as matter by our physics and chemistry. Hydrogen 96 also includes matters that are almost imperceptible to our chemistry or perceptible only by their traces or results; in many cases they are merely presumed by some and denied by others.

Hydrogens 48, 24, 12 and 6 are matters unknown to physics and chemistry, matters of our psychic and spiritual life on different levels.

Altogether, in examining the 'table of hydrogens', it must always be remembered that each hydrogen of this table includes an enormous number of different substances connected together by one and the same function in our organism and representing a definite 'cosmic group'.

Hydrogen 12 corresponds to the 'hydrogen' of chemistry (atomic weight 1). 'Carbon', 'nitrogen', and 'oxygen' (of chemistry) have the atomic weights: 12, 14, 16.

In addition it is possible to point out in the table of atomic weights elements which correspond to certain hydrogens, that is, elements whose atomic weights stand almost in the correct *octave* ratio to one another. Thus hydrogen 24 corresponds to fluorine (F, atomic weight 19); hydrogen 48 corresponds to chlorine (Cl, atomic weight 35.5); hydrogen 96 corresponds to bromine (Br, atomic weight 80); and hydrogen 192 corresponds to iodine (I, atomic weight 127). The atomic weights of these elements stand almost in the ratio of an octave to one another, in other words, the atomic weight of one of them is almost twice as much as the atomic weight of the next lightest. The slight inexactitude, that is, the incomplete octave relationship, is brought about by the fact that ordinary chemistry does not take into consideration all the properties of a substance, namely, it does not take into consideration 'cosmic properties'. The chemistry of which we speak here studies matters on a different basis from ordinary chemistry and takes into consideration not only the chemical and physical, but also the psychic and cosmic properties of matters.

This chemistry or alchemy regards matter first of all from the point of view of its functions, which determine its place in the universe and its relations to other matters, and then from the point of view of its relation to man and to man's functions. By an atom of a substance is meant a certain small quantity of the given substance that retains all its chemical, cosmic and psychic properties, because, in addition to its cosmic properties, every substance also possesses psychic properties, that is, a certain degree of intelligence. The concept 'atom' may therefore refer not only to elements, but also to all compound matters possessing definite functions in the universe or in the life of man.

There can be an atom of water, an atom of air (that is, atmospheric air suitable for man's breathing), an atom of bread, an atom of meat and so on. An atom of water will in this case be one tenth of one tenth of a cubic millilitre of water taken at a certain temperature measured by a special thermometer. This will be a tiny drop of water which under certain conditions can be seen with the naked eye.

This atom is the smallest quantity of water that retains *all the properties of water*. On further division some of these properties disappear, that is to say, it will not be water but something approaching the gaseous state of water—steam—which does not differ chemically in any way from water in a liquid state but possesses different functions and therefore different cosmic and psychic properties.

# THE COSMOLOGICAL LECTURES

## *FIFTH LECTURE*

### THE FOOD DIAGRAM

Categories of matter in the table of hydrogens. Each hydrogen represents a definite 'cosmic group'. Table of atomic weights. Concept of an 'atom'. Man's functions in relation to planes of the universe. To 'do' anything requires the right kind and amount of energy. The human mechanism is designed to produce a very large output of energy by transforming coarse matters into finer ones. In normal life circumstances, the output of energy never reaches its full potential. The human organism is sustained by three kinds of 'food': physical food; air; and impressions. The two processes by which this 'food' is transformed: automatically, to stay alive; and consciously; to fulfil our potential.

The table of hydrogens makes it possible to examine all substances making up man's organism from the point of view of their relation to different planes of the universe. And as every function of man is a result of the action of definite substances and as each substance is connected with a definite plane in the universe, this fact enables us to establish the relation between man's functions and the planes of the universe.

We want to 'do', but in everything we do we are tied and limited by the amount of energy produced by our organism. Every function, every state, every action, every thought, every emotion requires a certain definite energy, a certain definite substance.

We come to the conclusion that we must remember ourselves. But we can remember ourselves only if we have in us the energy for self-remembering. We can study something, understand or feel something, only if we have the energy for understanding, feeling or studying.

What then is a man to do when he begins to realize that he has not enough energy to attain the aims he has set before himself?

The answer to this is that every normal man has quite enough to *begin* to work on himself. It is only necessary to learn how to save the greater part of the energy we possess for useful work instead of wasting it unproductively.

Energy is spent chiefly on unnecessary and unpleasant emotions, on the expectation of unpleasant things, possible and impossible, on bad moods, on unnecessary haste, nervousness, irritability, imagination, day-dreaming and so on. Energy is wasted on the wrong work of the centres, on unnecessary tension of the muscles out of all proportion to the work involved; on perpetual chatter, which absorbs an enormous amount of energy; on the 'interest' continually taken in things happening around us or to other people which in fact have no interest whatsoever; on the constant waste of the force of 'attention' and so on, and so on.

In beginning to struggle with all these habitual sides of his life a man saves an enormous amount of energy, and with the help of this energy he can easily begin the work of self-study and self-perfection.

Further on, however, the problem becomes more difficult. Having to a certain extent balanced his machine and ascertained for himself that it produces much more energy than he expected, a man nevertheless comes to the conclusion that this energy is not enough and that, if he

wishes to continue his work, he must increase the amount of energy produced.

The study of the working of the human organism shows this to be quite possible.

The human organism represents a chemical factory planned for the possibility of a very large output. But in the ordinary conditions of life the output of this factory never reaches the full production possible to it, because only a small part of the machinery is used, producing only the quantity of material necessary to maintain its own existence. Factory work of this kind is obviously uneconomic in the highest degree. The factory actually produces nothing; all its machinery, all its elaborate equipment actually serves no purpose at all in that it maintains its own existence only with difficulty.

The work of the factory consists in transforming one kind of matter into another, namely, the coarser matters, in the cosmic sense, into finer ones. The factory receives, as raw material from the outer world, a number of coarse hydrogens and transforms these into finer hydrogens by means of a whole series of complicated *alchemical* processes. But in the ordinary conditions of life the production by the human factory of the finer hydrogens in which, from the point of view of the possibility of higher states of consciousness and the work of higher centres, we are particularly interested, is insufficient and they are all spent on the existence of the factory itself. If we could succeed in bringing the production up to its possible maximum we should then begin to save the fine hydrogens. Then the whole of the body, all the tissues, all the cells would become saturated with these fine hydrogens which would gradually settle in them, crystallising in a special way. This crystallisation of the

fine hydrogens would gradually bring the whole organism to a higher level, onto a higher plane of being.

This however, cannot happen in the ordinary conditions of life, because the factory expends all it produces.

'Learn to separate the fine from the coarse'; this principle from the 'Emerald Tablets' refers to the work of the human factory, and if a man learns to separate the fine from the coarse, that is, if he brings the production of fine hydrogens to its possible maximum, he will by this very fact create for himself the possibility of an inner growth which can be brought about by no other means.

All the substances necessary for the maintenance of the life of the organism, for psychic work, for the higher functions of consciousness, are produced by the organism from the food which enters it from outside.

The human organism receives three kinds of food:

1. the ordinary food we eat
2. the air we breathe
3. our impressions.

It is not difficult to agree that air is a kind of food for the organism. But it may at first appear difficult to understand in what way impressions can be food. We must however remember that with every external impression, whether it takes the form of sound, or vision, or smell, we receive from outside us a certain amount of energy, a certain number of vibrations. This energy which enters the organism from outside is food. Moreover, as has been said before, energy cannot be transmitted without matter. If an external impression brings energy with it into the organism, it means that external matter also enters which feeds the organism in the full meaning of the term.

For its normal existence the organism must receive all three kinds of food, that is, physical food, air and impressions.

The organism cannot exist on one or even two kinds of food; all three are required. But the relation of these foods to one another and their significance for the organism is not the same. The organism can exist for a comparatively long time without a supply of fresh physical food. Cases of starvation are known lasting for over sixty days, when the organism lost none of its vitality and recovered very quickly as soon as it began to take food. Of course starvation of this kind cannot be considered as complete, since in all cases of such artificial starvation people have taken water.

Nevertheless even without water a man can live without food for several days.

Without air he can exist only for a few minutes, not more than two or three; as a rule a man dies after being four minutes without air.

Without impressions a man cannot live a single moment. If the flow of impressions were to be stopped in some way or if the organism were deprived of its capacity to receive impressions, it would immediately die. The flow of impressions coming to us from outside is like a driving belt communicating motion to us. The principal motor for us is nature, the surrounding world.

Nature transmits to us through our impressions the energy by which we live and move and have our being. If the inflow of this energy is arrested our machine will immediately stop working. Thus, of the three kinds of food the most important for us is impressions, although it stands to reason that a man cannot exist for long on impressions alone. Impressions and air enable a man to exist a little longer. Impressions, air and physical food

enable the organism to live to the end of its normal term of life and to produce the substances necessary, not only for the maintenance of life, but also for inner growth.

The process of transforming the substances which enter the organism into finer ones is governed by the law of *octaves*.

Let us take the human organism in the form of a three-storied factory. The upper floor of this factory consists of a man's head; the middle floor, of the chest; and the lower of the stomach, the back and the lower part of the body.

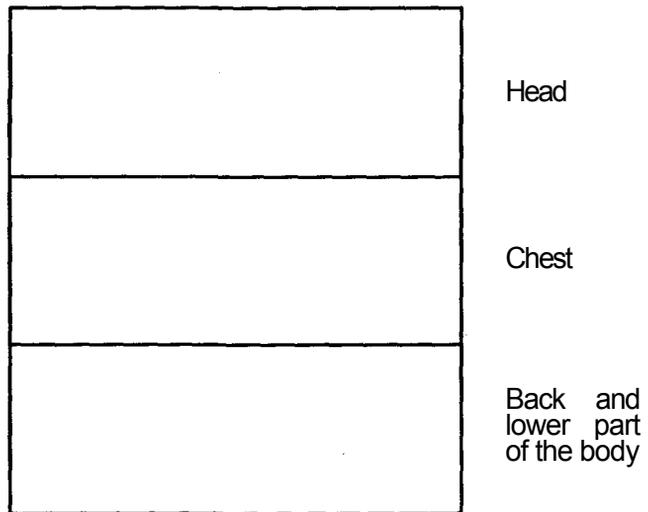


Figure 12: Man as a house with three stories

Physical food is H768 or *la, sol, fa* of the third cosmic octave of radiations. This hydrogen enters the lower storey of the organism as 'oxygen' do 768:

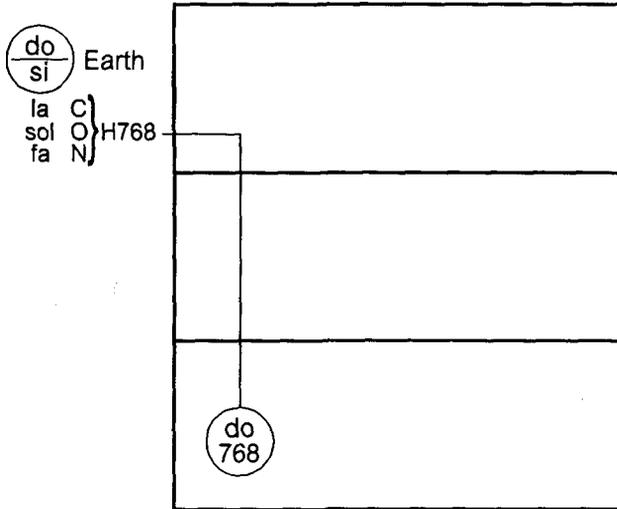


Fig. 13: The entrance of food (H768) into the organism.

'Oxygen' 768 meets with 'Carbon' 192, which is present in the organism. From the union of 0.768 and C.192 is obtained N.384. N.384 is the next note, re:

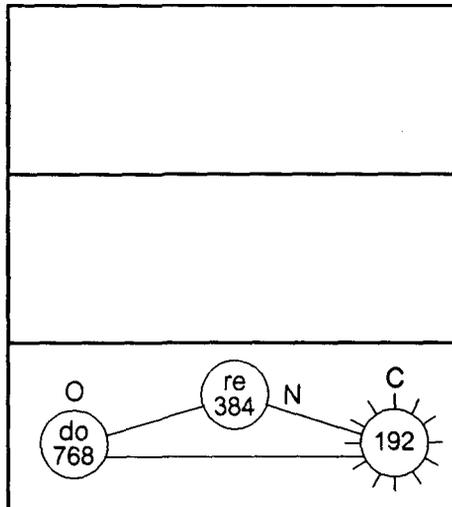


Fig. 14: Beginning of digestion of food (H768) in the organism.

Re 384, which becomes 'oxygen' in the next triad, meets with 'carbon' 96 in the organism and together with it produces a new 'nitrogen' 192, which is the note mi 192:

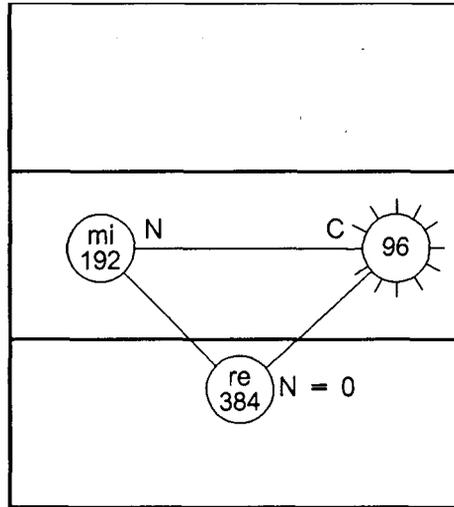


Fig. 15:  
Continuation  
of digestion  
of food  
(H768) in  
the  
organism.  
Carbons  
which are  
present in  
the  
organism  
are marked  
C

As it is known from the law of octaves, mi cannot pass independently into fa in an ascending octave; an additional shock is necessary. If an additional shock is not received, the substance mi 192 cannot by itself pass into the full note fa.

At the given place in the organism where the food octave ought apparently to stop at mi 192, there enters the 'second food' —air—in the form of do 192, that is mi, re, do of the second cosmic octave of radiations. The note do possesses all the necessary semitones, that is, all the energy necessary for the transition to the next note, and it gives, as it were, a part of its energy to the note mi which has the same density as itself. The energy of do gives mi 192 force enough to pass, while uniting with

'carbon' 48 already in the organism, into 'nitrogen' 96.  
 'Nitrogen' 96 will be the note fa:

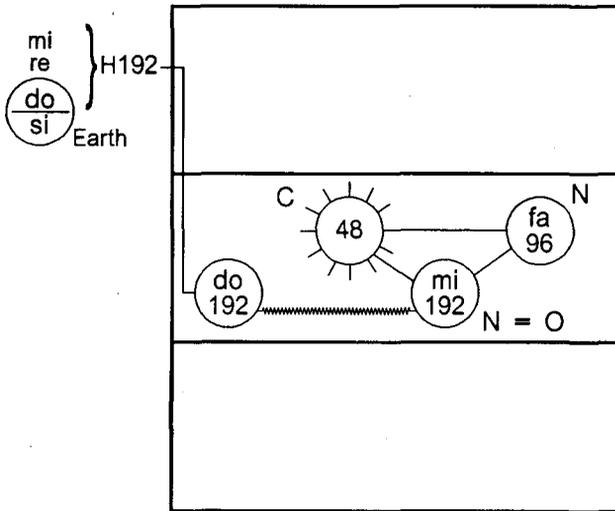


Fig. 16: The entrance of air(H192) into the organism and the *shock* which air gives in the interval mi—fa of the food octave.

Fa 96, by uniting with 'carbon' 24 present in the organism passes into 'nitrogen' 48, the note sol:

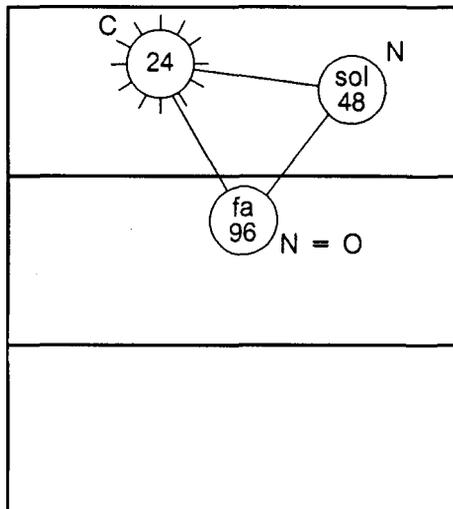


Fig. 17: Continuation of the food octave: transition of products of nutrition into sol 48.

The note sol 48, by uniting with 'carbon' 12 present in the organism, passes into 'nitrogen' 24—la 24:

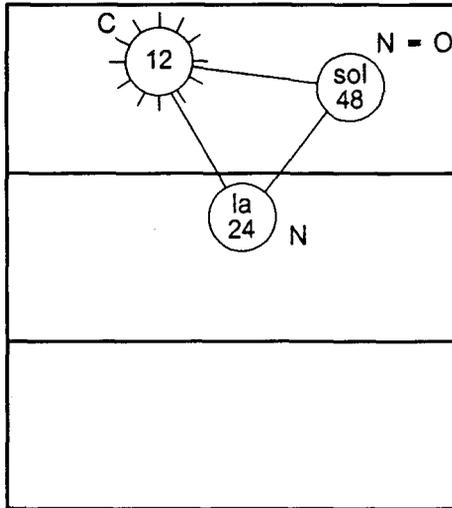


Fig. 18:  
Continuation  
of the food  
octave:  
transition of  
products of  
nutrition into  
la 24.

La 24 unites with 'carbon' 6 already in the organism and is transformed into 'nitrogen' 12, or si 12. Si 12 is the highest substance produced in the organism from physical food with the help of the additional shock obtained from the air.

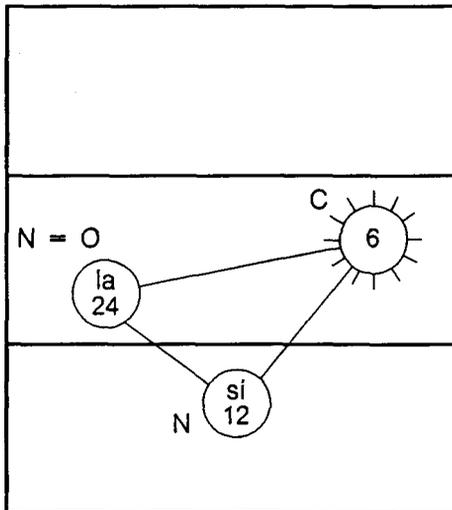


Fig. 19:  
Continuation  
of the food  
octave:  
transition of  
products of  
nutrition into  
si 12.

Do 192 (air), entering the middle story of the factory in the character of 'oxygen' and giving part of its energy to mi 192, unites in its turn at a certain place with 'carbon' 48 present in the organism and passes into re 96:

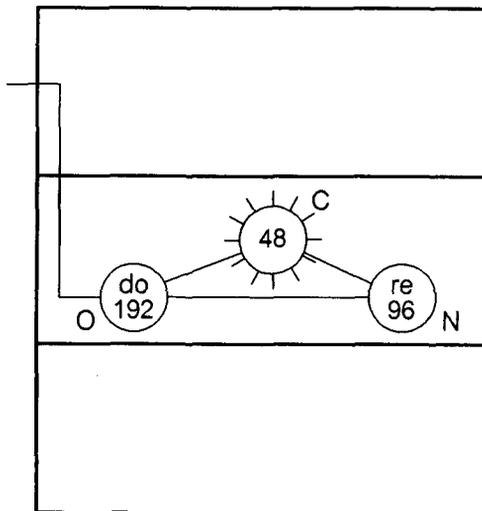


Fig. 20: The beginning of the digestion of air in the organism.

Re 96 passes into mi 48 with the help of 'carbon' 24 and with this the development of the second octave comes to a stop. For the transition of mi into fa, an additional shock is necessary; but at this point nature has not prepared any additional shock and the second octave, that is, the air octave, cannot develop further and in the ordinary conditions of life it does not develop further (see Figure 21):

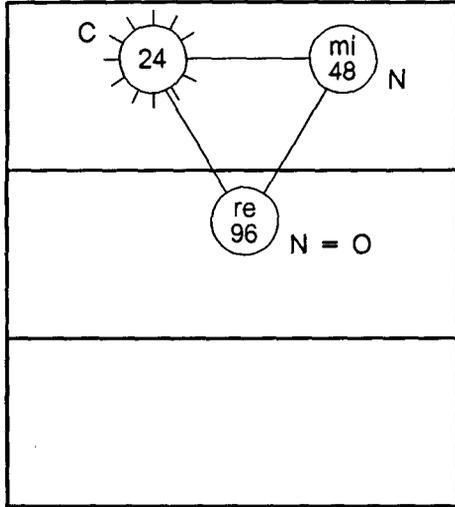


Fig. 21:  
Continuation  
of the air  
octave in  
the  
organism.

The third octave begins with do 48.

Impressions enter the organism in the form of 'hydrogen' 48, that is, *la, sol, fa* of the second cosmic octave—sun-earth.

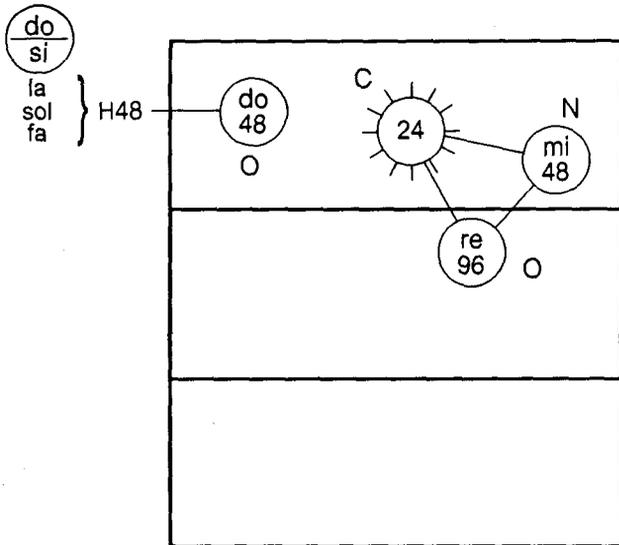


Fig. 22:  
Entry of  
impressions  
into the  
organism.

Do 48 has sufficient energy to pass into the following note, but at that place in the organism where do 48 enters, the 'carbon' 12 necessary for this is not present. At the same time do 48 does not come into contact with mi 48, so that it cannot either itself pass into the next note or give part of its energy to mi 48.

# THE COSMOLOGICAL LECTURES

## *SIXTH LECTURE*

### THE TWO SHOCKS

Normal limit of energy production in the human organism. Possibility of increased energy. First conscious shock. Attracting fine substances. Second conscious shock. Three-storied factory and the centres. Alchemy as allegory. Transformation of the emotions. Work of higher and lower centres. Purposes of the hydrogens in our organism. It is the lower centres that are undeveloped. Higher centres inaccessible. Production and use of energy to connect the lower centres to the higher. All psychic processes are material.

**U**nder normal conditions, that is, the conditions of a normal existence, the production of fine matters by the factory comes to a stop at this point, and the third octave sounds as do only.

The highest substance produced by the factory is si 12 and for all its higher functions the factory is able to use only this higher matter (see Figure 23 overleaf).

There is, however, a possibility of increasing the output, that is, of enabling the air octave and the impressions octave to develop further. For this purpose it is necessary to create a special kind of artificial shock at the point where the beginning of the third octave is arrested. This means that the artificial shock must be applied to the note *do* 48.

But what is meant by an artificial shock? It is connected with the moment of the reception of an impression. The note do 48 designates the moment when an impression enters our consciousness. An artificial shock at this point means a certain kind of effort made at the moment of receiving an impression.

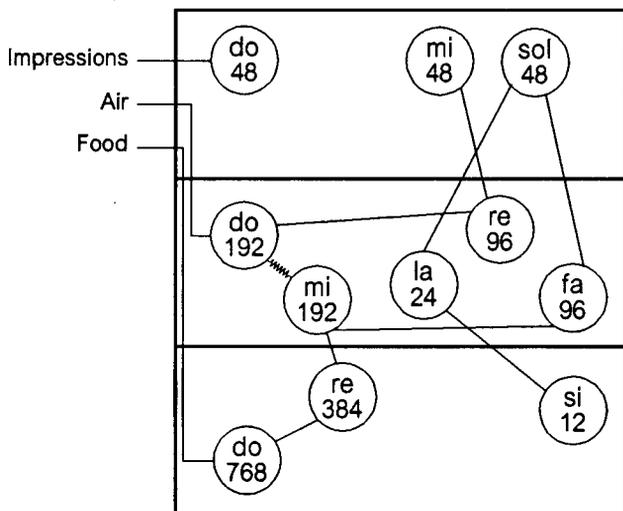


Fig. 23:  
Limits of  
normal  
working of  
the  
organism  
without  
special  
methods.

It has been explained before that in ordinary conditions of life we do not 'remember ourselves'; we do not remember, that is, we do not feel ourselves, are not aware of ourselves at the moment of a perception, of an emotion, of a thought or of an action. If a man understands this and tries to 'remember himself', every impression he receives while remembering himself will, so to speak, be doubled. In an ordinary psychic state I simply look at a street; but if I 'remember myself, I do not simply look at the street; I feel I am looking, as though saying to myself: 'I am looking'. Instead of one impression of the street, there are two impressions, one of the street, and another of myself looking at it. This second impression, produced by the fact of my 'remembering myself, is the additional shock.

Moreover, it very often happens that the additional sensation connected with 'self-remembering' brings with it an element of emotion, that is, the work of the machine attracts a certain amount of 'carbon' 12 to the place in question. Efforts to 'remember oneself, observation of oneself at the moment of receiving an impression, observation of one's impressions at the moment of receiving them, registering, so to speak, the reception of impressions and simultaneously defining the impressions received, all this taken together doubles the intensity of the impressions and carries do 48 to re 24. At the same time the effort connected with the transition of one note to another and the passage of 48 itself to 24 enables do 48 of the third octave to come into contact with mi 48 of the second octave and to give this note the requisite amount of energy for the transition of mi into fa. In this way the shock given to do 48 extends also to mi 48 and enables the second octave to develop.

Mi passes to fa 24; fa 24 passes to sol 12; sol 12 passes to la 6. La 6 is the highest matter produced by the organism from air, that is, from the second kind of food. *This however is obtained only by making a conscious effort at the moment an impression is received* (see Figure 24 overleaf).

It is necessary to understand what this means. We all breathe the same air. Apart from the elements known to our science the air contains a great number of substances unknown to science, indefinable by it and inaccessible to its observation. But exact analysis shows that although the air inhaled by different people is exactly the same, the air exhaled is quite different. Let us suppose that the air we breathe is composed of twenty different elements unknown to our science. A certain number of these elements is absorbed by every man when he breathes. Let us suppose that five of these elements are always

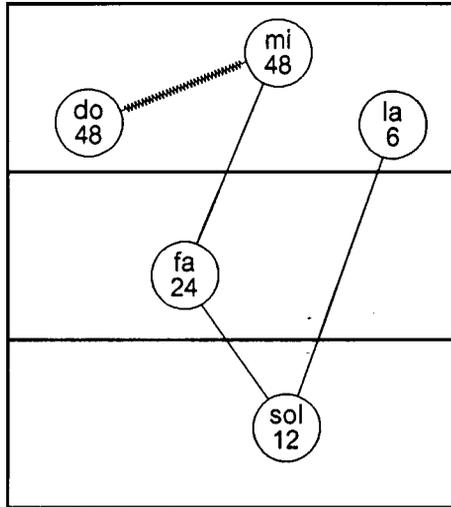


Fig. 24: The development of the air octave after the first *conscious* shock.

absorbed. Consequently the air exhaled by every man is composed of fifteen elements; five of them have gone to feed the organism. But some people exhale not fifteen but only ten elements, that is to say, they absorb five elements more. These five elements are higher 'hydrogens'. These higher hydrogens are present in every small particle of air we inhale. By inhaling air we introduce these higher hydrogens into ourselves, but if our organism does not know how to extract them out of the particles of air and to retain them, they are exhaled back into the air. If the organism is able to extract and retain them, they remain in the organism. In this way we all breathe the same air but we extract different substances from it. Some extract more, others less.

In order to extract more it is necessary to have in our organism a certain quantity of corresponding fine substances. Then the fine substances contained in the organism *act like a magnet* on the fine substances contained in the inhaled air. We come again to the old alchemical law: *'In order to make gold, it is first of all*

*necessary to have a certain quantity of real gold.'* If no gold whatever is possessed, there is no means whatever of making it!

The whole of alchemy is nothing but an allegorical description of the human factory and its work of transforming base metals (coarse substances) into precious ones (fine substances).

We have followed the development of two octaves. The third octave, that is, the octave of impressions, begins through a conscious effort. Do 48 passes to re 24; re 24 passes to mi 12. At this point the development of the octave comes to a stop.

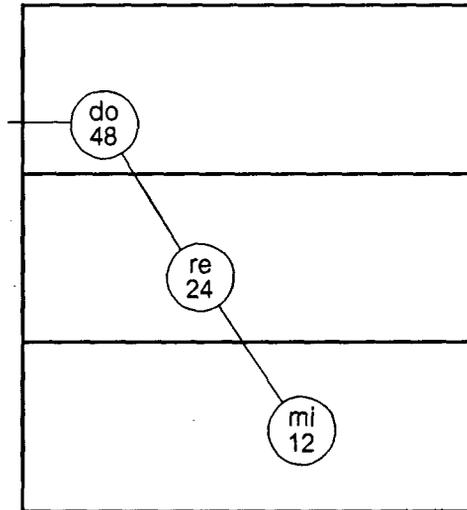


Fig. 25:  
Development of the octave of impressions after the first conscious 'shock.

Now if we examine the result of the development of these three octaves, we shall see that the first octave has reached si 12, the second la 6, and the third mi 12. Thus the first and third octaves stop at notes which are unable to pass to the following notes.

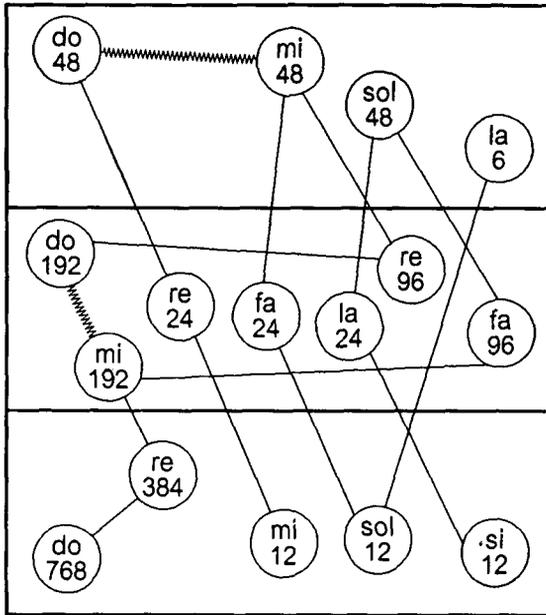


Fig. 26: The complete picture of the intensive work of the organism and of the intensive production of substances from the products of nutrition after the first *conscious* shock.

For the two octaves to develop further, a second conscious shock is needed at a certain point in the machine, a new conscious effort is necessary which will enable the two octaves to continue their development. The nature of this effort demands special study. From the point of view of the general work of the machine it can be said in general that this effort is connected with the emotional life, that it is a special kind of influence over one's emotions. But what this kind of influence really is and how it has to be produced can be explained only in connection with a general description of the work of the human factory, of the human machine.

The practice of not expressing unpleasant emotions, of not identifying, of not considering inwardly, is the preparation for the *second effort*.

If we now take the work of the human factory as a whole, we shall be able to see by what means, at the moments when the production of fine substances is

arrested, we can increase the productivity of the factory. We see that, under ordinary conditions and working with one mechanical shock, the factory produces a very small quantity of fine substances, in fact only *si 12*. Working with one mechanical and one conscious shock, the factory produces a much greater quantity of fine substances. Working with two shocks the factory will produce a quantity of the fine substance such as, in the course of time, will completely change the character of the factory itself.

The three-storied factory represents the universe in miniature and is constructed according to the same laws and on the same plan as the whole universe.

In order to understand the analogy between man, the human organism, and the universe, let us take the world as we did before in the form of three octaves from the Absolute to the sun, from the sun to the earth and from the earth to the moon. Each of these three octaves lacks a semi-tone between *fa* and *mi* and in each octave the place of this missing semi-tone is taken by a certain kind of shock, created artificially at the given point. If we now begin to look for an analogy between the three-storied factory and the three octaves of the universe, we ought to realize that the three additional shocks in the three octaves of the universe correspond to the three kinds of food entering the human organism. The shock in the lower octave corresponds to physical food; this shock is do 768 of the cosmic three-storied factory. The shock in the middle octave corresponds to air. It is do 192 of the cosmic factory. The shock in the upper octave corresponds to impressions; it is do 48 of the cosmic factory. In the inner work of this cosmic three-storied factory all three kinds of food undergo the same transformation as in the human factory, on the same

plan and in accordance with the same laws. A further study of the analogy between man and the universe is possible only after an exact study of the human machine and after the respective 'place' of each of the hydrogens in our organism has been established exactly. This means that to proceed with any further study we must find the exact purpose of each hydrogen, that is to say, each hydrogen must be defined chemically, psychologically, physiologically and anatomically: in other words, its function, its place in the human organism and, if possible, the peculiar sensations connected with it must be defined.

The study of the work of the human organism as a chemical factory shows us three stages in the evolution of the human machine.

The first stage refers to the work of the human organism, as it has been created by nature, that is to say, to the life and function of man number one, number two and number three. The first octave, that is, the octave of food, develops in a normal way to mi 192. At this point it automatically receives a shock from the beginning of the second octave, and its development goes on consecutively to si 12. The second octave, that is, the air octave, begins with do 192 and develops to mi 48 where it stops. The third octave, that is, the octave of impressions begins with do 48 and stops there. Thus seven notes of the first octave, three notes of the second and one note of the third octave represent a complete picture of the work of the 'human factory' in its first or natural stage. Nature has provided only one shock, that is, the shock received from the entrance of the second octave, which helps mi of the first octave to pass to fa. But nature did not foresee and did not provide for the second shock, that is, the shock that would help the development of the third octave and thereby enable mi of the second octave to pass to fa. A

man must create this shock by his own personal efforts if he desires to increase the output of the fine hydrogens in his organism.

The second stage refers to the work of the human organism when a man creates a conscious volitional shock at the point do 48. In the first place this volitional shock is transmitted to the second octave, which develops as far as sol 12, or even further up to la 6 and so on, if the work of the organism is sufficiently intense. The same shock also enables the third octave to develop, that is, the octave of impressions, which in this event reaches mi 12. Thus in the second stage of the work of the human organism we see the full development of the second octave and three notes of the third octave. The first octave has stopped at the note si 12, the third at the note mi 12. Neither of these octaves can proceed any further without a fresh shock. The nature of this second shock cannot be so easily described as the nature of the first volitional shock at do 48. In order to understand the nature of this shock it is necessary to understand the meaning of si 12 and mi 12.

The effort which creates this shock must consist in work on the emotions, in the transformation and transmutation of the emotions. This transmutation of the emotions will then help the transmutation of si 12 in the human organism. No serious growth is possible without this transmutation. The idea of this transmutation was known to many ancient teachings as well as to some comparatively recent ones, such as the alchemy of the Middle Ages. But the alchemists spoke of this transmutation in the allegorical form of the transformation of base metals into precious ones. In reality, however, they meant the transformation of coarse hydrogens into finer ones in the human organism,

chiefly the transformation of si 12. If this transformation is attained, a man can be said to have achieved what he was striving for, and it can also be said that until this transformation is attained, all results a man achieves can be lost because they are not fixed in him in any way; moreover, they are attained only in the spheres of thought and emotion. Real, objective results can be obtained only after the transmutation of si 12 has begun.

Alchemists who spoke of this transmutation began directly with it. They knew nothing, or at least they said nothing about the nature of the first volitional shock. It is upon this, however, that the whole thing depends. The second volitional shock and transmutation become physically possible only after long practice on the first volitional shock, which consists in self-remembering and in observing the impressions received. On the way of the monk and on the way of the fakir, work on the second shock begins before work on the first shock, but as mi 12 is created only as a result of the first shock, work, in the absence of other material, has of necessity to be concentrated on si 12, and it very often gives quite wrong results. Right development on the fourth way must begin with the first volitional shock and then pass on to the second shock at mi 12 and si 12.

The third stage in the work of the human organism begins when man creates in himself a conscious second volitional shock at the points mi 12 and si 12, when the transformation or transmutation of these hydrogens into higher hydrogens begins in him. The second stage and the beginning of the third stage refer to the life and functions of man number four. A fairly considerable period of transmutation and crystallisation is needed for the transition of man number four to the level of man number five.

When the table of hydrogens has been sufficiently grasped, it shows immediately many new features in the work of the human machine, establishing clearly before anything else the reasons for the differences between the centres and their respective functions.

The centres of the human machine work with different hydrogens. This constitutes their chief difference. The centre working with a coarser, heavier, denser hydrogen works the slower. The centre working with lighter, more mobile hydrogen works the quicker

The thinking or intellectual centre is the slowest of all the three centres we have examined up to now. It works with hydrogen 48 (according to the third scale of the table of hydrogens).

The moving centre works with hydrogen 24. Hydrogen 24 is many times quicker and more mobile than hydrogen 48. The intellectual centre is never able to follow the work of the moving centre. We are unable to follow either our own movement or other people's movements unless they are artificially slowed down. Still less are we able to follow the work of the inner, the instinctive functions of our organism, the work of the instinctive mind which constitutes, as it were, one side of the moving centre.

The emotional centre can work with hydrogen 12. In reality, however, it very seldom works with this fine hydrogen. And in the majority of cases its work differs little in intensity and speed from the work of the moving centre, or the instinctive centre.

In order to understand the work of the human machine and its possibilities, one must know that, apart from these three centres and those connected with them, we have two more centres fully developed and functioning

properly, but not connected with our usual life nor with the three centres in which we are aware of ourselves.

The existence of these higher centres in us is a great riddle; they are the hidden treasure which men who believe in the existence of the mysterious and the miraculous have sought since the remotest times.

All mystical and occult systems recognize the existence of higher forces and capacities in man, although in many cases they admit the existence of these forces and capacities only in the form of possibilities and speak of the necessity for *developing* the hidden forces in man. This present teaching differs from many others by the fact that it affirms that the higher centres exist in man and are fully developed.

*It is the lower centres that are undeveloped.*

And if: is precisely this lack of development, or incomplete functioning of the lower centres that prevents us from making use of the work of the higher centres.

As has been said earlier, there are two higher centres:

The higher emotional centre, working with hydrogen 12.

The higher thinking centre, working with hydrogen 6.

If we consider the work of the human machine from the point of view of the hydrogens which work the centres, we shall see why the higher centres cannot be connect with the lower ones.

The intellectual centre works with hydrogen 48; the moving centre with hydrogen 24.

If the emotional centre were to work with hydrogen 12, its work would be connected with the work of the higher emotional centre. In these cases where the work of the emotional centre reaches the intensity and speed of experience which is given by hydrogen 12, a temporary connection with the higher emotional centre takes place and man experiences new emotions hitherto entirely

unknown to him, for the description of which he has neither words nor expressions. But in ordinary conditions the difference between the speed of our usual emotions and the speed of the higher emotional centre is so great that no connection can take place and we fail to hear within us the voices which are speaking *and calling to us* from the higher emotional centre.

The higher thinking centre, working with hydrogen 6, is still further removed from us, still less accessible. Connection with it is possible only through the higher emotional centre. It is only from descriptions of mystical experiences, ecstatic states and so on that we know cases of such a connection. These states can occur on the basis of religious emotions, or, for short moments through particular narcotics; or in certain pathological states such as epileptic fits or accidental traumatic injuries to the brain, in which case it is difficult to say which is the cause and which is the effect, that is, whether the pathological results from this connection or is its cause.

If we could connect the centres of our ordinary consciousness with the higher thinking centre deliberately and at will, it would be of no use whatever in our present general state. In most cases where accidental contact with the higher thinking centre takes place, a man becomes unconscious. The mind refuses to take in the flood of thoughts, emotions, images and ideas which suddenly burst into it. And instead of a vivid thought or a vivid emotion, there results on the contrary a complete blank, a state of unconsciousness. The memory retains only the first moment when the flood rushed in on the mind and the last moment when the flood was receding and consciousness returned. But even these moments are so full of unusual shades and colours that there is nothing with which to compare them among the ordinary

sensations of life. This is usually all that remains from so-called mystical and ecstatic experiences, which represent a temporary connection with a higher centre. Only very seldom does it happen that a mind which has been better prepared succeeds in grasping and remembering something of what was felt and understood at the moment of ecstasy. But even in these cases the intellectual, the moving and the emotional centres remember and transmit everything in their own way, translate absolutely new and never previously experienced sensations into the language of usual, everyday sensations, transmit in worldly, three-dimensional forms things which pass completely beyond the limits of worldly measurements; in this way, of course, they entirely distort every trace of what remains in the memory of these unusual experiences. Our ordinary centres, in transmitting the impressions of the higher centres, may be compared with a blind man speaking of colours, or to a deaf man speaking of music.

In order to obtain a correct and permanent connection between the lower and the higher centres, it is necessary to regulate and quicken the work of the lower centres.

Moreover, as has already been said, lower centres work in a wrong way, for very often, instead of their own proper functions, one or another of them takes upon itself the work of other centres. This considerably reduces the speed of the general work of the machine and makes acceleration of the work of the centres very difficult. Thus, in order to regulate and accelerate the work of the lower centres, the primary object must consist in freeing each centre from work foreign and unnatural to it, and in bringing it back to its own work, which it can do better than any other centre.

A great deal of energy is also spent on work which is completely unnecessary and harmful in every respect, such as the activity of unpleasant emotions, the expression of unpleasant sensations, on worry, on restlessness, on haste and on a whole series of automatic actions which are completely useless. As many examples as you like can be found of such unnecessary activity. First of all there is the constantly moving flow of thoughts in our mind, which we can neither stop nor control and which takes up an enormous amount of our energy. Secondly there is the quite unnecessary constant tension of the *muscles* of our organism. The muscles are tense even when we are doing nothing. As soon as we start to do even a small and insignificant piece of work, a whole system of muscles necessary for the hardest and most strenuous work is immediately set in motion. We pick up a needle from the floor and we spend on this action as much energy as is needed to lift up a man of our own weight. We write a short letter and use as much muscular energy upon it as would suffice to write a bulky volume. But the chief point is that we spend muscular energy continually and at all times, even when we are doing nothing. When we walk, the muscles of our shoulders and arms are tensed unnecessarily; when we sit the muscles of our legs, neck, back and stomach are tensed in an unnecessary way. We even sleep with the muscles of our arms, of our face, of the whole of our body tensed, and we do not realize that we spend much more energy on this continual readiness for work we shall never do than on all the real, useful work we do during our life.

Still further we can point to the habit of continually talking with anybody and about anything, or, if there is no one else, with ourselves; to the habit of indulging in

fantasies, in day-dreaming; the continual change of mood, feelings and emotions, and an enormous amount of quite useless things which a man considers himself obliged to feel, think, do or say.

In order to regulate and balance the work of the three centres whose functions constitute our life, it is necessary to learn to economise the energy produced by our organism, not to waste this energy on unnecessary functions and to save it for that activity which will gradually connect the lower centres with the higher.

All that has been said before about work on oneself, about the formation of inner unity and of the transition from the level of man number one, number two and number three to the level of man number four and further, pursues one and the same aim.

What it is necessary to understand and what the table of hydrogens helps us to grasp is the idea of the complete materiality of all the psychic, intellectual, emotional, volitional and other inner processes, including the most exalted poetic inspirations, religious ecstasies and mystical revelations.

The materiality of processes means their dependence upon the quality of the material or substance expended by them. One process demands the expenditure, that is, as it were, the burning of hydrogen 48; another process cannot be obtained with the help of hydrogen 48; it requires a finer, a *more combustible* substance—hydrogen 24. For a third process hydrogen 24 is too weak; it requires hydrogen 12.

Thus we see that our organism has the different kinds of fuel necessary for the different centres. The centres can be compared to machines working on fuels of different qualities. One machine can be worked on oil residue or crude oil. Another requires paraffin; a third will not work

on paraffin, but requires petrol. The fine substances of our organism can be characterised as substances of different flash-points, while the organism itself can be compared to a laboratory in which the combustibles of different strengths required by the different centres are prepared from various kinds of raw material. Unfortunately, however, there is something wrong with the laboratory. The forces controlling the distribution of combustibles among the different centres often make mistakes and the centres receive fuel that is either too weak or too easily inflammable. Moreover, a great quantity of all the combustibles produced is spent quite uselessly; it simply runs out; is lost. Besides, explosions often take place in the laboratory which at one stroke destroy all the fuel prepared for the next day and possibly for an even longer period, and are able to cause irreparable damage to the whole factory.

It must be noted that the organism usually produces in the course of one day all the substances necessary for the following day. And it very often happens that these substances are spent or consumed upon some unnecessary and, as a rule, unpleasant emotion. Bad moods, worry, the expectation of something unpleasant, doubt, fear, a feeling of injury, irritation, each of these emotions in reaching a certain degree of intensity say, in half an hour, or even half a minute, consume all the substances prepared for the next day; while a single flash of anger, or some other violent emotion, can at once explode all the substances prepared in the laboratory and leave a man quite empty inwardly for a long time or even for ever.

All psychic processes are material. There is not a single process that does not require the expenditure of a certain substance corresponding to it. If this substance is present, the process goes on. When the substance is exhausted—the process comes to a stop.