EARTH and MAN

by

Karl König

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by
Carlo Pietzner

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By

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H.v.J.
May 1982

PREFACE TO UNPUBLISHED VERSION OF *EARTH AND MAN*

Lectures by Dr. Koenig constituted important building stones in the development of Camphill in the past. Many people—including a growing number of those who have not known Dr. Koenig—feel that they are equally relevant today for the study and understanding of Curative Education, of our social ideals and for the anthroposophical comprehension of the world and its civilizations.

Yet most of these lectures are out of print. Most have been available only in incorrected and often faulty transcriptions of tapes. There has been as little time to edit these materials by others as there had been for Dr. Koenig himself when they were first published. However, the wish to be able to study this living legacy left by him is so great and so often asked for that the decision has been made to allow reprints of the existing stencils whenever a serious request is received.

It must be fully understood, however, that the texts becoming available in this way are uncorrected transcripts; that they contain mistakes, sometimes even in the quotation of sources and dates; and that they must in no way be regarded as authoritative material which would have passed Dr. Koenig's scrutiny. Students of these texts will have to bear in mind that they are confronted with incomplete and sometimes misinterpreted recordings which, nevertheless, offer to the discerning reader such a wealth of insight, stimulation and moral strength as to justify the withholding of these

manuscripts even less than making them available in an imperfect and sometimes perhaps distorted form.

Responsibility for this decision rests entirely with those who have been asked by Dr. Koenig to administer his manuscripts and writings. But this preface should be taken as an indication that the reader of these reprints also has to accept a certain responsibility in the deployment of judgment and care for these texts by Dr. Koenig.

Carlo Pietzner, Alix Roth, Peter Roth
1969

INTRODUCTION

Many people today long for a new, truly experienced relationship to nature in their life and work. With this book we offer for the first time to a wider readership lectures and discussions by and with Karl Koenig, entitled *EARTH AND MAN,* hitherto available only in manuscript form. These lectures were given in the context of special conferences of farmers and gardeners, either within the framework of the Bio-Dynamic Farming and Gardening Association in Great Britian or agricultural working groups of the Camphill Movement. All were given by Dr. Koenig in response to invitations extended to him by the relevant groups, asking him to address subjects that were of special concern and interest to them at the particular time. Dr. Koenig took it for granted that everyone participating in these conferences would have a basic acquaintance with the work of Rudolf Steiner or of bio-dynamic agriculture—or at least an open mind to the marvels of nature. The reader must bear this in mind. Koenig also expected of his listeners a flexibility of thought activity, of a kind that can let the phenomena of nature be the starting point for the searching mind in learning to understand the world, a criterion of attitude first developed into a science by the great eighteenth century philosopher, poet and scientist, Goethe.

In order to acquaint the reader with the background of this book, a short biographical sketch of the author and his work may be of help.

Karl Koenig was born in 1902 in Vienna, Austria, the

only child of Jewish parents. He grew up in Vienna, where he studied medicine, receiving his doctorate from the University of Vienna in 1927. The general loss of established values around him at the time of his youth, the First World War, the collapse of the Austro-Hungarian monarchy, all prompted a search for new values in the young Koenig. This search expressed itself through the interest in philosophical, natural-scientific and social questions that occupied his mind. He read Haeckel and Freud with the same devotion as Hofmannsthal and George, Buddha and Laoatese, Dumas and Balzac. The writings of his contemporary, Adolf Stoehr (Professor of Philosophy and Psychology at the University of Vienna), brought him up against the question of a theory of knowledge, the problems of sense-perception and the riddle of the reality of the outer world.

> For days and nights I attempted to observe my own thinking in order to find the clue to the process of cognition itself . . . Having been a science pupil, I had to catch up on Latin, but I chiefly attended the readings on botany, zoology, experimental zoology and biology. The world of natural scientific research began to reveal itself to me with immense power. Here I also took hold of any books accessible to me. As much as the wonders of the world of the organic fascinated me, to the same degree the ways of trying to explain them left me dissatisfied. Darwin, Haeckel, Driesch, Verworn, v. Uexhoell, Hertwig and the many others that I studied only showed possible ways, but gave no satisfactory—or for the matter encompassing—insights.
>
> This remained true until my attention was directed to Goethe's natural-scientific writings. His botanical and anthropological-morphological presentations had the effect of a tremendous release on me. Here I felt directly addressed. These were the gateways that would lead to possible answers. In Goethe's views about nature I met something that enlivened my thinking in the same manner as, at an earlier stage, the reading of the New Testament had awakened my feeling to a new existence.
>
> Only now the study of anatomy, of embryology and histology became a daily wellspring of inner joy. Bone and muscle revealed new worlds to me. The idea of metamorphosis gripped me deeply, and I learned to get to know in a divining way the working of the formative forces in nature. So I also began to grasp the identity that exists between these formative forces and our thoughts. Outside in nature, these formative forces work in such a manner that they let come into existence all organic forms. Inside, in the human soul, however, they are the formers of our thoughts and ideas.*

Although primarily a physician throughout his life, Koenig's keen and consistent interest in the affairs of our time went far beyond the actual field of medicine. His knowledge, study and research involved more than current publications in the field of medicine. They were wide-ranging, as his writings reflect to an astonishing degree. In addition to several books, he wrote numerous essays and articles. Early writings dealt with anatomy, the human skeleton, embryology, zoology and the evolution of the animal kingdom. But he also wrote essays on the biographies of historic personalities in relation to the nineteenth century, and on other topics of our time too numerous to mention here. In all, more than three hundred essays and articles, published in over forty periodicals, are listed in a bibliography of Koenig's works.** This does not include many public lectures and addresses, an even greater number of private lectures and addresses, and some poetry, as well as a number of plays he wrote for—and within the context of—the Camphill Community.

Koenig became best known as the founder of the Camphill Movement, an organization endeavoring to manifest the spiritual values of Anthroposophy through social forms of community life that seek to do justice to a wide range of human needs. Numerous village and school communities in many parts of the world, chiefly established around the curative-educational needs of developmentally disabled persons, are the manifestation of this impulse.

Throughout his life (he died in 1966), Karl Koenig's prime concern was the upholding of human values. He recognized clearly the endangerment to the inner man in our time. His single-minded will and constant fight to uphold and defend the spiritual integrity of humanity, as much as that of each person who needed his aid or asked for his advice, made him a physician, a healer in the true sense of the word.

* Karl Koenig: *Autobiografisches Fragment:* Freundeskreis Camphill, 1979.

** C.A. Lindenberg, *Karl Koenig: A Bibliography* (Camphill Rudolf Steiner Schools, Aberdeen, 1969).

Koenig's manner was direct and outspoken, and his views were often provocative in their divergence from those held by others. At the same time, he had an astonishing capacity to listen and to understand. Those who asked for his aid often found that his advice—whether given as a doctor to a patient or as a friend or helper—allowed a person to understand himself with respect to potential that he had never known he possessed. Conversely, since Koenig was aware of a person's capabilities, his expectations of people were high.

This introduction would be incomplete without mentioning Karl Koenig's relation to the work and person of Rudolf Steiner, of whom he was a contemporary. Koenig never met Steiner, yet he recognized in him his teacher and guide. Steiner's teaching, Anthroposophy, formed for him the basis of his own spiritual orientation, personal striving, scientific thinking, work and research.

Frequent references to Steiner are made in this book. Koenig realized the tremendous wealth of knowledge and insight he himself owed to the guiding directions Steiner provides for a fuller understanding of the subjects. It is this knowledge that prompted him to direct his listeners to the person whose contribution to our time has barely been recognized, much less understood.

Koenig never claimed that his views and suggestions should be accepted dogmatically or as a final interpretation. Rather, he wanted his views, and therefore also those found in this book, to be taken as encouragement, encouragement comparable perhaps to that which an experienced painter might give to someone who has detailed knowledge of, say, the physical and chemical properties of canvas, brush, paint, etc., and who may even own the tools to paint with, but who has never actually tried to paint.

Just as the laws that may eventually result in a picture that can be appreciated by many as a piece of art are not exhausted with a knowledge of the materials, but are only found through the involvement of the artist who uses them as a means toward an end, so we must see the approach presented

here with respect to our involvement with the kingdoms of nature. There is one difference, however. A painting may well be a piece of art; it may even have "life." Yet its materials are dead substance. In our relation as man to the kingdoms of nature we are confronted with living substances and forces. As realities they live and work in creative harmony. But beyond this, they wish us to take them seriously, not only in the dead images they present to us in our laboratories, but through the art by which, as living forces in the kingdoms of nature on the earth, they can and want to manifest themselves in cooperation with us. Whether as scientists, farmers, gardeners, or simply as human beings, we can learn to know and work with these "laws."

It is in this sense, therefore, that Dr. Koenig's lectures should be read: as a stimulus, as a contribution to the better understanding of ourselves and of the world around us, at a time when the destiny of the earth itself is laid into our hands.

Harmut von Jeetze

Easter 1982
Sauk Center, MN
U.S.A.

A word about the sequence of the lectures: This book has been arranged by presenting first those lectures dealing with more comprehensive and general themes, leading up to those that may serve as guidelines in the practical application of bio-dynamic agriculture. The order of the lectures does not, therefore, correspond to the original dates on which they were given.

CONTENTS

Man and The Domestic Animal

2-12-64
Botton Hall
First Lecture

Dear friends, in my studies throughout the last twenty years, when I occupied myself with the animal kingdom, time and again I came across the big problem of the domestic animals. What are they? What kind of significance have they? Which of all the animals can we call domestic? Such questions can hardly be answered. There are many animals which are near to man, yet we can't call them domestic animals. Think, for instance, of some birds who, like the swan, the owl, or the stork, always seek the nearness, the neighborhood of man. But would it be possible to call a swan, stork, raven, or sparrow a domestic animal? We know, for instance, that the bear, although he is a ferocious, wild animal at times, always seeks the habitation of man, going as it were in circles around the villages; the wolf is similar. By no means can they be called domestic animals. On the other hand, if we think of animals like the dog and cat, who live so very close to us, is it justified to call them domestic animals? I don't think it is.

We should try to visualize the problem of classifying and finding the boundary for domestic animals, on the one hand, and for what are usually called wild animals, on the other. We would have to say that there is no exact boundary; it does not exist. The two groups interlock. We find such wild animals as the bear and wolf very much connected with man. We find

tamed animals like the dog and cat which still have characteristics—significant characteristics—that keep them far away from man. And if we remember that some zoologists call even bees and silkworms domestic animals, we find how difficult it is to say which is which. Is the bee a domestic animal? It needs man. Is the silkworm a domestic animal? It needs man. And in the moment when I say "it needs man," we have already gone one step nearer to finding a term that can define domestic animals.

May we not say, to begin with, that a domestic animal is one which no longer functions by itself within the boundaries and rhythms of natural forces, but which needs not only the nearness of man but the help of the human being. Can you understand what I mean? A domestic animal is not able to live by itself anymore; man must come to its aid. We have to erect buildings in which to keep our pigs and cattle, in which to give the sheep a certain amount of shelter, and we have to till our pastures in order that these domestic animals can live. As children need grown-up people to look after them, so do domestic animals need our help. We could say that there are animals who seek the neighborhood of man and there are others who need the help of man. Then there is a third group of animals who—like dogs and cats—are quite close to man, yet able to live without him. Only when we begin to understand this, will it be possible for us to realize that there is another very important feature of domestic animals.

Domestic animals need the help of man for one very special reason: they are no longer included in the powers of nature as much as all other animals are. Dear friends, the cow, the horse, the pig, the sheep—they are all animals who have to a certain extent moved away from nature; otherwise, how would it be possible for hens to lay eggs the whole year round, for cows to produce milk the whole year round, for pigs to produce piglets at any time of the year? In former times—say four, five, six thousand years ago—man was also held within the laws of nature, the cosmic laws of the course of the sun and moon and the seasons, and human children were conceived

only at Easter and born at Christmas. Look at the wild animals: they have their period of heat and at certain times of the year they produce their offspring. Domestic animals are similar to man in that they are free from that rhythm.

With all this we now draw a little bit nearer to an understanding of what a domestic animal is. I'm not going to make any definitions; there is no hard and fast way of defining what a domestic animal is and what it is not. There are wild animals, thousands of species of wild animals, some of which are near to man; many of the birds, many of the mammalians, live near and look for the neighborhood of man. Some animals are much nearer and actually need the help of man, so we give to them what they are no longer able to provide for themselves. And there are some odd animals—I mentioned cat and dog—who live as it were underneath the feet of man; they are very close to us—almost our shadows—yet in some ways they are not at all attached to us, not as close to us as are cattle, sheep, horses and pigs.

My first attempt will be to give you a kind of survey of all those animals that can, more or less, be called domestic, not describing their classifications in the system of animals, but trying to visualize their cosmic significance. Around us there are the twelve constellations of the Zodiac, and these twelve constellations of the Zodiac signify the formative powers which emanate from the spiritual beings. We all know that we are created here on earth and that, over millions of years, the kingdoms of nature have grown out of the evolution of mankind. It is the twelvefoldness of these formative powers which created man, and, through man, all animals. There are four main formative powers which work into the whole of creation, and I would like to indicate them as they come from the four different corners of cosmic space. We call one of these "Waterman," one "Scorpion," one "Bull," and one "Lion." I am not going to describe these formative forces except to remind you that Rudolf Steiner has taught us (and all occult science tells us) that these are the four main powers which create the 3 + 1 parts of man. "Scorpion" is like the "Eagle,"

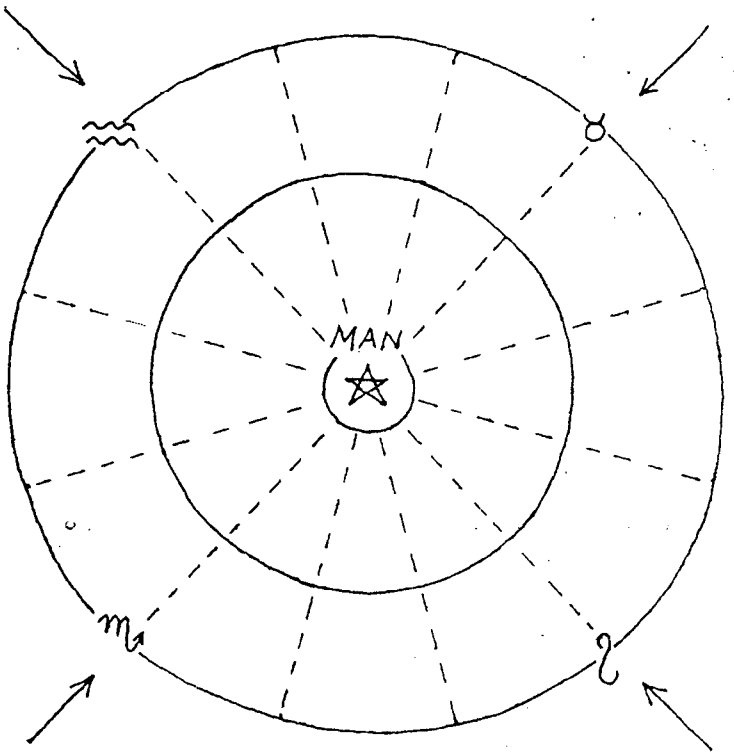


Fig. 1

creating the head organization. "Lion" creates our middle system, the heart, the breathing lung, all that is rhythm within us. The "Bull" creates the lower system, all that is digestion, the metabolic powers which transform substance. So we have "Eagle," "Lion," and "Bull." The "Waterman" is everything which we might call human, binding Eagle, Lion, and Bull together. These are the four great formative powers, and I would have to say that in the center, where these four powers meet, there is no one else but Man. I would like you to understand that man is the true expression of these four, that man was once as wide and great as these four powers are. At night we can see the Bull, Ram, Scorpion, Waterman, Lion, Virgin —this is the cosmic circumference out of which the human

being in his present form has emanated. And, step by step, man has condensed his body. Man has concentrated. And now this tiny but billionfold being on earth is the harmonious sum of these cosmic creative forces.

Everything which is in between the center and the periphery—everything which is the remnant of what man left behind when he gradually condensed his existence into the center of what he has become here—all this is the remnant of man's becoming. There are animals near to man, animals further away from man, and animals which are still much much further away. You will now realize, when you see such an image, that once upon a time man and animal were one (see (Fig.1) . At this time there was no difference between animal and man, but, step by step, we had to condense our existence, had to move into the center of everything and to leave behind parts of ourselves—forms, shapes, existences, powers of soul and mind, emotions which creep, swim and fly—which could exist without us and so gradually became strangers. These have not moved away from us, but we, step by step, have moved away from them.

I say this because scientists today still search for the wild races out of which animals were domesticated. They look for a wild cow, for wild horses, for wild pigs, and think that, once upon a time, man came with a big club and "domesticated" them. This is completely wrong. It is not the domestic but the wild animal which came second. The first animals were domestic. They were all one — we were with them, they were with us—but we had to leave them behind, forlorn brothers and sisters, as we developed on our way to manhood. If we now live with our cows and sheep, they are the ones who have remained with us. The horse, for example, is still around us, but Prejevalski's horse—the so-called wild horse, still found in the Steppes of Asia—is the one which was left behind. The wild boar was left behind; the pig is not a tamed wild boar. I would very much like you to reverse the old ideas and to see that domestic animals are the ones who have remained with us; the wild ones are those which we left behind. Nearest to us

today are horses, pigs, cattle, and sheep. These are the four significant species which represent the last remnants of the great powers: the sheep, of the Lion powers; the cattle, of the Bull powers; the pig, of the Man (or Waterman) powers; and the horse, of the Scorpion powers. If you see this, you will already understand the nature of the four creative cosmic forces here on earth.

Dear friends, on a farm you live surrounded by the Sphinx. The Sphinx in Egypt was the image of these great fourfold cosmic powers. The Sphinx has disappeared, but the last remnant appears in the horse, cow, sheep, and pig — whether you believe it or not (See Fig. 2) Now [drawing on the blackboard] in connection with the sheep I write down the goat; and here is the Zebu and the Bison. This is the

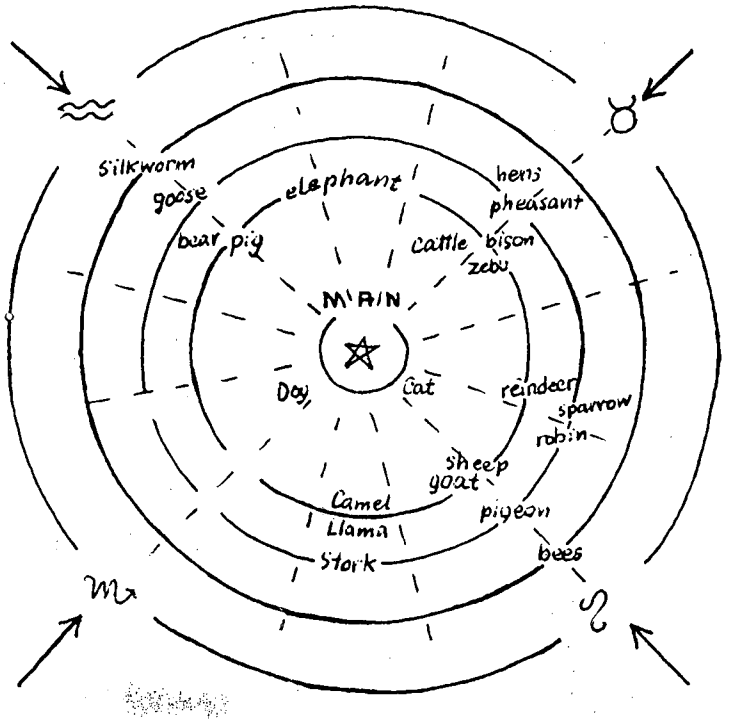


Fig. 2

wild boar and here is the donkey and the mule; this is more or less also a kind of grouping. Some—with a certain amount of accuracy—call the elephant a domestic animal; it is associated with the pig. You can find here in this place the camel and the llama of South America; here you can place the reindeer. You see how gradually there would be placed around these four animal types the variations and metamorphoses of animals near to man. One significant thing is that dog and cat would have to be placed here: the dog near to man, the cat quite near not to man, but to the houses which men build. A littler bit farther away there are many birds; according to my own ideas (and take it with a pinch of salt) I would write it down like this. Here you would find the swan, and here you would find the goose—and on the way between goose and swan you would find the ducks. The hens we would have to look for here: all kinds—the pheasants and so on. You would find here the sparrows, and down here the pigeon; and you would find the stork here. So that the circle of the birds is also mentioned. Here, with sheep and pigeon, you would find the bees; and here you would find the silkworm. You can now imagine some of the remnants of the relationship between cosmic and earthly man. This is a first possible way of ordering the animals near to man, animals who are domesticated and serve the human being.

If we now ask whether we can find any kind of distinctive features for animals which are near to man, we can indeed find such features. And I would like to discuss those features with you in order to find out what they signify. For instance, animals which are near to man vary in size from the wilder animals; it would be wrong to say, however, that domestic animals are necessarily smaller than wild animals, nor would it be right to say they are altogether bigger than wild animals. It differs. Horses, for instance, are much bigger than their wild counterparts; pigs are much smaller, hens much larger. The difference in size is quite varied.

If we look at the shape of the head, we find that domestic animals and those who actually remain near to man tend to

have the skull of their face shortened. Look at them*—you will understand what I mean; the face of the skull is not as elongated as it usually is, but tends to become shortened. The mouth is drawn back and the forehead becomes more or less dominant. And we don't find this only in dogs, but in cows, sheep, and horses as well. And what does it mean? Nothing less than that the head becomes humanized. I wouldn't say that the bulldog is the most human dog, but the form of its face is the most human because the elongated mouth and nose retreat and the forehead is formed out. Fig. 3

English bulldog.

Fig. 3

There is another thing. In domestic animals, the hair is much finer, much less coarse, than in wild animals. Some say that the sheep lost its rough and strong hair, but it is really the other way round; the wilder a sheep grows, the coarser and rougher its hair becomes. The fine hair, which you find in several of the sheep species, is the so-called lanugo hair; every newly-born animal and human being has it. When we are children, especially babies, we are covered with a type of hair which our sheep grow—long, fine, silk-like.

Then we find that the color of the animals near to man is different from the color of the wild ones. The wild animals tend to have all kinds of real color, blue and yellow and red. The domestic animals tend to become gradually either white

*showing a picture of a pug-dog.

or at least to develop white spots. (No wild cattle, for instance, have white spots; only domestic ones do.) Or they tend to have black spots, or are on the whole black. Then there are some colors which go into brown or reddish-brown, so we could say that the real colors, the beautiful colors, disappear; domestic animals are either white, black, white-and-black, or brown.

And finally of course there is one feature which I have already mentioned: reproduction in domestic animals is no longer bound within the rhythm of the year, but is freed—as in man—and the capacity to reproduce during the whole year remains. These are the main significant features which all civilized or domesticated animals show.

Look again at what scientists say. They say that all these features signify that the strength and virility of the wild animals have disappeared, that domestic animals are soft, civilized, cultured beings, that soon they will wear trousers in order to keep warm. But this is not so. All these features, when we see them properly, signify only one thing: that domestic animals remain more cosmic—I could also say more child-like—or more general; they are not so specialized in terms of certain natural forces; they remain a little more generalized than their wild brothers. And man, in his form, is the most generalized animal. There is no hand which is as primitive as that of man; it is possible, therefore, for man to use it in thousands of different ways. This tendency to remain childlike, to remain generalized, to remain soft, to remain insignificant—a less bright color, a shortened face, a biggish head, a simple limb—all this is characteristic of the domestic animal. So we can now see what we are after when, as human beings, we gather around us the animals on the farm: we surround ourselves with simple, primitive, generalized conditions of existence that remind us of the formative powers which have left behind those animals who did not want to stay with man. The wolf, the bear, the lion, the aurochs, the buffalo—all these remained behind. But a few came with us. Whence did they come with us?

Dear friends, they came from one place only—though it was a very wide place: they all came from Atlantis. The story of the Ark is a true story. Noah, one of the great initiates, and those who were with him, took selected kinds of animals; or we could say also that some animals selected Noah and his followers to accompany them on their way from the West to the East, from Atlantis, across the seas to Europe and Asia. Once upon a time, ten thousand years before Christ, there came the end of an enormous continent, Atlantis, which bore one of the greatest human civilizations. During the time of Atlantis all the mammals developed. Before the Atlantean time there were no mammals living on earth, no rodents, no beasts of prey, no ruminants, nothing like that. There—during a span of about twenty thousand years—these animals gradually developed; man, condensing his body more and more, left certain parts of his existence outside, and those parts became all the different species of the mammals. Some remained with him (with the Ark or without the Ark as you like); they accompanied the great initiates—and those who were around them—to the East in two great streams. One went north of Europe—via Ireland, Scandinavia, Russia—into the Far East; the other went south of Europe—via Spain, Italy, North Africa, Arabia—again into the Far East. And on their way, step by step, some animals were left behind, became wild, others accompanied the migrating people, increasing in number and stature, finally settling down in the region that is today the Gobi Desert. There we must imagine horses, pigs, cattle, sheep—and men—centering around the mystery places, preparing themselves eventually to go out and to create the Post-Atlantean civilizations: India, Persia, Babylon, Mesopotamia, Egypt, and, at last, Greece and Rome.

When we dig down today and unearth the former places where men of the Stone and Bronze Ages lived, we find the various races and species of domestic animals everywhere. Why? Because they already accompanied their masters to the East, and then from the East they returned.

If, today, you move about the British Isles and visit a place

If, today, you move about the British Isles and visit a place like Stonehenge, you find fields and pastures, and cattle grazing. I was there and was able to imagine, even to see, how once upon a time, from these mystery centers (be it Stonehenge or hundreds of others all over Europe, Asia, and Africa) powers streamed out which strengthened these childlike cosmic forces that made man into man and made some animals remain domesticated. Those who were afraid of these powers moved away from the centers and, by moving away, became wild and ferocious. So that, using another image, we may say: from these mystery centers there emanated forces which we might call the powers of eternal childhood. These powers kept some of the animals within the general, non-specified existence of their beinghood. Therefore they were able to produce the abundance of milk, the continuous cosmic form of the egg, the beautiful hair, with which they are able to help man.

This is the first thing which I wanted to tell you, so that we get an overall image or picture of domestic animals. Tomorrow morning we will go into more detail—a process which, in point of fact, is quite unlike that of the domestic animals, but nevertheless we will have to do it!

First Discussion

2-12-64

Question: When you described this "staying behind," I was reminded of the picture of the Nativity, when some animals came up to the crib and were present at the birth of Christ.

Dr. Koenig (assenting): They stood behind.

Question: You spoke about the birds and mammals; you didn't speak about the fish. I remember Dr. Schaumann's speaking about the dolphin as the one species (probably the last one) who had remained near to man. Is that so?

Dr. Koenig: The dolphin is not a fish—by no means. On Friday morning I shall speak on the dolphin and its connection (don't be astonished) to all the even-hoofed animals. Dolphins, whales, and even-hoofed animals have one root and go off into two different branches. Now you will understand why I didn't speak about dolphins—because they are not fish. Keep this in mind, please. Also remember that the seals and everything that belongs to them—sea lions and so on—are part of the beasts of prey group.

Comment: One can be struck by the human features of seals.

Dr. Koenig: Nevertheless, they are much more similar to lions, bears, wolves, dogs, and so on. This is one group. The dolphins and whales are the other.

Question: My question is more in regard to the different human races—black, red, yellow, etc.—and their different connections to the animals. If I remember rightly, the different human races did not all come from Atlantis. I should like to ask, therefore: how did animals gather around, for instance, the black race?

Dr. Koenig: It's a very important question and I'm very grateful that you ask it because I should have mentioned it before. None of these colored races have domestic animals, unless they acquired them from the Aryan races. From Atlantis no other race came but white people and I include the peoples of India in this category. These are the people who carry domestic animals with them. Neither the Blacks nor the Red Indians, nor the Malayans, had any domestic animals. This is most significant. They have, of course, many animals which are near

to them, which seek their neighborhood.

The white race takes animals into an eternal childhood condition with them; the other races only keep the animal in their neighborhood. There is, for instance, a tribe between the Eskimo and the Mongolian which lives together with the bear. In their villages they keep cages for the bear the whole year round—and the bear is fed and tended like a baby—until the Great Bear Festival comes, and the bear is (as a holy sacrificial animal) slaughtered. This is the festival of the year. These people are the Ainu; they live up in Hokkaido. Only gradually, through the white man, do these other races acquire cattle; earlier, they had only the antelopes and similar animals. But these are not domesticated, only near. Take the Red Indians, for instance. It is always the same: the colored races have animals in their neighborhood, only the white race has domestic animals.

Question: What is the actual significance of zoos now? They are very much increasing.

Dr. Koenig: I think it's nothing else than the wish of man to draw near to nature—in a wrong way, of course.

Question: You mentioned the bees in connection with the explanation that the domestic animals need man. I cannot quite understand that the bees need man; they have been domesticated (or seem to have been domesticated) for thousands of years, but when they swarm and are left alone they can from one day to the next live quite happily in a wild state, as their brothers do in the forests.

Dr. Koenig: I didn't mean to call the bees and silkworms domesticated animals. I said they belong to us, but that they can also do very well without us. I would call these two—the bees and the silkworms—presents of the cosmos to man. We take them—but they don't need us as much as the real domestic animals need us. You are quite right.

Question: I was very surprised about the way Dr. Koenig explained the development of wild animals and I tried to find examples. If we see the pictures which were drawn thousands of years ago in the caves in the South of France—and then we see the type of the present domestic animals, the type of our cattle—we see that the ancient types were much more cultivated than they are today; we can say that the development of our domestic animals is going back and not going forward. The cattle then looked much finer than they do today, as did the horses.

Dr. Koenig: Wildness has to do with specialization, dear friends. To see this is most important. Tameness has to do with general childhood, babyhood. The more we learn to understand this, the better we understand the powers in nature. A wild animal is a specialized animal; a wild animal has claws and not hands; certainly our domestic animals have hooves—must have them—but these are not specilized as are, for instance, the hooves of the wild mountain goat. An ordinary goat would be quite unable to do with its legs what a mountain goat can do. Perhaps I may add one thing which I didn't want to mention in the first lecture, because it would have puzzled our young friends. But you should know that this is not the only line of evolution—from the periphery to the center: there is also another line, the actual evolutionary line, which goes like this. [Here Dr. Koenig drew onto the drawing reproduced on page six a red spiral which started at the silkworm and went clockwise inward towards the center.] Can you see what I mean? There is the one after another, and man comes at the end. So that here you would have the mammals, then the birds, then the reptiles, then the amphibiae and the fish, and outside (left behind) all the invertebrate animals. So both are lines of evolution; both work together.

Question: What significance did the sacrifice of animals have in olden times? At the time of Solomon, people sacrificed literally thousands of animals in one day. What significance has this?

Dr. Koenig: Do you remember how, in the Old Testament, Saul lost his kingdom because he wanted to sacrifice foreign cattle to his own god? You can read this in the Second Book of Samuel. The sacrifice of animals was of the greatest importance. At the end of the last century there was one school of scientists, centering around a Professor Hahn, who even thought (and wrote) that domestic animals developed out of animal sacrifices, that animals were kept around human habitations in order to be sacrifices; they believed that out of these herds meant for sacrifice the domestic animals gradually developed. You must imagine that animals were sacrificed in order to pay back to the spiritual powers the evolutionary steps which man has made. Man knew that he had left behind certain animals, thereby making further steps towards becoming human. Nothing is acquired without the help of the gods; therefore man made these sacrifices to the gods. Now something dawned on men like Hahn, whom I have just mentioned, but they didn't know its real significance. Naturally domestic animals—or animals near to man—were the sacrificial animals: they were offered. The ram, the lamb, the cow—and they did not mind.

Comment: In regard to the sacrificial animals, the group of the cattle and the sheep seems to be particularly chosen to be the sacrificial animals, not the animals of prey or the cat-like animals, for instance.

Dr. Koenig: And the pigeon and dove.

Comment: It's all in the same direction. Pointing to the drawing.

Dr. Koenig: Most certainly.

Comment: The apes are not very specialized but one couldn't really say that they are near to man.

Dr. Koenig: Definitely not—definitely not. They are not

near to man, but they are man; they are the shadow of man. They are similar to the dog and the cat. You see we left them behind in the last stages of our development, after Atlantis, after the Tertiary period.

Question: You spoke about specialization. Would you go so far as to say that it is wrong to specialize, say, only in dairy cattle or beef cattle?

Dr. Koenig: Yes, it is wrong. But you can't help it. You will understand how I see it when you hear what I say tomorrow about cows and milk. To make an animal into nothing but a milk-producing machine is utterly wrong. I am convinced that through this, cattle are completely ruined. Sheep are ruined if you make them into producers of wool. The Jewish people (and this was one of the last remnants of old wisdom) left the soil untreated every fiftieth year. I am convinced that such a kind of rhythm should also be established among domestic animals, to give them the possibility of replenishing themselves. I don't mean the special animal; I mean the herd. We will have to learn to introduce into breeding years of non-production as well as years of production, just as we do with fields. Otherwise all will go wrong. A domestic animal is by itself one-sided, not specialized, but one-sided. How, I will describe tomorrow. And to make this one-sidedness into a specialization is the end; we produce animal machines.

Question: You mentioned the eternal childhood of animals and men. In this connection, could you explain a little more what you mean by the term "childhood"?

Dr. Koenig: By "childhood" I mean the early beginnings of all existence, which is included in every child. Once we were "all," and out of this "all"—out of this eternal childhood—we gradually specialized, became as it were adult people. A baby is still child-round, cosmic, everything; the more we grow, the more we specialize. But to keep this general being of child-

hood alive, for a certain time at least, is, I believe, so imporant in our age. Because what is done today is to squeeze the last bit of the time of childhood out of every human being and to make him a specialized robot. Do you understand what I mean? This is done also with the domestic animals. Whatever is done, is done to make the animal into a machine, to put aside all natural forces.

Question: Could you say something about what happens if a species of animals dies out in the physical realm? And can one imagine that new species come about?

Dr. Koenig: This is a question which I can't answer with certainty. Therefore I will be very careful with my answer, and formulate it as personally as possible—and ask you not to believe it! I, personally, do not have the impression that new animal races will still be created; I don't think it is possible. I don't know whether Rudolf Steiner has said anything to contradict this. We must imagine the following: By the middle of the nineteenth century, man—as far as his body is concerned—had reached the highest possible stage of his development; his body cannot evolve further here on earth. At the moment when this happened, we were enabled (according to Rudolf Steiner) to understand the threefold being of man. We didn't know anything about it before. At this point, however, the threefold being of man—Eagle, Lion, Bull—or the sensory/nerve organization, rhythmical organization, and metabolic/limb organization—were harmoniously united. In this historical moment, the peak of human physical development was reached. Now we can only go downwards. Perhaps out of this downward way, bizarre animals will be created, but this will not be a true creation of animals; it will be more a spitting-out, an excretion, of the animal forms in the decaying form of man. Do you understand what I mean? What we have to do is to keep animals childlike as long as it is possible, but nothing else. So many animals—wild animals—are dying out, and this may even be necessary. We should not see it with too

much regret or sentimentality. The group souls have to loosen their grasp on earth, in order to prepare themselves for the next incarnation of the earth. This is how I see it. But I repeat: I say this very personally.

Question: Is it right that domestic animals are eaten or consumed by men, and not returned to the earth?

Dr. Koenig: But through man, they do return to the earth. I have the impression that one must leave this to the decision of man. There is no other possibility, and I have never worried about this. If we provide the right type of animal, we will gradually know what to do with them. I don't think that we should keep animals in order to have food; we should keep animals in order to be near to the wellsprings of all existence and creation.

Man and the Domestic Animal

Second Lecture

3-12-64

Yesterday morning we tried to gain a first picture—or better, a first image—of the domestic animals. And we could see that there are four special directions coming out of the cosmos, creating and shaping the four main types or forms of the domestic animals. It may have seemed strange to some of you that I pointed to these four types—the horse, the cow, the pig, and the sheep. But as we continue to deepen our understanding of this matter, you will see that somewhere in this form of typology the truth is at least touched. First we gained an idea of the differences, of the many varied species of domestic animals. Secondly we began to understand that the idea that domestic animals gradually developed from wild forms is just the opposite of truth: the wild forms are those species which were left behind, and those animals which remained with man are today the domestic animals. And if we recall the image of four different types of animals, we remember that man stands in the center, looked upon by these four streams of existence which emanate from the cosmos itself. As long as we keep these two fundamental things in mind, we will be more or less on the correct path when dealing with domestic animals.

A farm is a living organism—and a living organism is always characterized by its wholeness. Therefore every farm

should try to keep at least one specimen of these four types. Then the cosmic image on the farm will be maintained.

Now I would like to go into a little more detail about the four main types of domestic animals: we should speak about the cow, the pig, the sheep, and the horse. We can do so, however, only if we learn to understand the larger group to which these four types belong, the class of the mammals. And for the sake of the young ones among you, I would like to give a very short picture of the whole animal kingdom, so that we can understand where the mammals are placed. You see, Rudolf Steiner has taught us that we should see the animal kingdom in a twelvefold way. On the one side there are seven groups of so-called invertebrate animals. That means animals which have no backbone, no spinal bone, in the center of the body. The skeleton of the invertebrate animals is always identical with the skin. Think of insects, crabs, or mollusk shells. You will see that the skeleton is always outside and that the soft animal lives inside. This is completely different in the kingdom of the vertebrate animals. There the skeleton is not outside, a complete metamorphosis has taken place. All vertebrates—including man—are more or less soft on the outside, but within there is a strong, hard, rock-like skeleton. The mammals belong to the vertebrate kingdom, and the vertebrates themselves are divided into five different classes: Fish; amphibiae (frog, toad, and so on); reptiles (snake, tortoise, crocodile, etc.); birds; and finally, the mammals. You can see from this short description that the mammals are really the peak of the animal kingdom. There is nothing so complicated, so manifold, so divergently constructed, as the mammal. In looking at these five different vertebrate classes we must, because of our body structure, include ourselves in the class of mammals. We belong to the mammals to the extent that they are the last group which we disposed of. Can you understand what I mean? We started, as it were, from the cosmos, and gradually developed down to the earth. Step by step, in coming down to the earth, we first of all disposed of the invertebrate animals; therefore we now find them in the lowest deposits of

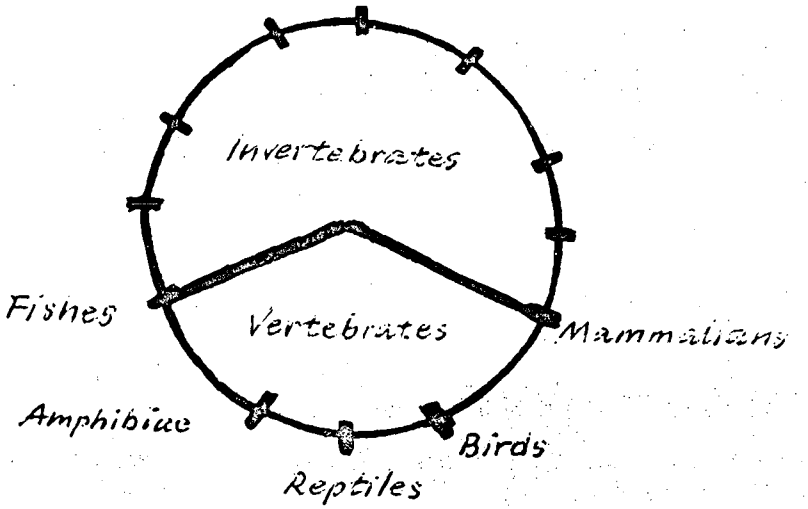


Fig. 4

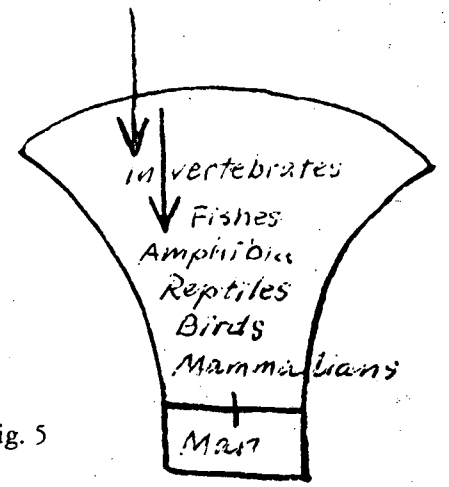


Fig. 5

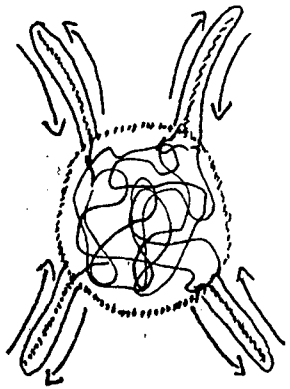


Fig. 6 (p. 27)

the old ages of the earth existence. Gradually we disposed of fish, amphibiae, reptiles, birds, and, finally, mammals. And here we are—human beings on earth. This we should keep in mind, because only when we begin to understand this, dear friends, can we fully begin to comprehend the mammalian class. Fig. 4, 5.

If I were to ask you about the significance of the mammals, what makes them such very special animals, the name might already indicate something very important to you. The mammals, dear friends, are characterized by two things to begin with, and these two things are intimately connected with one another. They suckle their young, which means that they produce milk, and they themselves give birth to their offspring. Dear friends, this is something which we may know in our heads, but that is not enough. We must, as it were, learn to understand with our feeling and willing what this means. Birds, fish, amphibians, and most reptiles—to say nothing of the invertebrates—all produce eggs. These eggs are fertilized either inside the body or outside in nature and then disposed of. The fertilized egg is exposed to the elemental powers of the world outside—to light and darkness, to wind and rain, to water and warmth. Nests are built, nests are laid down into the earth, into trees, among leaves. In thousands of different ways the eggs are cared for, so that day and night, sun and moon, stars and all the powers around the earth can make the egg develop into thousands of species. This is no longer true with mammals. The mammal, among all the twelve groups, is very special because it no longer needs the powers of the external elements as much as the other animal groups do. The mammals have been able to gather within themselves all those powers, and therefore it is possible for the fertilized egg to be brought to a certain ripeness within the womb of the female mammal. When it is developed up to a certain point, the female disposes of her offspring through the process of birth. At the same time, a new substance—milk—is developed in the udder or breast to feed, and in feeding to finish, this not yet fully developed young offspring. We can observe in the

kangaroo a very strange phenomenon which may suggest to us how identical are the powers contained in the milk and in the womb. The female kangaroo developes the little embryos for a few weeks only, and then in some way these little embryos are born, creep along on the outside belly of the mother, enter the bag which the kangaroos carry, and then—imagine!—the lips of the little one grow together with the teats of the mother contained in the bag; a continuous stream not of blood, but of milk, thus feeds the little kangaroo embryo until it grows, becomes a ripe youngster, and falls off by itself.

It is most important that the farmer learn to realize this, because it means that the power of ripening the young offspring and the substance of milk are one and the same. If you drive cattle to increased milk production, you definitely reduce the power of reproduction; only a certain amount of these powers are available in each animal, and you can either shift it into milk or shift it into production of the offspring. Keeping an equilibrium between the two belongs to the art of husbandry.

Through this description, I have tried to stress the first significance of the mammalian class. What does it mean? It means that the mammals are the only class in the animal kingdom which have come so far that all the powers, all the elements of the earth, are harmoniously collected within their bodies. Although man alone may be called a microcosm, I think we can call the mammal a microtellus. "Tellus" means "earth." Man is a Microcosmos; the mammal is a microtellus. Therefore, the mammals are able to develop their offspring within or by their own power. They certainly need sun and moon and stars, but no longer directly, only indirectly.

Now we must ask ourselves what does it mean to be a microtellus? It means that all the elemental forces (earth, water, air, and warmth) and all the ether powers (life and sound and light and fire) are collected within the mammalian body, and that the mammalian body is significant through the fact that fire lives in the warmth, light permeates the air, sound the water and life the earth. As soon as we learn to

understand this we have made a very big step forward.

EARTH —LIFE
WATER —SOUND
AIR —LIGHT
WARMTH —FIRE

What does it mean if I say that fire lives in the warmth, light lives in the air, sound lives in the water, life permeates the earth? In every other animal, these elemental powers and etheric forces do not fully permeate one another. Only in a mammal—only in a microtellus—is this possible. What transpires when fire lives in the warmth? In this moment, dear friends, the animal becomes warm-blooded. There are animals who depend entirely on the temperature of the outside world; others—like man and the other mammals—keep their own temperature. Some of you who might know better—or should know better—may say: "But this is not true, because the birds are also warm-blooded." In the birds, however, this warm-bloodedness is just barely established. The birds are even so hot that they continually give off warmth, have to give it off, and by giving off their heat they create the sphere wherein they can fly. Can you understand this? The birds don't fly in the air: they fly in their evenly-heated surrounding sphere, which continually produces warmth. If I tell you, for instance, that a little sparrow has a heart-beat of between 700 and 800 beats per minute (you can't clap your hands as quickly as the heart of a sparrow beats), you will understand that air and warmth are continually given up; in this air and warmth, the birds can fly.

In the mammals it is different. There is an equilibrium between warmth and fire, and in this equilibrium there lives the centralized, self-sufficient animal. This comes about for one very special reason. In the mammal, the heart is divided into four chambers, two upper and two lower. At the moment when this was achieved (for the birds also), the division between blue venous blood and red arterial blood was estab-

lished. By the achievement of these two different kinds of blood, another fundamental feature of the mammal came about. This is that the red blood, the arterial blood, is the carrier of the power of lightness (not light but lightness) and the venous blood is the carrier of gravity and heaviness. And you should now imagine that on the one hand the red blood carries the power of lightness; the blue blood, the venous blood, carries the power of gravity or heaviness. Only through this does the mammal become an animal which belongs to the earth. The birds fly off, the fishes swim in the water, the amphibians, the crocodiles, the reptiles, they are all connected to the swamp. The mammals are the first ones who tread the ground, the firm ground of this earth. And at once the interaction between gravity and levity—between heaviness and lightness—comes into play. We can see how this is demonstrated by the heart—by the even warmth of the blood, by the red arterial and the blue venous blood-stream. This is what we first of all have to understand.

We have now seen how, through the fire permeating the warmth, the warm-blooded animals were created. Because of this first stage, a second step was made possible. The heart has four chambers. The blood is completely divided into two types; the one is light, the other is dark; the dark one is heavy, the light one is light. By this process, dear friends, something happens which is of the greatest significance: within the bone-marrow, within the hardest, heaviest part of the mammalian body, the light is born—the light, in the form of red and white blood corpuscles. The red corpuscles belong more or less to the arterial blood (or indicate the arterial blood), the white corpuscles indicate the venous blood. Billions of these cells (up to a very special number) are created daily and they die off and are replaced. You must imagine that in this process of blood creation—in the deep well of the rock of the skeleton—a continuous equilibrium of the most magnificent kind is kept. If I were to go into greater detail, you could see how the cosmos, with its time and space, has its image in the blood production within the center of our bones. Can you see the wonder, the

miracle, which the mammalian animal reveals? It is a part of the heaviness, the gravity, of the earth. Yet within this gravity, the light, the red blood—the renewal of all life—is born. So first we have the fire which lives in the warmth, and then we see how life lives in the earth. Although we may lightly describe the mammals as warm-blooded animals, this really means that fire has united with warmth, and that, by this process (I gave you the various steps), the blood is divided into two parts, the heart into four parts. Within the bones, within the earth, the highest point of life—the well of the red blood—is continually renewed. This is the second thing characteristic of the mammal. Fig. 6

This is at once followed by something more. The mammal is the only animal which really developed true limbs—forelimbs, hindlimbs, arms, and legs. No other animal has developed them so completely. The crocodiles have little stumps, the birds have little stilts; only the mammals have real limbs. And what does this mean? I will try again to draw a picture. Here is an animal body: say this is the body of a bird. As soon as real limbs are developed, to the front and to the back, the flow of blood does not go only through this trunk, but out into the four directions, and then comes back again. The limbs stretch out. They go out to the Waterman (Aquarius), to the Eagle (Scorpio), to the Lion (Leo), and to the Bull (Taurus)—trying in one or another way to bring these four cosmic powers into the single animal body. They try; they don't achieve it, but they do achieve something else. The blood does not go round and round the body any more; the blood streams forth into the four directions of the cosmos—to and fro, to and fro. And as this happens, this flowing really achieves what we call "movement." Dear friends, the movement of the mammalian body—and thereby also the movement of man—can establish itself only by the flow of the blood through the limbs. Those of you who have heard me speak throughout the last twenty years will remember how I always tried to point to the fact that movement and sound are two sides of one and the same thing. Movement is ruled by the laws of music; there

is no other movement possible but one which is sounding, musical, bearing in itself the powers of everything in the world that sounds.

And we now have the third characteristic of mammals, which relates to water and sound. You see, the end of the limbs of the mammals—and especially of those animals with which we are concerned—turns into hooves; horn is built up. And then there are the horns of the ruminant animals and this is also intimately connected with everything which I have tried to describe. Did you ever observe properly how a deer carries its antlers? In observing this, can you see how the powers of levity stream out of the head, and how the powers of gravity condense at the end of the limbs? Gravity forms the hooves; lightness forms the horns and the antlers. There again you will see how the mammals stand—or try to stand—between the powers of gravity and the powers of levity.

We have spoken about the powers of earth, the powers of life, the powers of fluid and water, and the powers of sound, and in the end, we have to ask ourselves, "where is the light permeated by the air?" This is the fourth most important feature of the mammalian kingdom, that all mammals, with a few exceptions (and I am not going to talk about these exceptions, because it would lead us very far into Zoology), are carriers of hair. The fur of mammals is light in air: the light does not come from outside, however, but streams in, is taken up by the blood, and then grows from within, forming itself-out, and is substantiated in the hair. When you see a mammal's fur, therefore, and observe its colors, you can say it is the reshaped, re-formed, transformed light, streaming outward from within. The interplay between the outer and the inner light—the interplay between the outer and the inner air, en-lightened—gives us the unending stream of pattern and color in the fur of the mammalian kingdom. This is a first introduction to the mammalian kingdom.

Now I would like to refer back to the good old pig, the beloved horse, the venerated cow, and the very dear sheep. What is the pig? The pig is hot, without any hair: fire in

warmth. And the cow? It is life in earth. And the sheep? It is light in air. And the horse? It is sound in water. What does this mean? (Fig. 7)

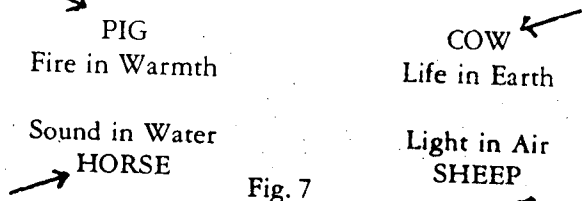


Fig. 7

Sheep produce the most beautiful fur, or wool. Dear friends, the silkworm (according to Rudolf Steiner) forms its cocoon through the powers of the outer sun. The sheep forms it hair by the powers of the inner light. You may understand now why people have always connected the lamb with the highest vision of the Christ. It is the inner light which builds the wool. And those of you have been in Vienna and have seen the most highly trained horses, the Lippizaners, dance to the rhythm of music, or who have observed the various gaits and paces of other horses, will know that rhythm, grace, and harmony live in their movements. We can observe very clearly how music flows through the blood-flow of their limbs. Again, considering what we described to begin with, when we started to speak about the mammals (when we described how the powers of life are gathered together in the earthly ground of the mammalian body), we find the cow. Milk, if we should define it, is nothing else but life within earth-substance, and it is exactly the same power which also brings the offspring to ripeness and fruition within the womb of a female mammal.

In this way you see how we meet in the four domestic animals the four significant features of the mammalian kingdom. And we can even say a little more. From what we have discussed yesterday, it became quite clear that man is intimately connected and related to the domestic animals, but especially connected to these four. These four are not only related to man, "together with" man. They civilize the whole earth. Man and each one of the four domestic animals create

and re-form the earth into landscapes. A landscape, you see, is not something which grows out of nature. The landscape is the result of the meeting between man and animal on the one hand and nature/earth on the other. By meeting they create a child, and we may call this a landscape. Man alone cannot do this. It is quite impossible. The animals have to come to his aid. With the cow we create the meadows and fields. The whole art of husbandry (husbandry, not farming) is connected with the life of the cow. Last night somebody said that in some countries farming has come to an end. This can only be because cows are separated from meadows and fields. In this separation neither the meadows and field nor the cows can thrive any more. To carry such an image further, we may see, in the green, full, sprouting-leafy meadows, in the golden fields with a few hedges and single trees, and in the herds of cows, the powers which stream down from the Bull.

The sheep create something entirely different, something profoundly connected to heather and hills. This also belongs to the landscapes— the eternal landscapes—among which men live on earth. Imagine a large flock of sheep going up and down hilly country, country covered by rough grass and heather, and you will have another image—the image of the Lion. (Fig. 8)

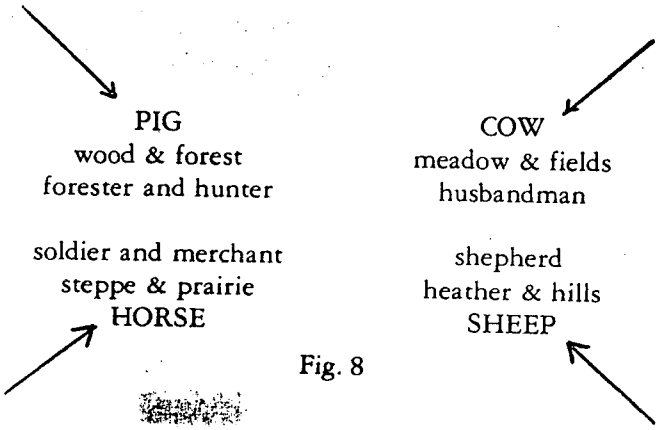


Fig. 8

And the horse—it creates the steppe and prairie. Imagine the widths of the steppe, the widths of the prairie, and the horses grazing, jumping, running. A flow of music overwhelms the spectator.

And at last you have the pig, which comes out of the wood and forest. These are the four main landscapes which man creates with these four types of animals.

But, dear friends, there is still something more. We can say, for example, that here man becomes a husbandman; here he is a shepherd; here he is a forester or a hunter; and here he is a soldier, a fighter. In the end, however, we hope he will also become the one who carries goods from one place to another.

By such indications I have tried to show how everything has its meaning, how nothing at all is without sense. If we only care to look, observe and ponder properly—meditate about a cow, a sheep, a horse, a pig—we will find the background of cosmic forces. Dear friends, if such images, landscapes, can be revived in our village settings—not only within us but so strongly that they form the hills and heather, the meadows and fields, the bushes and woods, and part of a steppe and prairie—we can help to create a place where horses, cows, pigs, and sheep can live, not in their normal surroundings, but in man-made landscape. In this way we can fulfill the aims of bio-dynamic agriculture. Bio-dynamic farming is not just putting preparations into a compost heap; it is the recreation of the surface of the entire earth, an earth which we are able, and permitted, to serve.

Second Discussion

3-12-64

Question: I had some difficulty when you connected the horse to sound and water, and the pig to fire and warmth. I always

had the impression that the horse represents the more fiery element connected with our Ego, whilst the pig comes out of the swampy forests, digging in the earth and the wet. Could you explain this.

Dr. Koenig: No, I think you should explain it. I don't think one should impress one's own opinion on others. Try to live with this picture and either agree or disagree. This would be much better, because, you see, if you speak of the swamp, this is something outside the pig, not within; and if you speak of the horse as fiery, as being connected with our Ego, this is not an image, this is just what you may have read in a lecture of Rudolf Steiner, and it is not enough.

Comment: In high summer, when it is very warm and sunny, when it is so hot that we can hardly bear warmth, then we try to find water.

Dr. Koenig: Of course—exactly.

Comment: Consider in what condition pigs have to live, without hair, compared with other animals. They do not have a similar cover. And see what a tremendous amount of fat a pig can accumulate in himself, able to constantly give up warmth. It is a tremendous wonder that an animal can have such a relationship and affinity to warmth.

Dr. Koenig: This is exactly what I mean. You also dive into a cold bath if you are over-heated. Let the pig do the same. And don't categorize it by its wish for the water or the watery element.

Comment: I should like to supplement what was said: the pig presents an especially amazing picture of heat and light. It has really no hair, as other animals do. It only has bristles. And the pig cannot sweat, cannot perspire at all, except in a very small area around the snout. Therefore it is not any lack of cleanliness—or to put it differently, it is not a longing for dirt—which makes the pig roll in the mud. It is an attempt to cool itself—to be surrounded not only by water, but by water which stays on it, namely by wet mud. This is because it cannot perspire. A horse, however, can perspire all over and has to be rubbed down. The pig, in fact, is a much cleaner animal than the horse. The horse in a loosebox makes an awful mess; the pig in a loosebox has its own lavatory-place. I mention the pig, however, because I would like to ask you a question, Dr. Koenig. There is a saying (I think it comes chiefly from Yorkshire) that on a farm the pigs are always a reflection of the happiness or otherwise of the farmer's household. I heard this quite seriously, as being the rule, that pigs never do well in a place where . . .

Dr. Koenig: Man and wife fight each other.

Comment: This is not heard in similar sayings with regard to other animals, but always in connection with pigs.

Dr. Koenig: Because they are so near to man.

Question: I had always associated warmth as something coming from fire, not fire from warmth. How are these two things to be separated?

Dr. Koenig: Warmth is the even fire: fire is the source of warmth. They are not identical. Fire is a continual creative power; warmth is a staying power. I think one will have to learn to distinguish this. Fire can be produced by breaking down matter. Warmth is produced by bringing fire into equilibrium, which belongs to a different sphere and process. Of course sound and water do not belong so intimately together as fire and warmth do. There is a big difference between earth and life, a smaller difference between water and sound, less between air and light, still less between warmth and fire: they unite, as it were.

Question: I believe you mentioned that the animals have created the environment. Wouldn't it be possible to suggest that the environment was there and that the animals, in evolution, were created to fit the environment?

Dr. Koenig: Just the opposite. Meadows are man-made; you don't find them where no men are. I have the impression that landscaping is a process which comes about between nature on the one hand, and man, with the special animals attached to him, on the other.

Question: I wonder about the landscape of the glaciers, rocks and so on—if they are related to man in the same way as are the wild animals.

Dr. Koenig: Exactly. You must always see landscape in connection with animal and man. The wild landscape equals the wild animal, the tame landscape the "domestic animal."

Question: Consider manure. I find it remarkable that pig manure is cold manure, but horse manure is hot manure.

Dr. Koenig: This is so because in the pig, everything of warmth goes out, and it must have an equilibrium. And similarly so with the horse.

Comment: In connection with animals helping man in the creating of the landscape of the earth, a book I read some years ago came to my mind. It was called **Ancient White Cattle of Britain.** The writer of the book follows up the origin of the herds of white cattle, and tries to find out the reasons why they are white. He comes to the conclusion (or at least proposes the idea) that wherever we find remains of pure white cattle, we find remnants of the cattle of the Druids.

Dr. Koenig: I am quite convinced of this. You will also find that many Druids themselves were albinos. There were families of Druids which were albino families. And if you read some old Jewish books, you will find that Noah is described as white-skinned and red-eyed. One has the impression that special families related to the priesthood were albino families. It is still known today that special tribes of Red Indians have

some albinos among them. As soon as an albino is born, he is already destined to become a medicine man. It is definitely true that the Druids had white cattle as their sacrificial animals. You know for instance what it means, or has meant until recently, to have a white elephant in Burma. The emperors of Burma have always kept a very special palace, provided with hundreds of servants, just in case a white elephant might choose to enter. Such an elephant would be provided with the most gorgeous food for its lifetime. So all white animals (Moby Dick, for instance) seem to have something sacred around them.

Comment: In connection with landscape and gardening, it may be of interest to note that although, by derivation, the word "garden" means en-closed place, and although in the Middle Ages gardens everywhere were enclosed, nevertheless in the great era of neo-classical formalism in this country (and I think uniquely in this country), the gentlemen of the eighteenth century invented a singular feature: the "Ha-Ha." This was a ditch without a fence. So that the enclosed garden was in fact again connected to the surrounding landscape. When an Englishman laid out a garden, he really instinctively tried to keep this connection—an ecological connection—with his whole environment; he even brought in many elements from outside, so that he lived with them. The lawn is nothing but a meadow, the herbaceous border nothing but meadow flowers, the rock garden nothing but the natural woodland, and so on. This feeling for nature is evident, and the determination to be still connected with what is outside has been made possible through the Ha-Ha, which provides a way to keep the bigger animals out while allowing the eye to move into the environment without hindrance; there is no boundary.

Comment: With respect to the creating of landscapes, a very famous Frenchman called Voisin published many books about grassland. He tried very hard to prove scientifically that

cows—but only if they are well-kept—can create meadows; if they are not well-kept, they can destroy the meadows. Also, a few weeks ago, a professor gave a lecture in Konstanz on the sense of community in general in villages. He found out that the highest element in creating a sense of community in a village does not exist anymore. In the villages today, where there are different churches or different religions, the church no longer creates the community; it is the schools—in which the older children of different religions come together—which serve this purpose now. He then pointed out, however, that the main task of the village is to create and to care for the landscape, so that the farm itself becomes an organ for the creation of landscapes.

Comment: Climate must play a role in the farming landscape.

Dr. Koenig: Of course. I only gave indications. These must be varied according to conditions of climate, country, and so on.

Question: Does the folk-spirit have something to do with landscaping?

Dr. Koenig: I am convinced it does. Not directly but indirectly—through language. You will always find that the landscape is in direct relation to the dialect which people speak.

Comment: I was fascinated by a talk Lieven Blockhuys gave at the last conference, where he described landscapes — man-made, God-made, and natural landscapes—and explained how man needed different landscapes around him at different stages of his evolution. As one extreme, Lieven mentioned the French gardens, where man did with nature what he thought right, where man felt he was master of nature.

Dr. Koenig: He put a wig on nature!

Comment: If we take these wonderful images that Dr. Koenig has given us and then look to mythology, we will find wonderful parallels. If, for instance, we study the horse in Greek mythology, and then look at those great sculptures of horses, what do we find the horse related to? To Poseidon, the god of the sea.

Comment: Or, if we go to Homer and read the story of Odysseus, in whom the modern consciousness is beginning to arise, we suddenly find a wonderful description of the swineherd: Odysseus comes home and meets a swineherd. Many people have said that the pig is the most intelligent animal; Homer actually describes how what lives in the pig is connected to the rise of modern consciousness.

Dr. Koenig: So it is.

Question: I can well understand that the pig is so intimately connected to man. Why, then, did the Jews find it an unclean animal?

Dr. Koenig: It is an unclean animal for the feeding of man because it contains so many human elements that, when we eat it, it acts a little like alcohol; it wipes out the individual identity, and the Jewish people had to prevent this. If you see people who eat pork, you will find that they are somewhat benumbed in regard to their "selfhood." Now don't think you must discard bacon; things are different today. But the fire of alcohol and the fire of the pig are something very similar.

Question: Yesterday you mentioned the coming down of man from the group-soul in which all these animals were contained. As we passed through them, we shook off certain elements connected with these animals; these in turn became savage, and we left them behind. Do you mean to say that the group-soul in itself is actually of savage nature? Or how do these things become savage when we leave them behind?

Dr. Koenig: The group-soul in itself is by no means wild or savage; it is, however, educated by man, by meeting—through the individual animal—with the human being. You can compare the wild animals with children who didn't go to school and who therefore remain uneducated. And mind you, metaphorically expressed, most of the group-souls are very worried about their children who can neither read nor write. Therefore so many of the wild animals today are dying out. And I speak especially about the mammals.

Comment: One is reminded of the pictures of the Garden of Eden, where the lion is included. They are wild now—but once they also were domesticated animals.

Dr. Koenig: Of course—yes. A short story by Goethe shows how the child in man, so to speak, brings animal ferocity back to its actual and true tame nature. Therefore the child playing on the flute makes the lion completely at ease, because he touches the true nature of the lion.

Question: I was going to ask whether we did in fact, throughout evolution, tame these animals away from their wild nature? This could be connected to the Biblical saying that the lion will lie down with the calf and eat straw.

Dr. Koenig: Yes, only it is a wrong image if you think that we have tamed the wildness of the animals; we have tamed our own wildness.

Comment: I'm just reading a book about herbal medicine. The author describes how many of the animal diseases come about through the estrangement of the animals from their natural instincts. When I read this, two things came to me. One is that what lives in the so-called wild animals is wisdom, and the other is that the attachment of the domestic animals to us is love.

Dr. Koenig: Goodness.

Comment: Goodness, yes. Can one say that the mechanizing of our domestic animals amounts to a maltreatment which is done out of a lack of love, a coldness toward them. It seems to undo their destiny, which then becomes the real source of animal ailments and diseases.

Dr. Koenig: I think so. In general one can say so. And then each one gets its own diseases. Think of the Erysipeles of the pigs, for example; this has to do with fire and warmth. It is typical.

Man and The Domestic Animal

Third Lecture

4-12-64

Now we come to the last lecture and I would like to bring together many different things which may answer the questions which have been raised here. Nature, dear friends, is tremendously complicated, and in every piece of creation, not only in man, the manifoldness, the variety, the possibilities, are so great that many points of view are possible. I say this in order to warn you against having a set opinion about a cow, a sheep, a flower, a grain, a tree, or the sky. We can always see these things from many different sides, and our conclusions will depend on our point of view. This does not mean that we shouldn't have a point of view. We can't live without one. It is necessary, however, for us to look today from this side, tomorrow from that side; not to look at all is one of the greatest sins. So discard a fixed point of view, and have as many as possible, but make sure that they are true. To this end, I am going to play an overture before we go into more details about the four domestic animals with which we are concerned.

What I tried to describe yesterday was the significance and the features of these four animals in their relation to the whole class of the mammalian kingdom. I described them as seen in the circle of the mammalian group. I did not describe

them as I will today, as single group souls which carry their own destiny, their meaning, within the history of earth and mankind.

Every person is a human being, and therefore carries the features of mankind. But we also carry our own destiny, our personal destiny, and with this personal destiny we carry other features. Therefore, we can see in every human being both the man and the individual human being. We can also see in every human being a member of a very special nation, and also a member even of a small place within the nation. All this is fused, melted, integrated; everything together becomes one very special example of mankind.

Let us compare this with an animal, dear friends. Let us take a cow, which is no doubt a very special part of the mammalian kingdom. For me there is nothing more beautiful among all the mammalian animals than a beautiful cow—upright, strong, straight, and the image of service. But a cow is also a typical example of a hoofed animal, and if we describe the cow as a hoofed animal—as an animal which belongs to a herd—we will have to describe it differently than we would if we were considering it simply as a mammal. So we must learn to vary and to understand these different directions which we can take. We visualize different ways of perceiving one and the same object—and the whole mammalian kingdom, of course, consists of a tremendous variety of species and groups. So if we do this, we will find that the order is very significant; we will be able to distinguish, among all the mammals, three main forms which are directly related to the threefold being of man. There are the rodents, the beasts of prey, and the hoofed animals. Typical of these groups are the rabbit (hare, mouse, rat), the lion, and the cow. Please note: all the domestic animals belong only to the group of hoofed animals. So all the domestic animals are more or less metabolic-limb animals. The rodents belong to the head; they are small, quick, observant, sensory organ all over. The beasts of prey are the rhythmical animals; if we see a lion walk, we actually see how breathing and heartbeat pour into the movement of the limbs

and give them the beauty of their rhythm. And the heaviness and strength of the limbs—this is in all forms of the hoofed animals.

The history of these animal groups is a most dramatic one. Imagine that none of these animals is older, in the history of the earth, than thirty-five thousand years. I mention this because the number of years given by science is absolutely ridiculous, since science does not take into account the tremendous power of metamorphosis which rules over the whole globe, even during the time of Atlantis. Even man, during the Atlantean time, had by no means this hard and solid body which we have to carry today. Then, if we wanted an object, we could stretch out our arms for yards and yards; we could extend our legs and pull them together again. We did not have a fixed skeleton. We were still plastic, flexible—and so were the animals. Only gradually they hardened down, and then came dramatic moments in the history of the animals.

First of all, let us consider the bat, a very strange animal, an expression of anxiety and fear, with wings made out of its own skin and with a very strange face. These are animals of the dark, who can hardly see, but who are so mechanized that a kind of radar system makes their flight in darkness straight and possible. It did not take millions of years for them to develop. Think of the rodents. Squirrels, who live up in the trees, can jump, can almost (using their tails) fly from the top of one tree to another, jump from one branch to another. And there are many small rodents, like the so-called tree-mice, who are very tiny and sing almost like birds (it is a kind of whistling). One step further in metamorphosis out of the light, into the air, but into the dark air—and you have the bat.

Then we find a whole group of beasts of prey, animals who do not (like the lion, tiger, dog, wolf, bear, and many others) live on the earth any more, but who come out of the seas and waters onto land to bear their offspring and then jump back again and live for months in the depths of the ocean. Don't think that it took tens of thousands or hundreds

of thousands of years until gradually the seals moved away from the beasts of prey: this is by no means so. The floods of Atlantis were rising. This is no fairy tale at all: in the course of a few hundred years a continent gradually drowned.* With the drowning, animals in fear and dread went down into the water, and their soul-forces formed their other powers, and shaped their physical figures; out of the beasts of prey (dogs, wolves, etc.) there developed seals, sea lions, and all similar animals.

Rodents	– –	Rabbit
Beasts of Prey	——	Lion
Hoofed Animals	——	Cow

So we would have to say that something similar to what happened to the bats and seals (see sketch) happened with the hoofed animals. Dear friends, all that is now so near to us—whether it be the camel, antelope, llama, deer, cow, pig, wild boar, horse, or donkey—all these thousands of species had, in the early Atlantean time, a kind of body which can only be compared to the body of a dragon. This dragon, in the zoological system, is call Archaeocetes, with different forms and shapes, not to be compared with the dinosaurs, those huge saurian animals of the Lemurian epoch who belonged to the reptiles. I am speaking of a mammalian dragon, short-legged, the hind legs almost lost, or never developed—showing that in the early Atlantean period there was not yet hard ground to tread on; the whole of Atlantis was more or less swamp and moors, and there these Archaeocetes animals lived. Gradually the land condensed and hardened, as when, in a solution, the salt forms out and the water becomes clearer. Here, on the one hand, water developed; on the other hand, land hardened and condensed. Use your imagination, dear friends, and you will

*See historical description of the rising of the ocean levels in *Historic Nantucket Quarterly*, (April, 1979).

see how the Archaeocetes and its offspring turned to the water, to the sea, to the ocean, becoming what are still today the giants among all animals, the whales; the whales, with tremendous heads, enormous bodies—mammals, not fishes—sail around the Seven Seas, over the whole globe, making the whole ocean their land, their meadow. With very few exceptions, they live on planktons, which go into the whale's almost toothless, giant mouth and are digested. Similar members of the same group, the dolphins, live not only in all the oceans, but also in rivers, especially around the equator, in the Maputra, and so on. This is one branch of Archaeocetes.

The other branch consists of all the hoofed animals. As the group of the swamps formed out and condensed, the hooves (even toed, odd-toed, etc.) became necessary to tread on it. So we have Archaeocetes first, then all the hoofed animals on the ground, and the whales and dolphins who went into the sea. In looking at our domestic animals, therefore, we must see them surrounded by dolphins and whales, their brothers who have gone into the sea, while they—the domestic animals—have developed their horns and antlers and have gone with man on his wide wanderings from the West to the East and back to the West again. This gives you a fair first sketch (it is not a picture) of the whole of the mammalian kingdom, in connection with the development of the earth. And you see in this great tapestry — we might call it the tapestry of the becoming of man and earth—there are special pictures for the differentiation of such single individual group-souls as the pig, cow, horse, and sheep.

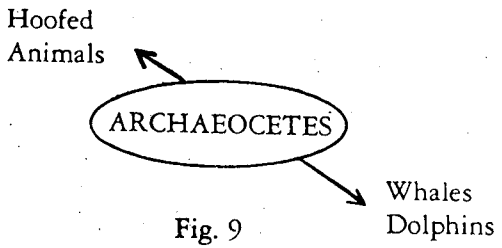


Fig. 9

What is the very special significance of the pig? The pig is a naked animal. Although it certainly has bristles, it is only when it develops into its wild form—which is left behind, as it were—that it is covered with a greater amount of hair, forming a fur. The actual domestic pig is naked, even rosy. No skin color in any animal is as similar to the human skin color as that of the pig. I wouldn't say that it is always peach-blossom—but who of us has a peach-blossom color, unless it is nicely painted on! But the pig's skin is at least rosy. And little piglets can easily remind us of human babies—with some exceptions, of course! We can feel the similarity. On the other hand there is something which is utterly inhuman and which is also the signature of the pig—the tremendous snout, the round, open nose. As soon as we see this, we can connect the pig with all those animals which belong to the elephant group. We need only make the elephant trunk a little shorter to see that it is the snout of the pig. We can also see the strange form of the opening of the mouth, in the elephant as well as in the pig. This very special straightness, which we otherwise find only among the fish (the sharks are a particulary good example), can be seen in the physiognomy of the animal.

All this signifies that the foremost sensory organ of the pig is the nose, or more accurately, the sense of smell. And what does this very special form of snout, or the trunk in the elephant, signify? Let me try to explain. The human body (and

Fig. 10

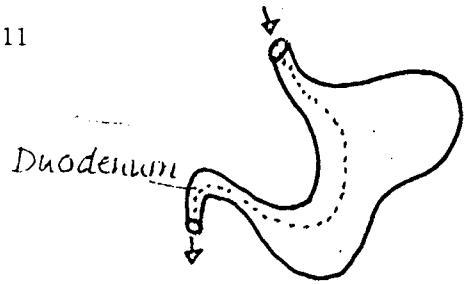
the animal body as well) is experienced by the one who carries it through the so-called four lower senses: touch, life, movement, and equilibrium. These four lower senses give us the knowledge—the immediate sensory knowledge—that we have a body. In man, these four senses permeate the other senses (sight, smell, taste, and warmth) in a fairly intimate way. But if we now imagine that man collected these four senses—life, movement (and these are senses, dear friends: it is not life-force, it is sense of life; it is not movement, it is sense of movement), touch, and equilibrium—brought them together, and filled one special part of his existence with these four powers, what might we predict? If these four senses were to stream into the nose, to connect themselves with the sense of smell, man would at once develop into a pig (not today, of course, because our bodies are now too hard). Still, can you now see how the pig can do everything with this very specialized part of its body? The elephant, the mammoth—they all had this extended trunk; in Atlantis the forests were jungles, and to find their way through the jungle it was necessary for them to pave the way with their trunks, and to smell and touch and experience with movement all that was around. The eyes didn't matter, because they couldn't see; everywhere was sprouting life, plants so thick that we can no longer imagine it. Through this, the huge elephants paved their way. A reminder of this still remains, in the pig. If such a thing happens in an organism, however, other parts of it must at once begin to adjust, and so the pig develops a huge kidney. If we open the embryo of a pig in the second month, we find almost the whole abdomen of the pig filled with a tremendous kidney—because everything is smell. Then perhaps we can begin to realize that this kidney is the brain of the pig. If we can imagine how the pig is formed, how it lives, then we can see how everything is in this sense of smell, and how the tremendous kidney develops as a result.

Dear friends, the result of this is the deep layer of fat which covers the whole surface under the skin. Why this is so—chemically, biologically—we have no time to develop; I

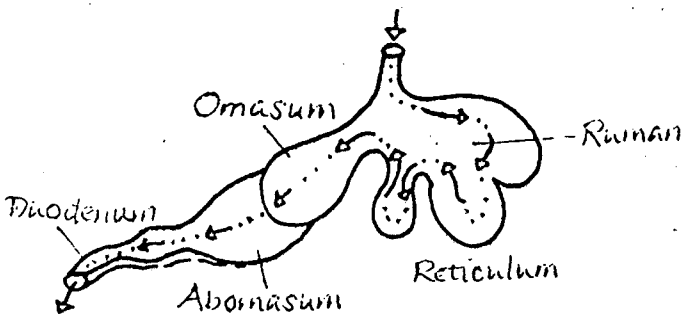
only wanted to give you this picture of the pig.

If we go a step further, and come to the cow, what happens? It is no longer the sense of smell, but the sense of taste, that is paramount. The cow tastes with the whole upper part of its body. What is so significant in the cow is that it is a ruminant animal, an animal who takes food in, digests this food up to a certain point in the stomach, brings it back again, chews it again, and takes it in again. Usually after this has been done twice, the food begins to be properly digested. Now the stomach of the cow, and of many ruminant animals including the sheep, has a very special form. Some of you may know that it is not a simple stomach like man's, which looks a little bit

Fig. 11



HUMAN STOMACH



STOMACH OF A RUMINANT

like this (see Fig. 11) Here the duodenum comes in and goes out. Food pours in here, is digested and moved out as quickly

as possible. The stomach of a ruminant, however, is a fourfold organ. And it looks like this (see diagram). The cow's stomach is a huge, so-called rumen. Here the gut comes in, and in this rumen all the grass and the flowers are transformed. From this rumen, the material goes to the so-called reticulum and from there it goes back again up to the mouth, is chewed and comes down again. Only after this does it go through the so-called omasum and abomasum into the intestine. Dear friends, if you see this and you remember how the brain is formed, you may suddenly realize that this is a brain structure. Just as in the pig we can say the kidney is the brain, so in the cow it is the stomach. What does this mean? What does rumination really mean? What does it mean that the cow and sheep and many other animals ruminate? I think we can understand it in the following way. We know that in the process of digestion we completely destroy the food which we take in, and make it our own. In animals the process is slightly different, however, because not all the food is completely destroyed; some of it is kept, in its own form and function. It is in order to prevent the complete destruction of food that ruminating comes about. The cow tastes and lives entirely with its food; you only need to hear the munching of a cow or the noise of a cow ruminating to see how the animal connects itself with the food. We can say that the cow loves the food, through the sense of taste, to such an extent that it doesn't want to destroy it; instead, the cow, the antelope, the sheep, the goat—all ruminant animals—unite themselves with the earthly substance, and by uniting themselves as deeply and intimately as possible with this substance, they permeate the substance with their own spiritual forces.

Rudolf Steiner has told us that the cow carries spiritual forces in itself*. From earliest times it was venerated as a holy animal, because man felt awe before the cosmic powers living unhindered and unspoilt in the frame of the cow. These forces do not live in the physical frame, but in the astrality of the cow; the cow carries, so to speak, part of the Zodiac in its being, and

*See *Man as Symphony of the Creative Word*. GA 230.

these starry powers, through the ruminating process, unite with earthly substance and permeate it. This, in point of fact, is the destiny of cows. Why do we have a brain? We have a brain in order that light and sound and smell and taste and all the forms of nature do not fall into our existence but are held off. It is similar with the stomach-brain of the cow; the cow's food is not completely digested, but is permeated by the spiritual powers of these animals, just as our percepts are permeated by our own thoughts and thereby—by means of the central nervous system of the brain—remain outside of us.

In the same way as fat comes about through the result of the meeting between the four lower senses and the sense of smell in the pig, and through the establishment of the kidney-brain, milk is produced in the cow by the uniting of the four lower senses in the sense of taste and the permeation of the food by spiritual powers. The milk is the result of all that happens in the cow, as the fat is the result of all that happens in the special form and function of the pig. And now let us turn to the sheep.

With the sheep the important thing is not the milk, it is not the fat—it is the wool. And if we ask about the sheep's special sense, I would have to tell you it is the sense of sight; it is in the eye. It may not seem that a sheep is so very much directed by its eye. But if we consider the wild forms of sheep and goats, especially those who climb the mountains, we can see that their skill depends on a mastery over space. Although our modern domestic sheep have gradually lost this ability, we must still realize the significance of this sense of sight, streaming in. And the eyes, as they collect all the four lower senses, develop one special organ, the heart. Look at the sheep. Look how the light (and this is space) collects the four lower senses through the eyes, forms the heart and builds as it were a monument here where all this manifests in the sheep: the tremendous horns, which develop in all sheep in one form or another. (It would be wonderful if one or another of you would care to study the different forms of the horns of sheep. Here we would see what nature can actually do.) And the result, dear

friends, is the fleece, the wool. The brain formation in the sheep is not an organ any more. The brain formation in the sheep is the whole of the fleece. What does the saga of the Argonauts, where Jason went to find the Golden, or Holy, Fleece, mean? Jason was looking for what was once cosmic wisdom. If, for instance, we look at the head of Zeus as it was formed in the old Greek times, we will see that Zeus also is surrounded by a fleece—by the powers of cosmic wisdom. We must try to bring all these things together.

What is still left to be discovered is the horse. It will perhaps not be easy for you to grasp what I mean, when I say that in the horse it is the sense of warmth we must look at. The sense of warmth is all over the body. You remember how Carl Alexander Mier told us (see earlier lecture) how horses sweat all over. This is because the sweat glands are the regulators for the sense of warmth. The sense of warmth in the horse is tremendous, as it must be, because the horse is continuously moving. You will never see a horse standing completely still. It is always trembling, kicking, or moving in some way, unable, like a cow, for instance, to rest, or, like a sheep, just to hang around. A horse is continually on the go and its kicking is therefore only a natural phenomenon. In the horse, dear friends, this sense of warmth is the unseen brain—just as in the sheep it is the wool. The predominant sense is identical with a particular brain structure: in the pig, the kidney; in the cow, the stomach; in the sheep, the wool; and in the horse, the warmth. One organ which is especially developed in the horse is the lung; no other animal has, comparatively speaking, such strong, huge, and well-developed lungs.

Now we begin to realize the individuality of the group-souls of these four animals. Dear friends, what do these animals give to us? The horse, with its continuous power of movement, becomes the one who carries the rider, who takes the loads, who draws our carts and all our wheeled vehicles. The cow gives milk, which—although it becomes food in the end—is first of all the inter-permeation of physical and spiritual forces brought about by the ruminating process. The horse

gives to us the ability to do work. It has given its name to "horse-power" in a world which gradually has to comply with the needs of the earth. The pig gives us fat, and we transform this fat into warmth and light. In ancient times, we ourselves lit our rooms with the help of the oil of fatty substances. And the sheep gives us wool, gives clothing, makes the conditions of man's life on earth comfortable again.

Perhaps I can now draw all this together in order to help you realize the connection between Aquarius and the pig, the Bull (Taurus) and the cow, the Lion (Leo) and the sheep, and Scorpio and the horse. The pig epitomizes the sense of smell, and connected with this is the kidney. The cow lives mainly in the sense of taste, which is related to the stomach and to the liver. The sense of sight, predominant in the sheep, is connected with the heart. And in the horse, the sense of warmth is connected with the lung. (Fig. 12)

Dear friends, those of you who have read Rudolf Steiner's lectures on agriculture will recall his description of the special substances which, working together as carriers of the forma-

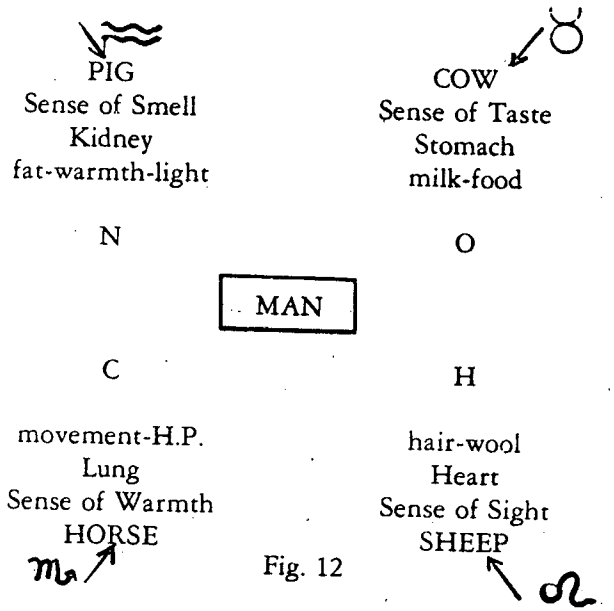


Fig. 12

tive forces, create protein, and especially albumen. Here we can see how, through the powers of carbon, nitrogen, oxygen, and hydrogen, everything joins to become a whole. Now imagine [here Dr. Koenig pointed to the Diagram] that here we have hair or wool, here milk (food), here, movement ("horse-power"), and here the fat which is turned into warmth and light. If you ponder over such a sketch, you may be able to see the formation of man through the Atlantean and post-Atlantean periods.

Some of you may recall Rudolf Steiner's comments on the three pre-earthly Deeds of Christ*. These three great deeds with which the Christ-Being harmonized the sense of man, the life-organs of man, and the three soul-forces, stand historically behind all that I have tried to describe to you here. In the pig the sense of smell went its own way. In the cow the sense of taste went its own way. In the sheep the sense of sight went its own way. And in the horse the sense of warmth went its own way. And we can say that each animal sacrificed itself in a different direction. They did not only remain around us, but through their sacrifice, milk, wool, fat, and horse-power surrounded us and made it possible for a civilization to be created. Around this civilization there stand the hills of the sheep, the meadows of the cow, the forests of the pig, the prairies and steppes of the horse. So much for these four domestic animals.

Third Discussion

4-12-64

Question: May I go back to one of the last statements you made in this very beautiful lecture, regarding the Three Pre-Earthly Deeds, and ask in which way we can see the animals

*GA 149

coming forth from these deeds? I could not understand this, since you spoke so briefly about it. I also wanted to draw attention to the situation around the manger depicted by all the Christmas pictures, where the cow, the horse (in the form of the ass) and the sheep (offered by the shepherds) are represented. But what of the fourth animal?

Dr. Koenig: The lamp—the lamp is burning. They are all there. None is missing—only the pig is not there in person. I would prefer, if you don't mind, not to go into detail about the Three Pre-Earthly Deeds of Christ, in order to give you all the opportunity to argue about it.

If you were to take one of Rudolf Steiner's lectures on this subject, perhaps the first one delivered on January 1st or 2nd, 1914 (as part of the cycle **Christ and the Spiritual World**)*, you would be showered with ideas and connections that would open out.

Comment: I know the blood plays a very important part in our existence. As I considered these four principles, it came to my mind last night that the blood falls also into four groups.

Dr. Koenig: Yes, exactly: what we have been discussing is connected with the four blood groups. You are quite right. Several years ago I wrote a paper which attempts to show how the distribution of the various blood groups in the different races of man (an area where a tremendous amount of scientific research is being done today) corresponds to the four powers which created mankind.

Comment: I was reminded of what Jacob did with the watering trough, when he met Rachel. You know, when he peeled the sticks and made them streaky, with white showing, and actually the animals which bred or conceived when they came to drink, turned out that color. (see *Genesis* 30:37-39).

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Dr. Koenig: At this time powers of life were still so strong that with a few means one could bring about such changes.

Question: I had difficulties concerning the elements which you mentioned—nitrogen, oxygen, hydrogen, and carbon—and I wonder if you could say a little more about their relationship to the different animals.

Dr. Koenig: You must work it out. You see, I only give these indications. There are several lectures which Rudolf Steiner gave to physicians (it is the first twenty lectures, March, 1920)* in which he clearly identifies the heart with hydrogen, the liver with oxygen, the kidney with nitrogen, and the lung with carbon. I mentioned this because of the four organs. Rudolf Steiner explains how the lung is the organ of earth in us, how all the hardening forces (this is as far as I can go this morning) live in the lung. It is obvious if, for instance, you observe the development of a frog from a tadpole. The tadpole has no limbs, but lives in the water; as soon as the tadpole changes into a frog, the lung developes and the four limbs are stretched out. At this point it starts to make sounds—even if only a harsh noise. This form-giving power is carbon. Rudolf Steiner even tells us that the feeling of hunger does not come from the stomach but from the lung; we are hungry through the lung. We are thirsty through the liver, and the liver is connected with all fluid in us, and this is oxygen. We breathe—actively—by means of the kidneys, and this is nitrogen; the astralization of everything. The heart is the bearer of the spirit, and this is hydrogen. Does that help you? But please don't say you have said "sound and fluid in the horse," and now you suddenly say "lung and carbon." Both are true. Both and warmth, because the whole animal is a unit. We must only see which are the outstanding features in order to understand the karma of such a being.

Comment: In connection with prayers in the old days, it was

*Note: see also *Karl Koenig: 'Man and Animal'*

often said: "Refresh my bowels in the Lord; create in me a clean heart; and rejoice in my liver." I suppose such a prayer was connected with all these things.

Dr. Koenig: Quite right. There is deep meaning in all this which men of today have lost and think that men of old were stupid.

Comment: During these three lectures, images from the book of Revelation came to my mind. The Lion of Judah, for example, turns into the Lamb.

Dr. Koenig: It would be very nice if some of you would look into Greek mythology. You would find wonderful connections. Greek civilization, dear friends, was nothing else but a replica of Atlantis, and what I have described here is nothing else but the Atlantean time. You will find all this behind the various gods and goddesses of the Greeks, therefore references to Zeus, Jason and Poseidon were especially appropriate. Wherever you look (and in the Old Testament as well) you will find a meaning in the description of the images of animals. How poor is the science of today compared to what it was.

Comment: I remember how at the beginning of the lectures you said that the hoofed animals and the whales are one group. That is a terrific thing.

Dr. Koenig: But I would like to add to this that it is scientifically proven. About ten years ago very intricate tests were made of the serum and the albumen in the serum of hoofed animals, whales, and dolphins; it was found that they can be replaced by one another, which is the sign that they are one race.

Question: Has Archaeocetes been found lately?

Dr. Koenig: It was found for the first time in 1850, but no one knew where or how to place it—and then destiny spoke! Rudolf Steiner described, in the lectures on the Pre-Earthly Deeds of Christ, how Apollo is the image of Michael, and underneath is the dragon; this dragon is not the dinosaur, but **Archaeocetes.** The first skeletons of **Archaeocetes** were displayed in New York in the Apollo Rooms! Isn't it strange? One must know these things.

The Meteorological Organs

Introductory Lecture

30-10-58

It is a spiritual honor to speak as a medical doctor in a circle of farmers and gardeners about such spiritual subjects as we are going to discuss during the next few days. The last time I spoke in this circle I think it was a great event for all of us present. We could somehow understand each other in our striving to understand the subject matter. When Mr. Wood approached me I was grateful to have the opportunity of once more speaking and working with you for a few days on this important subject of the meteorological organs of man.

You must, however, understand that we are not going to hold lectures, but I would be very grateful if we could become a study group. We must really try as hard as we can to go to the depths of some of these indications which Rudolf Steiner gave on the one hand to the doctors, on the other hand to the farmers, and attempt to understand a little bit more of what he meant.

During the last three years, the Association of Anthroposophical Doctors in Stuttgart has discussed this very special theme. Our last conferences in Germany were actually on the theme of the four meteorological organs in connection with the whole metabolism in man, especially in connection with

study group. We must really try as hard as we can to go to the depths of some of these indications which Rudolf Steiner gave on the one hand to the doctors, on the other hand to the farmers, and attempt to understand a little bit more of what he meant.

During the last three years, the Association of Anthroposophical Doctors in Stuttgart has discussed this very special theme. Our last conferences in Germany were actually on the theme of the four meteorological organs in connection with the whole metabolism in man, especially in connection with protein-building within man. We have not come to any conclusions, nor have we solved some of the main problems, but we have tried to place certain facts together, facts which during the last fifteen or twenty years have been ignored by modern science. When I was present at these conferences, I thought it would be necessary to bring some of these facts to bio-dynamic farmers. Therefore the invitation to speak to you again joined itself together with my own inner intentions.

All that I am going to bring to you is, of course, based on the indications of Rudolf Steiner, as well as upon what has been worked out during the last three years amongst these doctors. Therefore, you should know that many of the things which I am going to say have not grown on an individual compost heap, so to speak, but amongst many compost heaps. A few hundred doctors have tried to piece things together and I am quite unable to refer to any special one. Behind me there stands, nevertheless, the association of doctors.

When we start tonight I would like to give a kind of survey of the whole approach to the subject we are going to discuss. I would like to speak about the human being in general, both as he appears in front of us, and as we appear to ourselves. Of course, what we know of ourselves, what we experience as other human beings around us, what we study of the nature of human existence, what we hold in our thoughts and ideas of the nature of the human being himself, form only a small part of man himself, only a fraction of what the human being really is.

We have our daily experience. We look into the world we can see and hear with our senses, touch, taste and smell. We fill all these sensory experiences with our thoughts and ideas. We build up certain images of the world. We experience feelings, we act, we have our volition. All this we do. All this we are. This is something which also appears to us in meeting other human beings. It is nothing but the surface of everything that we are.

This fraction of the human being is the one which we usually describe, if we are anthroposophists, as the man who can think, feel, and will. We describe this being, with regard to his physical and etheric structure, as the one who has a sense-nerve system, a rhythmic system, and a metabolic-limb system. But again, this is only a surface view.

It is important to order the surface in this way, because it gives us a very fundamental insight into the surface nature of man. Behind, underneath, and above, however, there is much more. There is so much more that human words can hardly describe it. Behind this is the true and actual being of man. What we know of ourselves, and what we are today, is nothing other than what we are according to our own hypothesis, so to speak. We appear as our own theory, yet if we meet — as sometimes we are able to meet—the true reality of man himself, then we meet something to which we are totally unaccustomed. We may meet someone who has suddenly lost his day-consciousness. He starts to speak in incomprehensible sentences. He discloses certain things to us which are totally foreign. We wonder what has happened to the human being. Then, in order to defend ourselves and in order to keep ourselves together, we call him insane. We classify him in order to free ourselves from the impact of such an experience. We do this so we will not be overwhelmed by what comes towards us.

Yet here we meet something which is much more real, much more the true existence of man, than that which speaks to us through the maya of the surface. This is an ailment intimately related to what we are going to discuss during the

next few days. You will soon understand what I mean.

In this context I should like to refer to a lecture by Rudolf Steiner from the 1st of July, 1921,* where he describes how when man is gradually nearing earth at the end of the life between death and rebirth, something happens. Rudolf Steiner says that the spiritual beings then have intuitions. The higher beings of the Hierarchies have intuitions. The result of these intuitions are the physical organs of the human body, the big organs like the spleen, the kidney, the heart, and the lungs.

These organs are not part of ourselves, insofar as we know ourselves in our day-existence and day-consciousness. What they belong to is much more general, in no way personal or individual. It is still part of the gods, as if the gods had their sensory organs within us and in our body.

This is what we have to study. We should, first of all, learn to see that these organs no longer belong to the individuality of man or to the personality of our existence. They are much wider, much more all-embracing than is, for instance, the skin or the nervous system.

Some of you will have heard of the famous and great zoologist and thinker, Professor Portmann, who is professor at Basel University. Professor Portmann has tried during the last few years to introduce a new and, I think, very important idea which is closely linked to what I have tried so hard to express. Portmann has drawn our attention to a very special fact. He says that the individuality of a family of the animal kingdom expresses itself on the surface, but not inside. If you take the skin off both a lion and a tiger, and you inspect the two corpses, you will no longer be able to distinguish which is which. It is quite impossible. What is underneath the skin of the tiger is almost exactly the same as what is underneath the skin of the lion. He says that in many instances you will find it so. He draws attention to the fact that the surface nature is connected with the all-embracing power of the light. The light creates the individuality. (When I say individuality, you understand that I mean the group soul of this particular animal.)

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With man it is quite different. In the structure of our nose, in the way our hair grows, the way our wrinkles are formed and the lines of our hands drawn, in the way that everything expresses itself outwardly, we find the deep expression of our personality, our individual existence.

If, for instance, we go into the study of the great organs, we are quite unable to distinguish any kind of individuality. The organs are formed and shaped by all that surrounds us. The countryside, the geological formation of the earth, the constitution of the water, the climate, all build, shape, and form the great organs.

I can very well imagine that a few centuries from now, when we have come to have more insight into all these questions, we shall be able to say the following: to the outside, man expresses himself as his individual person, but in everything that comprises the lung, the heart, the kidney, and so on, he expresses that life which the whole existence from heaven down to earth has given to him, according to his individual karma. Considered medically (and also from the viewpoint of everyone who wishes to understand human existence), everything which is connected with the so-called mental diseases is based on the physical and etheric derangement of what is general in us.

A mental patient at the height of his derangement — I don't say illness—loses his personality. He is not his individual self. Something general, something universal, something cosmic is speaking through him. Perhaps it is the voice of the liver which sounds through him; the voice of the liver is the voice of many spiritual beings who have worked together in intuition to create this organ, and the man who speaks is nothing else but the mouthpiece of all that.

Please do not misunderstand me and think that those people are higher or better than we are. I am not at all attempting to judge. I am only describing how our individual diseases are connected with this individuality, the spirit, whose task is to live in this general, formed-out body. This spirit has the task of living as an individuality in what the

general beings—the formative powers of the universe—have given to us.

The foregoing remarks provide a kind of introduction to what I want to say to you.

I would like now to draw your attention to the four great organs—or systems of organs—which Rudolf Steiner has brought before us in so many different ways. Seeming contradictions may be present in his differing approaches and descriptions; he left it to us to go through these contradictions in order to find out what he really meant.

He speaks about the heart and its activity. It is of great interest that the heart does not depend in its pathological activity on the individuality alone. The heart depends on the active mobility of the human being himself. Rudolf Steiner describes how the action of the heart suffers if the active mobility of the human being is restricted and speed and velocity are imposed from outside. You must remember that Rudolf Steiner said this as early as 1920, and realize how much more importance and impact it has for our own time, almost thirty years later.

Consider how we sit in a motor-car, either driving or being driven, or we travel in an airplane and have to suffer speeds of 100, 300, 400 miles per hour or more. We do not actively achieve this speed, but we are forced—I can't say it differently—to suffer this speed. The whole warmth organization of man, with the heart at its center, is then restricted, because it depends upon the warmth (mobility) from outside. Our active mobility does not create its own warmth if we don't walk or use our arms and hands. If we sit, we do not produce any active warmth. We need the warmth from outside.

Yet the speed is a reality, as is also the activity of the heart. Imagine this: if you walk, your heart beats quite differently from the way it beats when you sit. If you climb, your heart's activity is entirely different from its activity when you just walk on level ground. On the other hand, if you rise a few thousand yards into the air, and the heart, so to speak, sits, or if you rush through the countryside and don't move, then the

whole of the warmth organization reflects irregular activities back to the heart.

Rudolf Steiner once said the following: "It is necessary for people who suffer from heart disease to always have a certain amount of active movement." Can we be astonished at the fact that today the greatest number of deaths occur on account of heart troubles? We are not using our limbs anymore, and the heart is the organ that suffers as a result. This is the first point. I don't want us to draw any conclusions, I simply put facts before you. You can see what Rudolf Steiner means by a meteorological organ when he speaks of the heart in connection with speed. It is not only the heart's relation to atmosphere, or thunderstorms, or rain, or anything like that, but rather the individual speed or passive speed that is involved.

Speaking in this way, we find that the second organ—the bladder—is more interesting. Dr. Steiner does not in this context mention the kidneys, yet one has the impression that he considers the bladder to be representative of the entire urinary system.

He describes the bladder as a hollow organ which sucks. It continually sucks that which doesn't suck. The bladder sucks, in point of fact, our whole breath. This might seem very strange to you, yet it is so. We do not breath with our lungs. Truly the air streams into our lungs, but the process of breathing is continually done by the activity of this organ—the bladder. Out of the air urine is formed, and water continually and very rhythmically drops down. The process itself, however, is the active sucking activity of the bladder. Like the rhythmical beat of the heart, this is disturbed by something else. It is disturbed by the outer activity of our movements, by the mobility of our arms and legs. It is disturbed by what Rudolf Steiner calls **die innere Beweglichkeit**, the inner mobility.

How does Rudolf Steiner describe inner mobility? He says, for instance, that if we do not sit down to eat and chew properly, but rather gulp our food down, then our inner mobility is disturbed. Then the muscles of our pharynx, our stom-

ach, and our duodenum, our whole intestinal tract, are moving restlessly and much too quickly. A continuous tension is growing within us, a continuous, restless, inner activity.

Though Rudolf Steiner does not mention it, it becomes quite clear that the outer activity is performed by the striated, voluntary muscles. Inner mobility, however, is achieved by all those muscles which we call the involuntary ones, those muscles which lie in our intestinal tract and in almost every internal organ. Through our restlessness, the rhythmical sucking activity of the bladder is disturbed. The act of breathing is disturbed and through it the whole of the interaction between the astral-ego on the one hand, and the physical-etheric on the other hand, is thrown out of gear. We see exactly the very subtle differences which arise in such circumstances.

The third organ which Rudolf Steiner describes is the liver. In the liver we already grow, as it were, "outside" the compound of the human body. Rudolf Steiner describes the liver as a kind of inner mirror of the condition of the water where we live—whether this water contains a great amount of lime, or silica, or whatever. This is mirrored in the activity and existence of the liver.

The fourth organ is the lung. Now we are going still further outside, because the lung and everything connected with breathing is related to the whole world around, not only to the air itself, but also to the whole geology of the earth. To study the geology of a certain region is the same as to study the lungs, the human lungs, of that region. This is really a building-up process, whereas in the liver we have a kind of narrowing process. The bladder is confined to our inner activity, whereas with the heart, the world remains wholly outside. These are the facts which we shall have to consider more intimately in the course of our deliberations.

In another context, Rudolf Steiner approaches these same four organs from an entirely different angle. (At this point I am only trying to put facts together.) He describes how, within us, these four organs are regions which repeat

something which belongs to the structure of the whole earth.

We have the physical ground of the earth surrounded by the hydrosphere and the atmosphere (see Diagram I). Rudolf Steiner tells us that around the atmosphere there is a layer or sphere of warmth. Above this sphere of warmth appears the sphere of light. He then says something which I can only relate, but which I feel is of the utmost importance for our time. He says: in this sphere the light grows; the light is created. He uses the term as we would when we speak of plants growing here on earth. Light is growing. Original light is streaming down to the earth, but not from the sun. Beyond this stream of light there is a sphere which he calls "genuine chemistry"; above this there is a sphere of vitality.

Then Rudolf Steiner points to the fact that we also carry these spheres within us. Out of warmth, original light, genuine chemical forces, and a balance of tremendous vitality, we create within ourselves an organism. Out of these arise the heart, the bladder in conjunction with the kidneys, the liver, and the lung.

What is around the earth is inverted into our own body and appears as the heart organ, the kidney organ, the organs of lung and liver. Rudolf Steiner then says the following: these four organ systems are the creators of the substance albumen. Albumen is continually created—I cannot say in our body, it would not be quite exact—but rather within the system of our existence. The four points—liver, lung, heart, and kidney—tell us about the intuitions of the spiritual beings around them. A continuous process of forming and dissolving takes place. The heart gives into this process of building albumen the element of hydrogen, the kidney oxygen, the liver nitrogen, and the lung carbon.

We must call to mind the description which Rudolf Steiner gave us (before the Christmas Foundation Meeting, on 1st December, 1923,*) about the becoming of the earth. He describes how in the early Lemurian Epoch—probably the first and second Lemurian Epoch—the whole earth was not

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surrounded by, but was, an atmosphere of albumen. If we take this statement seriously it means that at this time it would have been quite impossible for anyone to distinguish the five elements or substances—carbon, hydrogen, oxygen, sulphur, nitrogen—because they did not exist then. It was a higher substance, albumen, that was present.

Let us recall some of this description: how plant beings, like clouds, suddenly appeared and disappeared; how, through the impact of cosmic life, parts of the albumen were clotted together; how there was a rain of lime which filled these forms of clotted albumen and the first animals began to insert themselves into the life of the earth. We must imagine this as vividly as possible and try to see and understand this sphere of albumen—this higher substance—as it gradually condensed itself, became hydrosphere, atmosphere, and, finally, the hard physical core of the earth. We must envison how (to the above) these spheres lifted themselves up so that the processes of differentiation came about; how, out of the air, which became clear, the light grew; how out of the hydrosphere, chemistry appeared, and how, as a counterforce to the physical condensation, the original vitality spread its mantle around this planet. If we see how, out of this oneness, the seven spheres increasingly developed and formed themselves, then we learn to understand how man gradually settles into his physical body.

In describing this, Rudolf Steiner says it is as if we are intimately connected with all this. It is as if we can remember back to our childhood. He says: If I had an experience in my childhood of anything like this and it rises up in me so that I remember it, it is because man was part of all that has happened. It belongs to him and comes back to him during the course of his life. It is memory to which Rudolf Steiner calls our attention; it is our memory that we are speaking about.

This gives us a much more intimate understanding of how the building-up process of albumen (protein) within us is only what in miniature, in a microcosmic way, was present for the whole of the earth at the beginning of Lemuria.

We carry this within us as a kind of living memory. Spiritual beings work within this continuous process of building up protein. Spiritual beings have their place within our existence. It is an existence with which the whole cosmos permeates our own individual existence—the Without becomes a Within. Throughout all meteorological facts these organs reach out into the far distances beyond space and time. Yet they are within us, inasmuch as we are a body. They relate us to the cosmos as long as we do not destroy them completely, their pace, thus destroying the activity of our heart or the activity of our bladder.

If, however, we still cut ourselves off from the living flow of the water, from the proper impact of the soil and the earth, then we will no longer be our own theory or hypothesis. We will be nothing but a spectre of what was once upon a time within man.

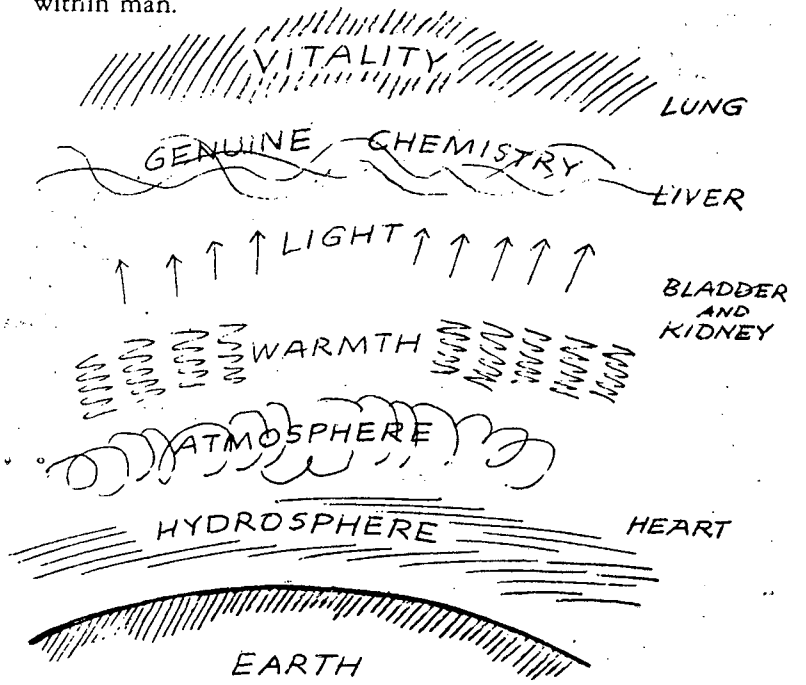

Fig. 13

Things are much more serious nowadays than ever before. We know that whenever we speak together about such effects and such ideas, it is our endeavor to enlighten again not only ourselves, but also to enlighten a certain amount of the spiritual surrounding of part of mankind. This is a kind of preliminary approach. Tomorrow morning we shall go into details. I should like to begin speaking about the system of the lung, in order to understand the nature of the lung in connection with all that I have sketeched out tonight.

The Lung

10-31-58

Lecture II

We shall now try and dare to make the first steps into the region of the four great systems. Out of these the albumen (protein) within the human form is really created, always newly created and at the same time dissolved. Sometimes, when I tried to enter this region with my own thoughts (of course it is only possible at the hand of Rudolf Steiner), I had the following impression: this region is somewhat similar to the one which is described by Goethe in his "Fairy Tale of the Green Snake and the Beautiful Lily." The old man with the lamp enters into the cave for the first time and finds the figures of the four Kings. It is dark and his own lamp is able to throw only a certain amount of light, helping to distinguish the figures of these four Kings. Then the green snake appears, and in the radiating light emanating from it, the figures of these Kings gradually appear and their voices can be heard.

This is the kind of image that should lead us, time and time again. It is quite impossible to speak in an intellectual way about the reality of these four systems of organs. We must try and use imaginations—imaginations which were handed over to us by great seers such as Goethe, Rudolf Steiner, and others. At the end, perhaps, such images will help us to grow nearer to an understanding of what we are searching for.

I would like to remind you at the same time of something that Rudolf Steiner told the doctors. When I speak about this I usually refer to the fundamental lecture course entitled *Spiritual Science and Medicine,** which you studied before coming here to this meeting. There, in speaking about proteins, Rudolf Steiner makes a very fundamental distinction between the two forms of protein—the one out of which plants are built, and the other out of which animals have their animated nature. Rudolf Steiner says quite cleary that these two forms of protein are incompatible with each other. The animal protein, especially the human protein, is, so to speak, destroyed when plant protein comes near to it, and vice-versa. They are incompatible, though from the point of view of chemistry the plant protein consists of exactly the same substance as does the animal and human protein.

Then Rudolf Steiner adds something that we should see as a kind of image. The animal (and especially the human) protein is created by the four organ systems, not by the organs. (Whenever I say organs, I always mean the systems.) You must imagine this is the sphere of human protein (Fig. 14). These huge systems of lung, liver, heart, and kidney, along with the bladder, are the creators. Plant protein is not created by these four "guardians" which the spirit has sent into us. It is created by the agency of carbon, hydrogen, oxygen, and nitrogen. The world-building powers of these substances directly create the protein of the plant. The direct, immediate forces which are working there take on another cloak. They become something. The world powers of carbon turn into the lung

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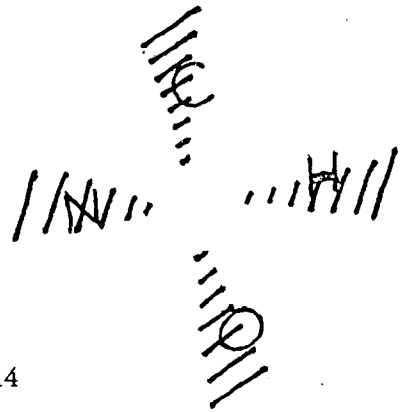


Fig. 14

system. The same holds good for the three others. If we speak in an image, they become the Kings. It is not the world powers themselves, but it is the disguise, the metamorphosis of these world powers within the human frame, which creates the protein. This is a kind of an introduction to what we now try in a more detailed way to discuss.

Let us turn to the organ system of the lung. We all know the lung. We also know a certain amount about its form. We also know a certain amount about its function. We know that the lung organ is especially, at least to our superficial knowledge, the organ of breathing. Yet Rudolf Steiner, time and again, speaks of the lung as an organ which, just as a sideline, has the function of taking in air and thereby making the exchange between air, light, oxygen, and carbon dioxide possible.

The lung in its reality or being is something quite different. I already mentioned, in the survey which I gave last night, that the lung has to do especially with the element of earth, not with the element of air. Rudolf Steiner indicated that the lung, as a meteorological organ, is intimately related to the structure of the soil in the area where we live. In fact, to study the geology of a place means nothing else but to study the lungs of the people in that region.

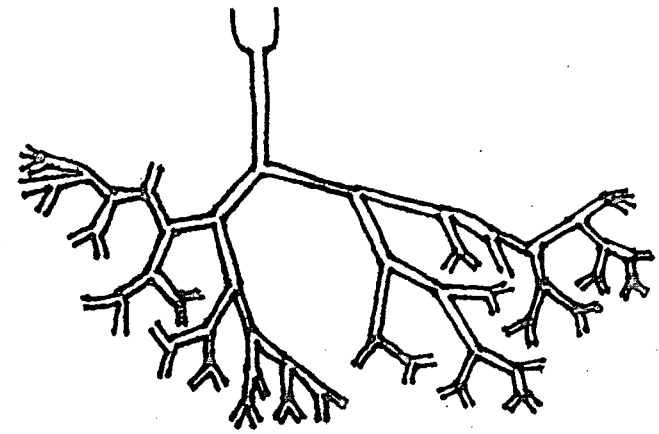


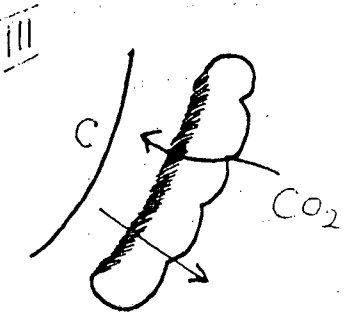
Fig. 15

How is this to be understood? If we study the lung's anatomy, we find that in the very early development of both humans and animals, the lung buds out of the intestinal tract. This, in itself, poses a very great question. Why does the lung, which is an organ of breathing, which belongs intimately to our rhythmical system, originate within the intestinal tract? Why is its source of existence related to the organs of the metabolic system? For the moment, I leave this as a question.

The lung develops in a way that can be described as a continuous budding process, always budding in twos. A so-called dictotomic process of development sets in. It is a very plant-like process. It is as if a plant would grow and part, and again part, and part again. (Fig. 15) You definitely can speak of a stem and of branches. From the branches there are twigs coming out, always two, and you can imagine that in this way the whole of what we quite rightly call the bronchial tree develops.

At the ends of this bronchial tree, in the ends of millions and billions of these tiny twigs, there are the lung vesicles. Within these vesicles the exchange between oxygen and carbon dioxide takes place. Each one of these vesicles is sur-

Fig. 16



rounded by a network of blood capillaries. (Fig. 16) You must imagine that the surface of the blood capillaries, as well as the state of the lung vesicles, is most subtle. It consists of an exceedingly flimsy film, like a layer of gauze. Through this film, oxygen streams in and carbon dioxide goes out. It is an exchange.

How does this exchange really take place? Explained by physical laws, it is entirely unknown. But imagine the tremendously huge surface of those millions of vesicles. If I remember rightly, someone who estimated this surface, which is enfolded into our chests, found it equal to something like the surface of Lake Geneva, or Lake Constance. In any case it is very wide. On this tremendous surface within us, the exchange takes place.

However, the lung, when it starts to bud, is meant to be a gland, similar to our salivary or any other of our body's glands. Yet it is quite impossible for the lung to fulfill its glandular status, because this gland is hollowed out. It becomes not an organ which creates, but an organ which, instead of creating, sacrifices itself. It becomes hollow, empty, in order to let the air stream in.

This gives to the lung the somewhat dubious position it has attained. It should be a gland, but it isn't. It starts to be created out of the intestinal system. Then it is no longer a gland; no longer a part of the intestinal tract. We now ask

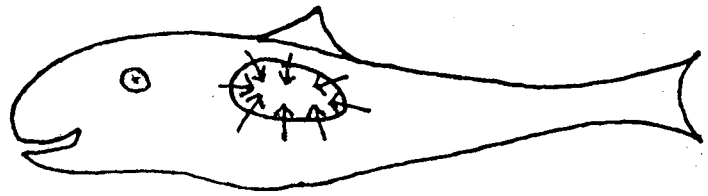


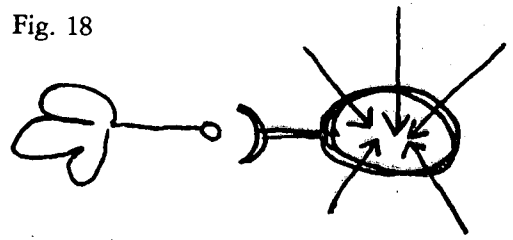
Fig. 17

ourselves: is it possible to follow, in one or another way, the reality of the lung as an organ? Can we find it? Can we learn to understand it?

If we study the anatomy of fish (Fig. 17), we find that in many fish there is a "lung." But the lung is not a lung. The lung is a bladder, but not in the least a urinary bladder. It is a bladder which is situated roughly as shown in the sketch, and is filled with air. It is filled with air but not from outside. The air bladder in the fish produces its own air. The air really issues into this bladder. It is not done once and then the air stays in for good. As you can see here, the lung reveals its nature as an air gland. We are used to glands which produce fluids. The lung is a gland which, once upon a time, produced air!

The production and dissolution of air within this gland of the lung, as in the air bladder, is a continuous process. Gradually we learn to understand it if we consider that this air bladder (Fig. 18) is connected with a set of tiny bones. These are ossicles, like the ones which connect our drum in the middle ear to the inner ear. These little ossicles reach up to the organ of equilibrium—the three semi-circular canals.

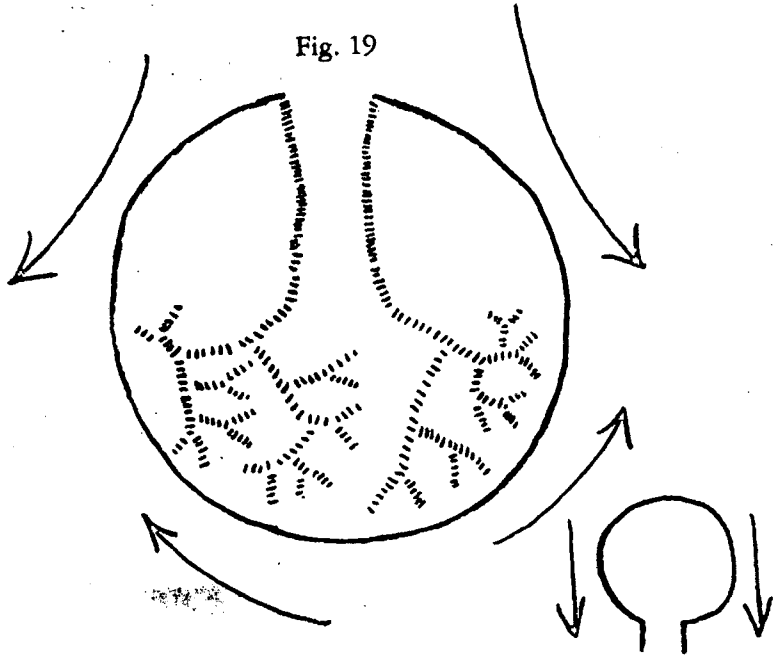
Fig. 18



Through the organ of equilibrium, which is more or less fully developed in the fish, the fish keeps its balance according to its activity in its surroundings. This bladder becomes smaller or larger, influencing continually the flow of fluid within the three semi-circular canals and thereby directing the balance of the swimming, floating fish.

Now imagine how Rudolf Steiner spoke about the being of the fish in those wonderful lectures which he gave in 1923 about animal nature. Speaking about the nature of the fish, he says that the fish has a kind of consciousness for the whole ether structure of the globe. The fish swims within the whole ether sphere of the earth and (although these are not Rudolf Steiner's words) the body of the fish has to keep its balance within the structure of the whole of three-dimensional space. With this, the air-gland-bladder, which is the lung, is intimately connected.

Fig. 19



Earlier we described the lung as an organ which has sacrificed its gland nature, its ability to create its own air, so that the air from outside can stream in. Now remember Rudolf Steiner's description of this urinary bladder as a sucking organ, an organ which, because it is a hollow organ, continually has the ability to suck. Related to this organ is the lung-bladder, which, in the case of the fish, should have the structure pictured in Fig. 19.

The lung has done the following: it has started to undergo this process in order not to create its own air, but to become the carrier of the air from outside. What has happened? The lung itself is, of course, through this process, quite unable to breathe. The lung, from being an active air gland in the fish

Fig. 20

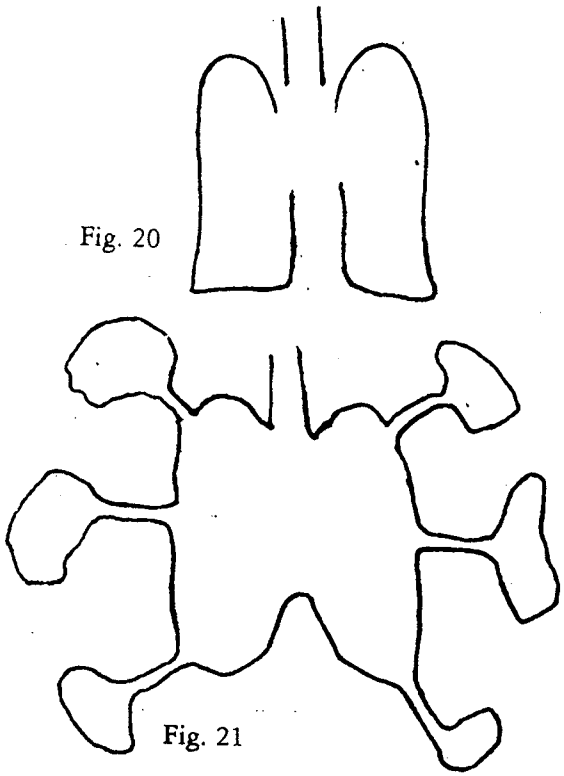


Fig. 21

has become, through sacrifice, a completely passive organ. Here the pull has continually to wait in order that the air from outside can stream in. And again the push has to come from the side of the kidneys in order to make the lung express the air. Only if you imagine that the lung is a completely passive organization—it sits, so to speak—with the active side being the urino-genital system, can you see how the whole intake and output of air is possible.

If we then follow the tracks of the development of the lung, how the lung behaves in its very many different forms throughout the animal kingdom, and if we can do so without connecting it with the wrong idea of evolution, then we find something which I feel is of very great importance.

I will give you another example. If we now investigate the birds, the fish of the air (this is an expression taken from Dr. Kolisko), we see that, in them, the lungs show something which can help us understand what the lung, in its being and gesture, is actually after. We find that the bird's lung is not like the human lung (Fig. 20), enclosed as left and right in our chest, but has many sacs and bags which it sends out. (Fig. 21) These bags grow into the bones, the long bones of the birds, and there replace the medulla within the bones. They replace this tissue where otherwise blood is continually produced.

You have to imagine a certain part of the bone in a bird to be filled with an air bag. Again we meet the air bladder of the fish, but we meet it more directly. We meet it in such a way that it is connected with the special structure of the species. In fish the ossicles, which connect the air bladder with the organ of equilibrium, show a tendency similar to that of the air bags which do not produce their own air, but fill themselves with the outside air. This makes it possible for the bird to fly and balance itself in the air.

Connected with this is something which I consider still more important. Around the air bags are bone marrow, the medulla. This bone marrow is surrounded in exactly the same way as the lung vesicles (Fig. 22a) by the capillaries of the blood. Here, however, we have a surface different from that of the

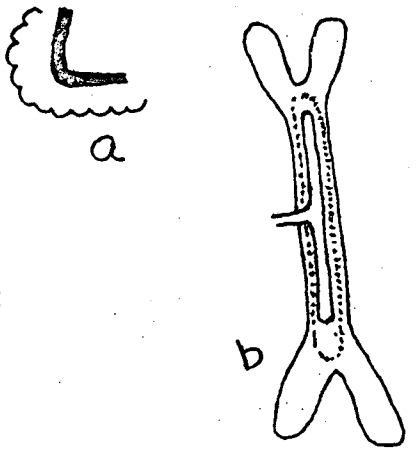


Fig. 22

lung. Although the millionfold surface area corresponds to the one or two or tenfold area of the other. (Fig. 22b).

If we take it as a gesture, what does it express? As a kind of inner attitude, the organ lung, which is intimately connected with the whole spatial arrangement of the earth, shows the tendency to relate itself to the nature of the blood. When studying the lung, we find it has a constant tendency to relate itself as intimately as possible to the blood. The lung grows as near as possible to the blood, leans, as it were, towards the blood.

This is a very intimate gesture. It is a gesture which is also expressed in sculpture (some of you might know it, and you can also see it painted many times). It is a gesture similar to the one we find spoken of in the description of the Last Supper. Not that I want to relate the one attitude to the other; I want to describe what is within the lung, how intimately it longs to lean on the chest of the blood. Thereby the exchange of oxygen and carbon dioxide is possible for the blood.

Here again, you have the lung's tendency to give itself up. This tendency lives in the lungs, making two things apparent. One is that now the cosmic rhythm of 25,920 can express it-

self. You all know that we breathe, during each day, as often as a Platonic Year measures in years. Therefore the same rhythm, unbroken but shortened, the same inner rhythmic possibility, lives through man as through the universe. This we owe to the sacrificial attitude of the lung.

As for the second point, I would like to refer to the third lecture of the agriculture course* (which you, of course, know almost by heart!). Here Rudolf Steiner speaks about carbon and how we come nearer to what the mineral nature, the earth existence, of the lung might be. He tries to bring us near to the idea that carbon is not what he calls "this black fellow" (schwarzer Kerl), which we usually visualize when thinking of carbon as we see it in coal or graphite. Carbon is actually the substance whereby the images of the world can insert themselves into organic structure.

Carbon is a substance which continually gives itself up to the cosmic images—the world ideas—the archetypal ideas of all existence. These take hold by way of sulphur. The sulphur leads them and the carbon takes them up, forms them, dissolves them, forms them out again, and dissolves them again. Then Rudolf Steiner refers to the blood with these words: Blood is a very special fluid ("Blut ist ein ganz besonderer Saft"), because within the blood the human ego works and finds its physical expression. Speaking more exactly, more fundamentally, however, about the workihg of the human ego, he says that we must speak of the carbon within the blood, because it is the carbon which leads the spirit into it.

The cosmic spirit and the human spirit — the cosmic spirit and the human ego—they meet when lung and blood meet together. The lung has sacrificed itself. It has become a dubious organ, but in sacrificing itself, it allows the archetypal images to stream in on the rhythm of 25,920. There the cosmic spirit and the human ego meet. This is what the lung continually is striving for—to be intimately related to the surface of the blood. It meets in the blood this very special thing which is working in the carbon and which again is the working of the

*GA 327

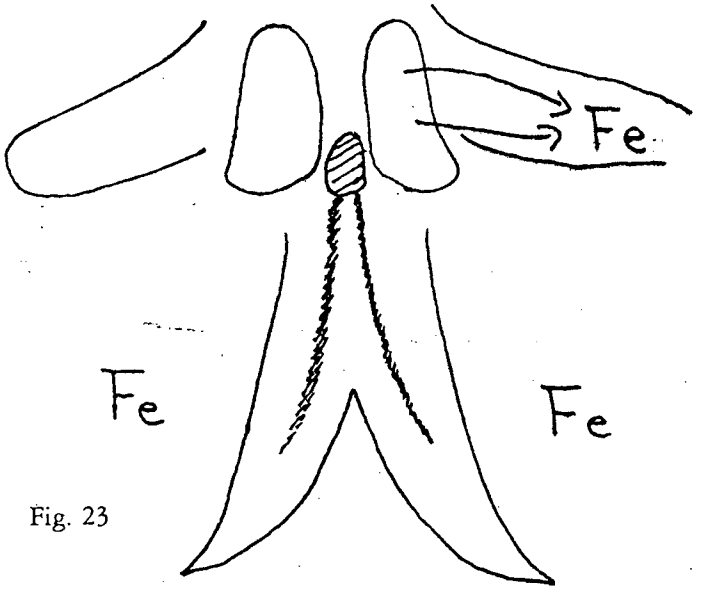


Fig. 23

individual personality, the Ego within it. Through such thoughts, we come a certain step nearer to an understanding of the organism lung.

The meeting of blood and lung is also expressed by another very important fact, a fact especially important for doctors. When we study the human lung (and I say the human lung because here it is especially obvious), we find that it has, so to speak, enshrined the heart organ (Fig. 23). The left lung has receded and has left part of itself free to surround the heart. This is the same as I have described before, the tendency to grow very near, and to intimately relate itself, to the blood. You see our arms and hands are permeated by the lung. We embrace, we work, we do. Our legs are permeated by the heart and, as we know, our arms and legs work together and permeate each other.

I would have to speak at length to define exactly what kinds of streams these are, but a very special stream of iron emanates from the blood and continually counteracts the

production of albumen. We will come back to this when we speak about the liver and especially when we speak about the heart itself. Again, this is only a first intimation which should stand before us.

Yesterday we heard how Rudolf Steiner spoke of the organs as being the intuitions of the Hierarchies. Now we will try to look into the lung in such a way that we ask ourselves: is it possible to define the intuition of the lung? Some of you will be acquainted with the very important lecture which Rudolf Steiner gave on the 3rd of July, 1921,* when he spoke of the different nature of the four main organs. He described how memory in man is very intimately connected with the surface of these organs. He spoke about the lung in the following way. The lung especially takes in, as a memory, such thoughts as are connected with our ideas of the world around us, clear-cut forms of ideas, concepts. These clear-cut concepts are taken up through the surface of the lung into the inside of the organ. There they grow into a kind of force or power. After death this power is released. This power grows through the life between death and rebirth. When we incarnate again, the configuration of our skull results. Rudolf Steiner says (what the phrenologists try to understand): that the surface of the skull is nothing else but a reflection of all the concepts and ideas which we took in from the outside in our previous life.

But what is the skull? The skull is the surface-image of the earth. The skull is, so to speak, the imprint of the geology of the whole earth. Only when we know this do we learn to grasp for the first time why geology and the lung are so intimately related. This relationship is revealed only in our next life. We have, so to speak, the formulated landscape built and formed as our skull. If these formative forces are so strong that they overpower the lung, or if the lung itself in one life is so weak that it is unable to contain these forces, then something appears which I tried to describe last night. In front of it we stand flabbergasted. We try to put it away, saying that somebody has become insane. Because, if the powers which form the skull in the next life already emanate into this life, then the person may, for instance, develop what we know as obsessive ideas (Zwangsgedanken). I could give you examples. In short, paranoid ideas, fixed ideas, emanate from the person in such a condition. Again, this is nothing else but geology, but a geology bearing unique personal, earthly images, rather than cosmic images.

*GA 205

You will understand that I avoid surrounding all this by hard and sharp boundaries. The facts speak for themselves. In conclusion, I would like to say that the lung has a very special position among the four organ systems. The lung is usually the opposite of the forces which can work through it, the opposite of those forces which pour in by the sacrifice of the lung. Therefore, I have tried to show that the lung is a dubious organ. It is an organ which is, so to speak, here temporarily. But, in the metaphor of Goethe's fairy tale of the green snake and the beautiful lily, we can say that when the call goes out, when the time has come and the green snake whispers into the ear of the old man, then the time of the Mixed King, the lung, will have come to an end. But although the lung will sink down, like the Mixed King, we must remember, dear friends, that the Mixed King is not only a ridiculous figure. He plays the greatest part in his own time, which is our time. Therefore we should learn to understand the lung, because the time has come, and the signs of the lung show that the time has come. During the last fifteen years a dreadful disease, which until recently was one of the rarest, has become epidemic all over the civilized world.

Cancer of the bronchial tree has become an epidemic, especially among men, but also among women. It is doubtless that this epidemic is intimately connected with smoking. Whoever wants to evade this issue can do so, but he is far from thinking the truth. (I do not have the impression it is the influence of tobacco or nicotine, but rather the other way round.) Smoking destroys the standing position of the fourth King. Smoking (and I remain with a picture) destroys the lines of

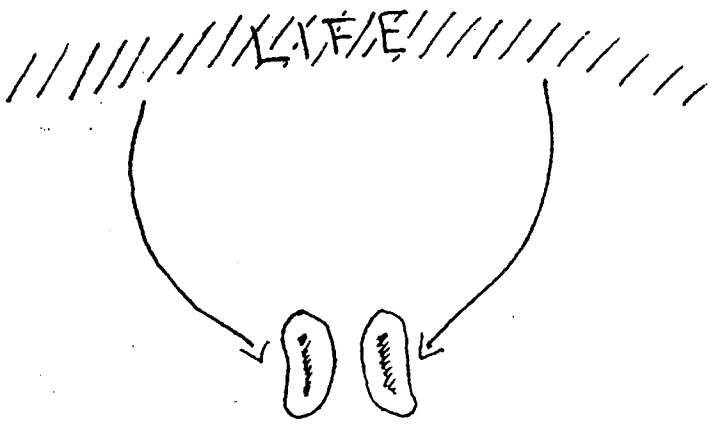


Fig. 24

gold and silver which hold the fourth King up in his position. The whole of the adaptability of the lung organ to the surrounding nature and geology is completely destroyed. No doctor or farmer will ever be able to sense the geology of the surroundings when smoking, because smoking destroys this subtle gift. As a result, the uppermost sphere, the sphere of life of which we spoke last night (Fig. 24), now streams down from its rightful sphere. Rudolf Steiner describes this as a sphere which continually has to be restrained, otherwise, all over the earth, cancerous growths will come about. They will come about if the lung fails. These two facts belong together. The life powers stream in and the cancerous growths come about.

We should recognize that the lung is related to the sphere of life, and that the time of the fourth King, which has existed for a few thousand years, is starting to come to an end.

This is a first kind of introduction into the organ system of the lung. We will continue to refer to it when speaking about the other three systems.

Discussion

Dr. Koenig: (In answer to a question about breathing through the lungs): Rudolf Steiner says that the concepts which we have of the world around us, the ordinary concepts which we acquire during the life between birth and death—which have nothing to do with cosmic ideas, but which are the hard and fast imprints of the surrounding world — are especially connected with our lungs. Furthermore, Rudolf Steiner refers to the fact that the surface of our lung is an organ for remembering abstract ideas, abstract not in the sense of cosmic, but in the sense of intellectual. These ghostly ideas have lost their imaginative content.

Therefore the lung is connected with something else. Often you find so-called fanatics, people who are unable to restrain themselves from talking continuously about the same thing. Whenever and wherever you meet them, they start again to hammer in certain things which they want to impress upon you. This has to do with the lung. Suppose the lung is not functioning properly. Suppose it has not the right relation to the rhythm of 25,920, but wants to become smaller and thereby, in the sense of the lung, better. Then it imprints a certain amount of pharaseeism. We say in Germany: you can throw a cat as far as you like; it will always come down on its feet. So it is with such people. If you start to talk with them about biodynamics, they will immediately begin to speak about the Threefold Commonwealth, or something like that.

Each one of the organs carries the potential for such implications. For instance, when speaking to those who are influenced by the liver, you may find that you can take a walk in between two words and then come back and the next word will follow. This has to do with the liver.

Another thing, which gives an entirely new picture of the lung, yet one which can also gradually be integrated into what I have tried to unfold this morning, is the following. Rudolf Steiner says if you study people who are suffering from

diseases of the lung (and I would add especially those who are suffering from tuberculosis), you will see that they develop very peculiar ideas. There is a very famous German novel by Thomas Mann, called, in English, *The Magic Mountain*. It is actually set in a sanatorium. With a high degree of artistry, Mann shows how people create a kind of magic world around them. They don't live in reality any more—I mean the maya of reality. They live in a dreamland, which, when it develops further, will come in stages to a kind of religious mania. Now, you can't describe this religious mania as a last stage of the geology of the lung, but you can know that it is another action on the part of the intuition of these Beings who create the lung. There the intimate connection of the lung to the sphere of Venus, which is actually the sphere of Mercury, becomes quite clear. This is the sphere where we receive our religious ideas in the life between death and rebirth. So you see, we have to bring together so many things in order to start to walk in the landscape of the lung. I am convinced that it is the surrounding countryside—the geology—of the district which makes it possible for such a tremendous amount of tuberculosis to be present. Yes, for reasons found in certain geological features, certain people live in a dream state.

When I am in Ireland, I am continually under the impression that there is an enormous power of copper at work. I don't find any iron, however. Perhaps it is in the soil. I don't know. The intensive experience one can sometimes have when inhaling an atmosphere filled with the powers of iron is not there. I would say that here is the egg out of which the tuberculosis hen is coming: to my mind, it is related to the lack of iron. I believe it is the lack of all that has to do with lung as carbon and iron activity. This is my impression, but I have no proof. It is only a kind of inner experience. The first time I was in Ireland, when we were traveling by car, I can only say that I continually had the feeling that there was nothing I could find as ferrum. It was lacking.

These two, iron and copper, are always in equilibrium with each other. If you have, for instance, blood in which the

iron level is going down, the copper level is always going up. These two are like a balance. Not only do they stand, so to speak, opposite to each other in the realm of the planets (Venus and Mars around the Sun), but in the whole of nature you will always find that they keep up the balance. As soon as iron recedes, copper moves in. Iron has continually to defend itself against the impact of copper. You can easily understand this when you see it in the following way: copper (and this, of course, is a very subtle process) is related to the process of sprouting—all that is green is connected with the copper process; whereas iron leads the whole inhaling process into every bit of organic life. The plants need a circumference of iron.

Animal and man need iron as an element within them. It is not a trace element. It is the only metal which is present as a metal proper. So I have to show this iron radiation connected with the lung, because it involves the inhaling process, and iron always (I think there is no exception) leads into the permeation of growing substance by inhaling. This means that iron continously induces the breaking-up processes, whereas copper leads the growing processes. This becomes especially obvious, for instance, in the study of the blood of babies and children. You can actually regulate the child's system, according to his constitution, with copper and iron, thereby keeping his being in a balance. This has been scientifically proved!

We know today that copper plays at least as big a part in the metabolism of the whole blood as does iron. I have the impression that if we speak in general of tuberculosis and cancer, both have to do with light. However, tuberculosis of the lung and bronchial cancer are diseases of a special type.* I am under the impression that in the nineteenth century, especially during the last half, the disease was tuberculosis, in connection with the Industrial Revolution and with all its results, such as child labor. Now, tuberculosis is decreasing and

*Both tuberculosis and cancer can affect any organ of the body.

cancer is increasing at exactly the same rate. However, tuberculosis is a general and lung cancer is a special disease. Cancer of the lung, actually bronchial cancer, is a very special illness, which really has to do with the overpowering forces of the life sphere within us. The lung should, in point of fact, continually hem in the life sphere.

Rudolf Steiner made a very special remark in his lecture to doctors when speaking about the sphere of life in connection with the lung. He said that the overpowering forces must be continually hemmed in, and what is hemmed in is the power of Mercury. The lung must have the strength within itself to carry the power of Mercury. As soon as the lung is lowered in its force and structure, through the inhaling of nicotine, and tobacco especially, these powers break through, instead of being hemmed in.

There is something else. Mercury should be associated with the metal mercury. It has its exceptional position because it is the one metal which remained fluid among all the other metals. I have no proof, but I can only say that I have no doubt that though this is the metal mercury and the powers of the metal mercury, the sphere is the sphere of Venus. From this sphere, religious mania comes about. When we speak about the kidneys we shall have to go into the process of transformation which took place between Mercury and Venus, when the lung moved from below upwards, in the same way that the kidneys moved from above downwards. Therefore, we may repeat that the lung is a very biased organ.

Lecture III

31-10-58

I would like to mention the fact that when we doctors met on the Continent, a certain problem kept arising which we also touched on yesterday. It was only due to a very valiant effort by Dr. Husemann that a first possibility for understanding was created. Now we can go one step further and really see how this great difficulty, which has lasted for the last thirty-six years, can definitely be bridged over. I especially hope that the

resulting knowledge will be of value to our farmer friends, because I am quite certain that they too have grappled with this problem.

I have mentioned in a more or less metaphorical way the four meteorological spheres of the earth in connection with the four meteorological organs. In the second lecture we spoke about the lung organ. At the end of our morning talk we mentioned the highest sphere, which is called by Rudolf Steiner the sphere of life or the sphere of genuine vitality. Tomorrow we will go one step lower and speak about the liver, where we meet the next sphere, the sphere of chemistry. Below that, we meet the next sphere where the light originates—not the light of the sun, but the light which sprouts and grows, as Rudolf Steiner says, as the plants grow here on earth. Only then do we meet the sphere of warmth which is connected, in us, with the heart system.

Especially in a time like ours the question arises: where in the circumference of the earth can we meet these spheres? Are they altogether a physical reality? Investigations have been carried out during the last twenty years concerning the different layers and sheaths of the earth. It is impossible for these spheres to be detected. Even so, are there any possible hints as to where these layers can be found? I believe it is necessary to concern ourselves, at least in a rather quick way, with the anatomy and morphology of these spheres.

During the twenties and thirties, it became clear that the sphere of warmth is more distant than was previously realized —at the height of about forty-five kilometers above the earth. Below this lie the stratosphere and the atmosphere. Beyond the stratosphere, where a layer of ozone is developing, the temperature suddenly rises to 30° C. When an explanation for this was found, it was contrary to everything that had been previously expected. Scientists discovered that in this sphere the ultra violet light destroys the oxygen atom. As the result of this destruction, warmth is set free and permeates this whole layer and sphere.

Even Dr. Wachsmuth, who tries to order the different

spheres which Rudolf Steiner indicated according to the now-known structure of the earthly globe, does not mention these spheres, of which I would like to say a few words.

Science has discovered that there are special layers, which it connects with electrical forces. It calls these layers E1 and E2 and F1 and F2. The interesting thing is that these layers come and go. They come with the rising sun and disappear with the setting sun. Science is at the moment quite unable to say what these layers mean. Also, as far as I am informed—and since in these matters, I am only a layman, you must take this with a big grain of salt—science is unable to explain why these layers occur all together. There is not a kind of general distribution of electrical potentials in the surrounding sheaths. These electrical potentials gather together only at certain heights. They can be found about 300 kilometers up, then at about 200 kilometers and again at about 100, roughly speaking. (Fig. 25)

I am not certain, but it is quite possible that the borderland between these ether spheres creates layers where the electrical potentials especially gather together under the impact of the light of the sun. If you take this to be a very uncertain estimate, then you can imagine where these four spheres actually might be sought. The stratosphere is about 100 kilometers above the earth. Underneath is everything we experience as the sky and the clouds above us. You must imagine that in this very small layer we have our life and existence.

All this demands that the mantle, the etheric cloak, of the earth not be worn, torn, and tattered. I don't think it is necessary to discuss the tremendous dangers which have come about during the last ten years by the comparatively useless explosions of titanium and hydrogen bombs, and the sending out of satellites. All of this has gripped our conscience. I hope it has done so, very firmly and deeply, because what we are experiencing is the continual, willful destruction of the atmosphere, the stratosphere, in fact, the whole etheric layering of mother earth. The results show themselves already. Further symptoms will make themselves clearly seen, because

Fig. 25

III

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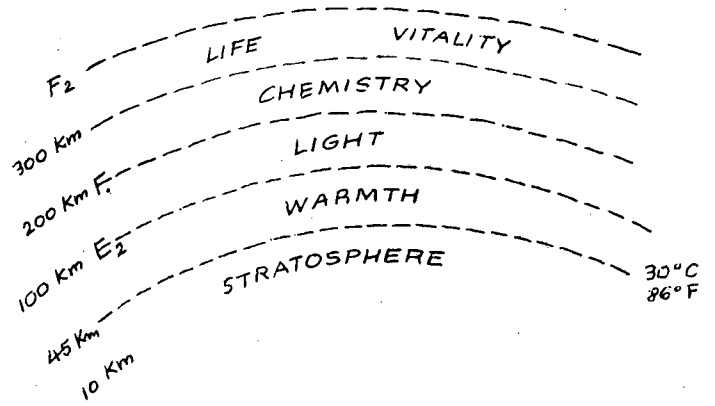

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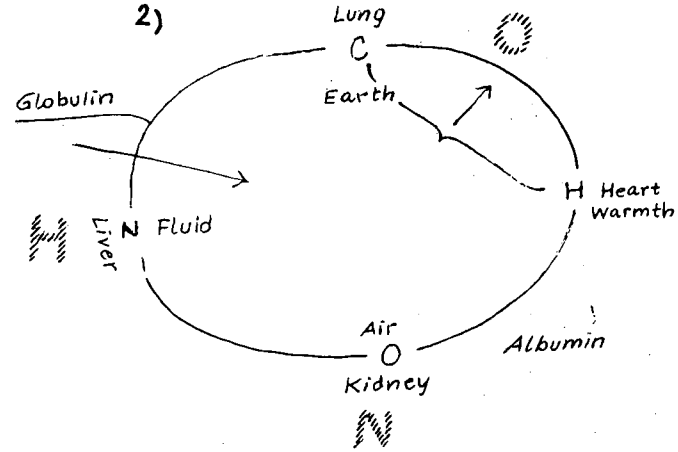


Fig. 26

we cannot expect, after what we have experienced, that people in the future will be better able to understand what they are doing.

These remarks have been a kind of addition to what we discussed last night. I have felt it necessary, as background, to provide a better and more concrete picture of the spheres.

Now we return to the four Kings. We return to the lung, to the heart, to the kidney and the liver. We remember carbon, nitrogen, oxygen, and hydrogen, and we remember (according to the lecture to the doctors in March, 1920*) earth, fluid, air, and warmth. This is the region we are trying to enter. It is this cave where the four Kings rest and where they can be found. These Kings give to us a cosmic foundation for our existence. They are the intuitions of the Hierarchies, which have created physical existence.

Two and a half years later, in lectures to the members of the Anthroposophical Society in Dornach (October 20th, 22nd, and 23rd, 1922),** and then to a vast audience of medical men in Stuttgart (October 26th, 27th, and 28th)*** Rudolf Steiner spoke again about these four organs, about the elements and about the building up of protein. But at this time he spoke in an entirely different way, seemingly contradicting all that he had disclosed here (Fig. 25), because now (Fig. 26) he connected oxygen with the heart and lung system. He did not distinguish between lung and heart, but mentioned the heart and lung system. This he connected with oxygen, the kidney with nitrogen, and the liver with hydrogen; carbon is not mentioned at all.

Now the question arises: who is right? Rudolf Steiner in 1920 or Rudolf Steiner in 1922? How are these two views brought together? Or have we only to take a cosmic and an earthly point of view?

We sometimes try to help ourselves by saying that if we just walk around the tree, it will look very different from the

*GA 312
**GA 218
***GA 314

other side. But this isn't so. If you really follow these lectures, if you really try to understand what Rudolf Steiner is after and what he describes, you will gradually discover that these two orders are of an entirely different nature. What in fact does Rudolf Steiner describe in 1922? He speaks very movingly to the members in Dornach, much more movingly than when he speaks forcefully to the doctors in Stuttgart; one feels that he speaks to the members intimately. He explains very great historical facts.

He speaks in a very moving way about the process of digestion. He describes, as he had very often done previously, how the process of taking food into the body is necessarily connected with the breaking down of all substance—the mineral, the plant, or the animal. Here, for the first time, as far as I know, he describes how, when the food has gone through the whole process in mouth, stomach, and small intestine, when it is completely broken down, when nothing of its own personality (individuality) is left, it, as it were, assumes a condition which he calls "mineral." He does not say "physical." He several times quite explicitly uses the word "mineral." It is now "mineralized substance," and as mineral substance it permeates the walls of the intestines. On the other side, in the lymph vessles—in the intestine-surrounding lymph lakes, as one might say—it appears again.

Later on I will refer to the cosmic nutrition stream, which we must become clear about in connection with this very special lecture. Now Rudolf Steiner describes, in almost the same way, what we know through scientific research: that within the whole extent of the lymph, this mineral food is now gathered together and streams up into the region of the rhythmical organization, into the region of lung and heart. Still, it is mineral. Still, it is not living, It is purely a substance.

The whole lung and heart system receives this substance. I have tried to bring their working together into an image this morning, saying that the lung is always tending towards the blood, that in human morphology, the heart is surrounded by the lung. These two have found each other, so to speak. This is

the organization which now takes mineral substance and enlivens it. It is described in the following way: the mineral substance becomes permeated by the individual ether, by the human etheric body. It is taken up into the etheric body, but it is made the body's own through the power of oxygen. The oxygen force binds the etheric forces to physical existence and this happens in the heart-lung region.

The result, however, is as yet only living substance. It is not at all sentient substance. (Here I am using the terminology which Rudolf Steiner used in the introductory chapters of the medical book which he and Dr. Ita Wegman wrote.)* In the middle region, the mineral becomes living substance. Now, however, the food has to be brought into our sentient existence, into that which we know as the astral body. This only happens through the powers which stream out from the region of the kidneys.

Here, from the kidneys the astral forces are converted into a substance which can become more and more humanized. Again, it is the element of nitrogen which makes it possible for the food, which so far has only been vitalized, to become sentient substance. It becomes, so to speak, part of our astral nature. It is not yet completely ours. It will be ours only if our Ego, our individuality itself, can permeate it and make it its own.

This happens by the powers of hydrogen, not from the side of the heart, but entirely from the side of the liver and the gall. Rudolf Steiner does not speak here only of the liver. He speaks of the liver and the gall system. He clearly describes this liver and gall system as an organization which is intimately related to the Ego itself. He even says that you will find in evolution that the liver and gall are built up properly only where the higher animals are nearing the acceptance of the Ego. If this is achieved, if the powers of hydrogen bind the Ego into substance, and the substance is taken up into the whole of our existence and our personality, then the food has become

*Fundamentals of Therapy. GA 27

our own. Nutrition has fulfilled its task.

This is a very powerful picture, because it is a very powerful process we are following here. One question is outstanding: "Where does the cosmic nutrition stream come in here?" At this point, Rudolf Steiner speaks about our earthly nutrition, following this earthly nutrition further through our intestines into the whole system of our existence—etheric, astral, and Ego. We have to ask ourselves: where is the cosmic nutrition stream? Is it altogether left out? We remember how strongly Rudolf Steiner pointed to the fact that only certain parts of our forebrain take on all that we receive through the earthly nutrition stream. All other substance making up our body is the result of the cosmic nutrition stream, which streams into our existence by way of the sensory organs.

It is of the greatest importance that we do not overlook such facts, that we do not speak about earthly nutrition in one way and then, at another time, about cosmic nutrition. Relating both types of nutrition to what Rudolf Steiner has said, we really reduce our possibilities of knowing if we do not at least attempt a kind of synthesis.

I do not have the impression (and I give you my personal experience) that beyond the intestinal wall this mineralized substance of which Rudolf Steiner speaks is the result of the earthly nutrition stream alone. We know that the mineral substance enters into these vast spheres of lymph, into which the cosmic nutrition also streams. There the mineralized, broken-down substance coming from earthly nutrition enters and settles down into the huge "lymph lakes" in our lower parts, those surrounding the intestines, especially the small intestine. There it meets, mixes, and unites with the substances of the cosmic nutrition stream. It does so because we are only partly cosmic beings, and because we do not easily digest the cosmic nutrition stream, in the same way as we cannot bear up under the earthly nutrition stream unless its substance is broken down.

There is no substance that needs to be broken down in the cosmic nutrition stream. The cosmic nutrition stream,

composed of etheric forces, enters through our whole etheric organization. It rains down and settles in the lymphatic spaces as physical, mineral substance. These two streams then unite and together they are taken up and individualized. Out of them we make, with the help of oxygen, nitrogen, hydrogen, and the four organs, the individualized nutritional substance. This is the first step.

Now we can see how the four Kings stand in the physical realm of our bodily nature. Around them we can think of the spheres of the earth—of the regions and layers of the earthly sheaths which are there. In the same way, they are here; they remain—they are static—and within. They are like pillars and around them, continually, in the ether realm, is this atmosphere of primeval albumen which surrounded our globe. This primeval atmosphere of albumen is now an individualized drop within us. It is, as it were, a surface process of continuous becoming. Into it, however, something entirely different enters, the whole nutritional stream which I have just described. According to Rudolf Steiner, this is not a static stream, but a stream of coming and going.

These four organs, in the form in which they represent the four Kings, have nothing to do with binding the etheric, the astral and the Ego down into the physical. They are unconcerned with the individualization of the nutrition stream. As in a vast cell, they create protein and, through that creation, warmth, air, fluid, and earth—the four elements—arise. Where physical and etheric are united, like two clasped hands, in these four elements, the continuous creation of protein is carried on.

During the last twenty years, modern scientists have discovered a tremendous amount of information about protein, and especially about the proteins contained in our blood plasma. There, although they don't understand it, they have been forced to distinguish between two kinds of proteins—the albumins and the globulins. Today we know that the amounts of albumen and globulin in different people, with different diseases, and at different ages, vary considerably.

I will give you one example. The globulins are subdivided into alpha, beta, gamma, and so on. I believe that the amount of globulins in babyhood and early childhood is not greater than the amount of albumin. Only in the growing child the relation between globulins and albumin alters. It has also been discovered, for instance, that in mongol children* the amount of globulins in the blood plasma is higher than in the ordinary person. The amount of globulin in the embryo is especially high.

We are not so advanced in science as to know the exact constitution of albumins, except for one part of the structure (a discovery for which the Nobel Prize was awarded). But we do know that the globulins are what we could call the cosmic protein, whereas the albumins are much more the microcosmic. So we can begin to understand how, into this sphere of existence of the four Kings, the globulins continually arrive. They may more or less be called the cosmic protein. The albumins are there, however, by way of the cosmic as well as the earthly nutrition streams. These streams mix in the plasma of the blood, in the blood serum. There they determine our existence—or we determine their existence—however you like to express it. But we must learn to see these two different processes.

If you look a little more closely at the simply diagram, you will now see that I have given you a sure explanation. You yourself will be able to work it out very clearly from such a diagram. You see, earth and warmth means, as it were, the whole vast extension of the four elements. I don't mean the chemical elements, but earth, air, water, and fire in the sense that Hippocrates and Paracelsus spoke about them. Between earth and warmth—between lung and heart—there streams oxygen, oxygen settling down into the whole ether body, inserting itself into the mineralized nutrition and lifting it up into vitalized substance. Then we come into the element of air where, in a way, the astral body lives. Here nitrogen, the

*Down's Syndrome

power that binds astrality into the physical substance, rises and has its being. This is the second step.

And the third step? Now the action moves up into the sphere of the liver and the gall. It there meets hydrogen and introduces all this into the Ego.

We will speak tomorrow about this middle system. We will start with the question of nitrogen, hydrogen, and the blood. You can see that these considerations, with the knowledge of albumins and globulins, and with knowledge of the two kinds of protein, the cosmic one and the more individual one (not earthly but human), we cannot simply say that hydrogen is Ego or oxygen is etheric body. This is not meant. In the first formula which Rudolf Steiner gives about the protein-building process, he simply remains in the sphere of the elements, because the picture of protein is being built up through the image of the elements as they were known to ancient knowledge, although he brings them once more into the realm of medical science. The one is to be seen as a static process, the other one as a dynamic one. The static process is the cosmic protein "build-up," and the more dynamic is the human protein creation. In this way, these two processes not only contradict one another, but show us how to see these matters in a true light.

The Liver

1-11-58

Lecture IV

I would like, as a kind of token towards our discussion of the lung, to read the passage from Rudolf Steiner's first Mystery drama which George Adams mentioned yesterday. He made me aware of words which I had entirely forgotten. Towards the end of the fifth scene of *The Portal of Initiation,* which takes place in the temple, Retardus, who is the figure corresponding to the fourth King, speaks to the other three Kings: "If they unite their labour now with you, what shall become of me? My deeds will prove fruitless to those who would the spirit seek." Benedictus says to him: "Then wilt thou change to other forms of being: since now thou hast accomplished all thy work." Theodosius says to him: "Hence forth thou wilt live on in sacrifice, if thou dost freely sacrifice thyself." And Romanus: "Thou wilt bear fruit on earth in human deeds, if I myself may tend the fruits for thee."

One can hardly find a more wonderful justification for what we have tried to say about the lung. Time and again it happens that, in a common effort, such re-enforcing words are found. If some of you are going on to study these four Kings, don't forget what I have just read to you. Our thanks go to Mr. Adams for making us aware of this connection.

Before entering our studies of the liver, another one of the four Kings in the temple underneath the earthly ground, I would very much like to point to what might be a more imaginative way of envisioning the work of the four main builders of protein.

We must now look to the third lecture of the agricultural course, which is probably the center of the whole course.

Rudolf Steiner tries with great and ever-renewed effort to tell us something about the four main substances, the four main chemical elements which build the substance albumen or protein. Trying to bring them nearer to our understanding, he discusses them from many different angles. Time and again we have to occupy ourselves anew with his very complicated sentences and expressions; in them we find the foundation for our understanding of all organic life. What we do together is nothing else but the viewing, from our human side, of the work of carbon, hydrogen, nitrogen, and oxygen.

A visual and a mental help can be given if we take up a comparative study of the lectures given by Rudolf Steiner in 1921,* where he tries to bring near to the artist (to the artist in each of us) a certain understanding of the colors. He names four colors (Bildfarben), green, black, white and peach-blossom. In describing them, he tells us that green is the dead image of life, peach-blossom is the living image of the soul, white is the soul-life image of the spirit, and black is the spiritual image of death. (Fig. 27).

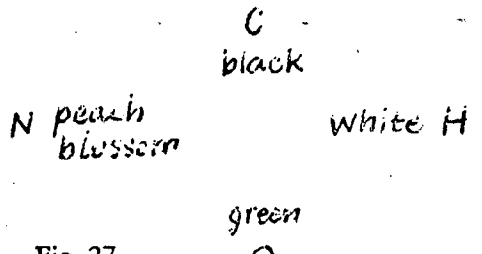


Fig. 27

If you now try to grasp that green is the dead image of life, no longer life itself, but its image, that in it, life has already more or less come to an end, then you can compare this with a sentence from the third lecture of the agriculture course, where Rudolf Steiner, referring to oxygen, says that the oxygen around us must be killed. Even so, he continues, from "birth onwards," oxygen is the carrier, the bearer of life, of ether. Nitrogen carries the life into the form, which is embodied in carbon. He then says that everywhere where nitrogen is, there is astrality. Now you know that this is peach-blossom. It is the living image of the soul. Wherever nitrogen is, there is astrality. It leads life into the form of carbon, so that, chemically, nitrogen is astral and oxygen is etheric. It would be a short cut, even wrong, to say that "nitrogen is astrality." There is the world astrality and this world astrality leads life into form. It is "peach-blossom." With this we actually say much more than when we say that nitrogen is the revealer of astrality.

*GA 291

In similar ways, hydrogen is white and carbon is black, therefore coal, in the end, is black. Now you have the keys, so to speak, of carbon. Now you can start to imagine hydrogen as the spiritual image of the soul. In the same way you can speak of carbon as related to death and yet the spiritual image of death.

I wanted to point to this in the same way as yesterday morning, when I pointed to the four Kings in their form and being. Now we can call the Kings and know it is not simply physical, etheric, astral, and ego that we speak about. Not at all. Please understand that as soon as the activity is connected with the earth existence, it always becomes flowing, dynamic, continuous, coming and going, building and destroying "beinghood."

But if you now color this activity, if you take the whole verdant life and know it is the dead image of life, you will meet there a certain amount of the oxygen nature, and you see the peach-blossom, you will meet the nature of nitrogen. You see, dear friends, if we now enter the study of the liver, we, so to speak, enter it in a cloud of peach-blossom. Then we come near to nitrogen, can try to envisage nitrogen, and, in nitrogen, the living image of the soul. All this is working and acting in the liver.

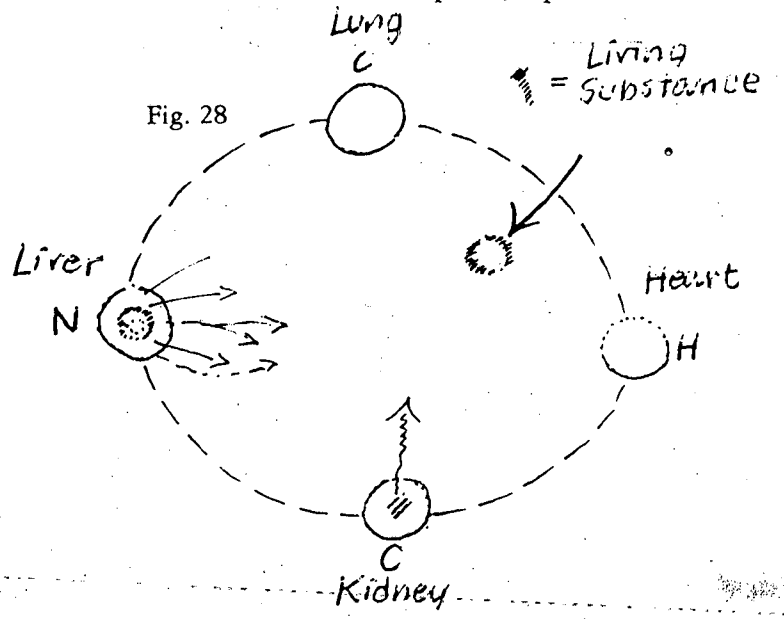
This is now a path to what we discussed last night. Not until we have come to a special understanding of all these processes we enumerated will we be able to reach an understanding of the organ liver, of the organ-system liver. It is no

doubt the most complicated system among the four, because it is so all-embracing. Nowhere else but in the liver are the greatest secrets enshrined, and for the following reason: in entering the liver, we enter the place where the Brazen King* stands; and where the Brazen King stands, the greatest mystery of earthly existence is hidden. This is the secret of the liver.

The center of our will-existence, the center of our life, whereby we intend to do, to act, to work, the volition of our existence, this is enshrined in the liver. It is enshrined in the liver but not in the physical organ only. Here, in the ether realm, in the realm of elements, nitrogen has its place.

Last night we spoke of how hydrogen has its being in connection with the human ego, in so far as the stream of nutrition is inspirated by its "organ." (Fig. 28). In this figure, I express the same thing. Above is carbon, then here is the heart and hydrogen, and finally the kidneys and oxygen. Yesterday we called this the static cosmic sphere, a protein creation.

Fig. 28



*reference to Goethe's fairy tale: The Green Snake and the Beautiful Lily.

Once upon a time in the primeval existence of the earth the image of this protein sphere was the sheath of the earth, where breathing and nutrition were one and where still breathing and nutrition are one, but not physically, only in the realm of the ether permeating the physical structure, thereby determining the four elements—fire and air, water and earth.

Then we have the other process, a dynamic process, which leads the mineralized food to become the substance of the human being. It is just here that oxygen streams in, making the black mineral food into living substance. It is made green. Then with the help of nitrogen in the region of the kidneys, this greening, living substance is made into sentient substance, and thereby becomes part and parcel of our sentient existence. Finally, with the help of hydrogen, it becomes white and thereby "us." It becomes me.

Now remember how I described how both the earthly and cosmic nutrition streams are part and parcel of ourselves, the one more in the form of globulins, and the other more in the form of albumins. You see on the one hand the more static ether sphere, guarded by the four Kings, and on the other hand, a kind of dynamic, continuous pattern of digested food, humanized through oxygen, nitrogen, and hydrogen.

Carbon does not appear here at all, because the mineralized food, in the way in which it is broken down in our intestines, is, so to speak, the carbon. To this carbonized food oxygen is led, nitrogen is added, hydrogen is introduced, and so it becomes our substance. We can build our body by it. But this can happen only when the static sphere of the four Kings, the builders of albumen, create the background.

So in a living way, here on the screen of this cosmic protein creation, the dynamic creation of human protein is continually carried through. I have pointed out to you how the mineralized food becomes living food in the following way: the broken-down food, beyond the wall of the intestines, in the lacuna of the lymph and the wide lymphatic spaces, mixes with the rain of cosmic nutrition stream; from there it streams upwards from the intestine.

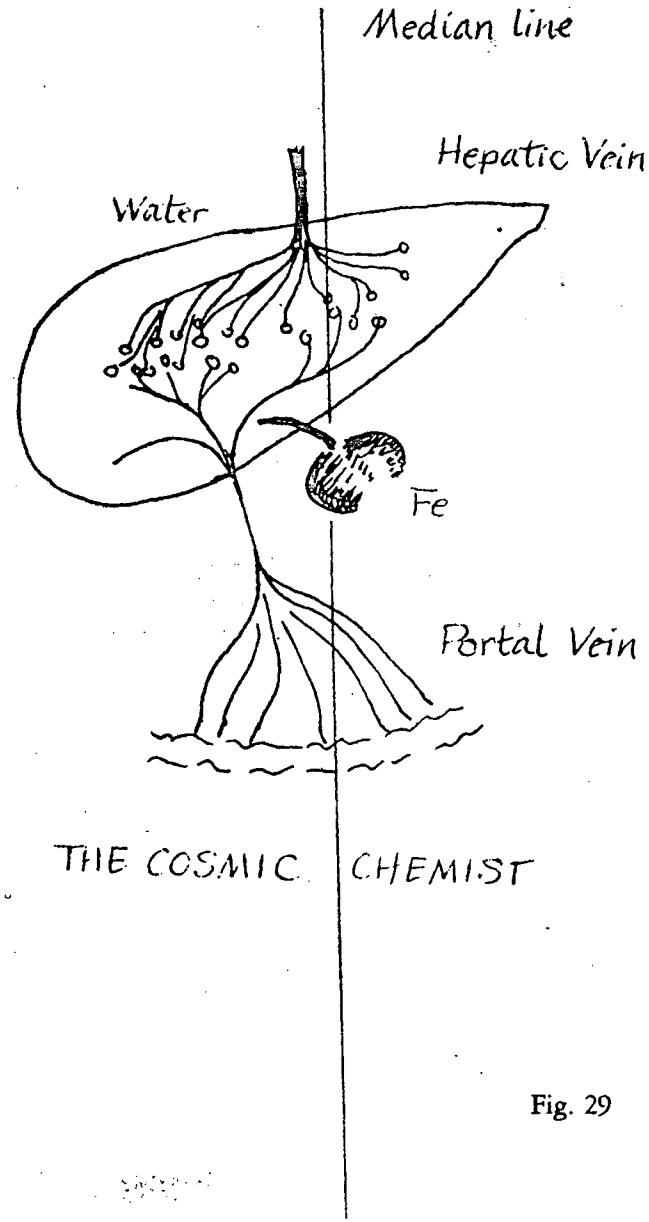


Fig. 29

There is a very special, big, lymphatic vessel which leads this food from below up into the upper circulation, very close to the heart. (While drawing at the blackboard). Now the enlivening process takes place. The liver is a huge organ. It is almost the biggest organ which we carry in us. At the right side of our abdomen, it leans over into the left side. This roughly would be the median line. (Fig. 29). Science is still under the impression that everything which is digested gathers together beyond the intestinal wall, is collected into all the veins of the intestine, streams up in the so-called portal vein, and thereby brings the digested food into the liver.

I personally, on account of all that I learned through Rudolf Steiner, cannot agree to this. According to him, the whole veinous blood of our body (in so far as it is the lymph), from the whole intestinal tract, streams together into the portal vein. The whole of the liver can be understood only if you see it as an organ which is spread out between two veinous circulations. It has very little connection with the arterial circulation. This should become a leading point for doctors considering liver diseases, because the supply of oxygen is always just a pinch too short in the liver. If this were not so, the liver could not do what it does. Yet for all questions and problems of pathology regarding the liver, a decisive factor is this lack of oxygen.

You see how this portal vein distributes its branches everywhere like a tree, and out of this portal vein the hepatic vein collects the blood again. Out of twigs and branches the big stem of the hepatic vein develops right through the diaphragm and enters into the heart.

The crowns of the two huge trees join the tree of the portal veins and the tree of the hepatic vein; the leaves between these two trees are the link, so to speak. The liver has one sort of leaf. Other leaves belong to both portal and hepatic trees. Everything that the liver does is done in the sphere of these leaves, and just as every leaf of a plant has two sides, an upper one and a lower one, so likewise (and I remain now in an image) each liver cell has an upper and a lower part. The

lower one belongs to the hepatic side. The upper one belongs to the portal side. It is turned round, so to speak. I would like to say not the sun of the portal vein, but the moon of the portal vein shines to the upper side, although it is the lower leaves of the liver and the lower side is the light side. It is turned around, but it is the side of the hepatic vein.

If you imagine that every two minutes a gallon of blood pours through the liver, you will understand what Paracelsus once said in his *Tractatus,* when he described the liver. The general meaning of his words is as follows: If these Galenic idiots (he meant his contemporary colleagues) knew the amount of water which flows and is created in our own organization—as if Moses would continually tap with his rod on the liver and thereby open a continuously flowing fountain—they would also consider the right remedies. This flowing, continuous stream of fluid which pours through the liver can be understood as water which, together with nitrogen, acts, because the liver is nothing else than the condensed power and being of nitrogen. The nitrogen which is spread out in the whole of cosmic existence is condensed in the liver. There is the starting point for a discussion of everything that the liver does.

Nearly everything within the region and realm of metabolism is done in the liver. By its active chemical work, for instance, the liver maintains the level of the blood sugar, the glycogen. I can't go into details and describe to you what this means; it is enough for me to say that if this level is not maintained, our Ego is not able to keep itself within the blood. If this blood level rises too high or falls too low, our Ego leaves its physical abode, the blood, and we are clouded by two different kinds of unconsciousness. In one, we sink into the oblivion of our own body; in the other, we simply go out into the realm beyond physical existence.

These two different kinds of unconsciousness come about as soon as the proper level of our blood sugar is not maintained. This maintenance work is done by the liver. The leaves of the liver cells continually store the glycogen which they take

out of the flowing blood, or they give it back to the flowing blood. We can imagine that the leaves of the liver are continually monitoring the chemical structure and chemical contents of the blood serum. This is an active listening, because if there is too little, more is supplied, or if there is too much, blood sugar is taken away and stored. The liver has to have a continuous awareness of the flowing blood-stream.

This is true not only for the level of blood sugar. The whole of the urea—which stands behind the blood sugar and is built up by nitrogen—is not only maintained in the liver, it is created in the liver. In an adult, no other organ but the liver has the possibility of creating urea. Imagine that urea must be continually created in order to stop the overflow of all proteins. All the proteins are the skeleton of the red blood corpuscles, which, in turn, are both the carriers and the destroyers of hemoglobin. Thus in our medulla, in our bone-marrow and all over the skeleton new hemoglobin can be rebuilt, and can be formed of bili-rubin and other substances.

These substances are excreted again. But at the same time, the iron itself is kept afloat within the body. Iron is stored away in the liver, or sent out into the blood. If you imagine this, you will find that the liver has the key position for the whole structure of the blood.

Now at last, but not least, in the liver what is brought to the liver is turned into hemoglobin. The gall as substance is also created. In building up the gall, the liver assumes also the role of a gland in its own realm. So far the liver has only been serving. In listening, it serves what is chemically necessary in the organization. But then it takes its own stand, like the bees, who become themselves when they pour out poison; in exactly the same way the liver cells, which you can also call the bees swarming between these two trees, create gall. Around each liver cell are capillaries of the gall. You can imagine millions of them are present and gathered together. By means of the bile duct and by the gall bladder, they relieve the liver and pour the bile into the lower part of the duodenum. The bile enters the duodenum and at once assumes the key position in the

destruction and breaking down of all fats which are taken in by way of nourishment. Here also the liver has its main say.

When creating the bile, the liver, as a gland in its own realm, assumes its position as an organ of will. In the production of gall lies the secret which is connected with this very power. It also is the place where iron is a cosmic force, where the power of the planet Mars works. When we look around us and when we see the glorious coloring of the trees in autumn, we should be reminded that the same process, only in the opposite direction, is continually taking place within the organ of liver. It is evident even in the coloring, because bile coming of the "liver bees" or the "liver trees" is reddish brown. Only gradually, when flowing out of the organ, through the bile duct, and then being concentrated in the gall bladder, does it turn green. Here we see a process which is the reverse of what we see outside in the plants.

Many more things should be described. One of these, which I would like to point out to you now, I already mentioned when I spoke to you in Clent about the sheaths of the preparations. I pointed out that the liver is an organ which is inserted into the twenty-four hour time rhythm, not of the human Ego, but of the rotation of the globe. You can also read about this in Dr. Wachsmuth's book, *Earth and Man*. He says that the gall and the sugar—the bile and glycogen production—are two processes which do not occur at the same time, but which are rhythmically distributed throughout the day. They are distributed in such a way that the gall production takes place as a day activity and the sugar production as a night activity. The gall production comes about when the sun is shining on us, whereas glycogen production appears when the sun is shining through the earth.

The power of the midnight sun is in the glycogen. The power of the mid-day sun is in the gall. This has been proven, because when people go from Europe to America, the liver rhythm starts anew, according to the new region. The liver is dependent on where it is on the face of the earth.

Now you can imagine why Rudolf Steiner calls it a meteorological organ. For where the whole water content of the surroundings changes—being dependent of course also on the light and the darkness—the liver also changes.

Today, dear friends, the liver is an organ which is severely attacked by modern civilization. The liver is an organ which during the last ten years has started to suffer increasingly under the impact of the modern way of life. What I am going to say now is nothing but repetition of what American and German physicians have been emphatically pointing out.

Today we have an epidemic which was very rare twenty or thirty years ago. A physician might have seen a case two or three times a year, but now it is the so-called "epidemic" jaundice, a jaundice induced by a so-called virus. This is a kind of jaundice which directly and immediately attacks the liver cell. It causes the oxygen content in the liver to fall below the level which is needed. You will understand me if I say that the life blood of our existence is drawn out from under our feet.

People who have suffered from the effect of jaundice and are not treated in a proper way hardly ever recover their initiative. They hardly ever recover their inner strength of will, the capacity for presence of mind, or their ability to stand actively within the needs and deeds of earthly existence. Jaundice arises from the same region which affects children who suffer from poliomyelitis. The virus is probably similar. It also goes right into the center of our existence, into the region where our volition is at the disposal of our own Ego, of our individuality, of our I AM.

Increasingly this jaundice is spreading. Probably it can develop because the feeding qualities are continually lowered and become so mineralized that the living powers of oxygenation, on which the liver depends, are not brought to it. We should keep this in mind, because it refers to what Rudolf Steiner points to in the lectures of October, 1922.* He says that our modern consciousness depends upon the proper function of the liver.

*GA 218

Lastly, I would like to say something about the divine intuition out of which the liver is created. In the same way that the surface of the lung reflects the memories of abstract thoughts, the ordinary ideas and concepts of the world around us, so the surface of the liver is especially connected with warmth of sentiment, with thoughts enlivened by our feeling, thoughts warmed with "Gemuet," with heart. Again, when our physical frame is laid down at the portal of death, when our ether-body unites with the ether of the whole of the cosmos and when our astrality expands into the far distances, then what is stored in the liver as heart-filled, heart-warmed thought is taken up and goes through the metamorphosis of the existence between death and rebirth. On coming back again it does not become the skull formation, as is the case of the abstract thoughts which were connected with the lung of the previous life. Now, the content of the liver, the soul content of the liver, forms out in the next life the structure of our brain.

Rudolf Steiner describes this in his lectures on the 3rd of July, 1921*. He says that on the disposition of the brain (not the form of the brain, but the disposition of the brain that is brought about by the memory of the sentient thoughts of the one life) depends the type of thinker we shall be in our next life. Whether we are penetrating thinkers, people who think until they come to the end of their thought, or whether our thoughts are flowing and floating, just touching a bit here and there, depends on the disposition of the brain, which is created by what lives within us. If, however, these powers are already pressed out in this life, if the liver is not strong enough to hold them, or if they are too strong to be held by the liver—then we live in the cloud of the unknown. Then visions and hallucinations of all kinds stream up. Visionaries and mystics are all in some way dependent on those cosmic intuitions which once have built the liver and now stream out in a humanized way, in an individualized, personal way.

Such images can sometimes be very beautiful. On the

*GA 205

other hand, if the liver stagnates, so that the formation of the gall becomes hardened, then the whole volition of man sinks to a low ebb. We become not only simple, but stubborn. We cannot decide; we stand in front of the world without being able to decide what to do, where to go or how to act.

You see, all this is liver, because the liver contains water; with the water, the whole chemistry is brought down from this sphere around the earth. The liver contains nitrogen which is the peach-blossom, the carrier of the astrality, which introduces this astrality into the element of water. In the middle there is hydrogen, as the expression of our own Ego, and there rests the Will. From below rising upwards, and from above sinking down, into our individual existence, the liver acts and works.

Of course, what I have tried to unfold is nothing but a very incomplete, very humble, very insufficient sketch of the vastness and greatness of this organ, the Brazen King, the one who speaks—the sword at the left and the right hand free. This is the liver. Fig. 29, Page 102.

Discussion

A question was asked about the sunlight and moonlight on the "leaves" of the surface of the liver.

Dr. Koenig: This was only meant in an illustrative way, to suggest not that it is the moonlight itself, but that the upper part of the liver cells corresponds to the lower part of the leaves of plants outside. What, in the plant, turns towards the light, in the liver turns the other way round. What in the plant is turned to the ground, in the liver is turned upwards. This is the orientation. Again, it should not be imagined that each liver cell has exactly the same two faces as the leaves of plants. What I mean is that the two functions of each liver cell

—the building up of glycogen sugar on the one hand and the formation of bile on the other hand—correspond to the upper and the lower side of the leaf in the plant outside. This is connected to the rising and setting sun and to the twenty-four hour rhythm of the rotation of the earth around its axis, and not to our own inner rhythm, the twenty-four hour rhythm of the Ego. Therefore the one side of the liver is turned to the sun and bile is produced; the other side is turned to the moon, to the night, and sugar is produced. These are the two sides of the liver cell which correspond to the two sides of the leaves, not in form but rather in function.

Question: Is the liver different in function in winter and summer?

Dr. Koenig: I am convinced that there is a very marked difference in the liver function during winter and summer, only we do not know it. We have as yet no proof, nor, as far as I know, have we any direct indications from Rudolf Steiner about a difference in function. On the other hand we have direct advice in one of his lectures to workmen. For instance, the physique of man is different in the cooler and in the equatorial regions. The relation between lung and liver is different in the polar region and in the region of the equator; the lungs are relatively bigger in the polar region, whereas the liver is much stronger and bigger in the equatorial region.

As soon as one is told this one can see it. The difference between the Eskimo and the black man is definitely determined by this relation. One can hardly point to physical science, but you can see differences between the constitution of an Eskimo and the constitution of a Negro. At once you can see that in the Negro the metabolic system—the chemistry—is much stronger, much more advanced, and almost overpowers everything else. In the Eskimo, it is more the meditative life, the pondering life, which dominates, and therefore the lung is much more developed. These are, of course, the fundamentals of what Rudolf Steiner called, following Hippocrates, "geographical medicine," and which he asked us to develop. Needless to say, it will need a tremendous amount of investigation. Thousands of doctors and scientists will be needed. There is no doubt, however, that every region has its full impact on human existence. Imagine only how language is influenced by the region, how gestures are influenced by the region! And all this, of course, goes much deeper.

If you are greeted with the characteristic gesture of a person from the north-east of Scotland, you will know where he hails from, even if you meet him in South Africa. But you will never see a Yorkshireman greet you in this manner, because he will do it quite differently, and a Londoner does it quite differently again. Everything is connected to the region. Only how? We are far from knowing the details.

Question: Do you mean that the sugar and the glycogen in our blood are formed by the midnight sun, and the starch and the sugar in the plant leaf by the daytime sun?

Dr. Koenig: Exactly! Only do not say in the blood, but in the liver. It is formed in the liver and from the liver poured into the blood. The actual formation takes place in the liver. Only then is it poured into the blood, and on to the muscles, transported by the blood.

Question: Is it right to think that energy and muscular movement are in some way derived from the oxidation of the glycogen?

Dr. Koenig: If you say "in some way," you would be justified. If you would say "entirely," you would be entirely unjustified. We still do not know where the energy of muscular movement comes from.

Even with the most minute experiments and methods, we do not yet know the actual metabolism within the striated muscle. Many different substances—glycogen among them—play a big part, but this is only a part of what really happens. I

can't give you any further explanation about this, because it is unknown.

Question: What about the comparison of the sugar in man's blood and in the leaf of the plant?

Dr. Koenig: You can have three-quarters of the liver destroyed. The last quarter will then grow, and one liver cell of the last quarter will enlarge to three, four, or five times its own size, and thereby be able to replace all that has been lost. You must imagine the liver as a continually sprouting organ. I think I have mentioned this already. For instance, if you remove, say the right kidney, the liver will at once occupy the space of the kidney. It will grow into it. It is a kind of ever-expanding power and force. You should only imagine that every two minutes a gallon of blood streams through the liver. Can you imagine what this means? It means thirty gallons per hour! How much is that per day? Seven hundred and twenty gallons of blood through the liver! That means that seven hundred and twenty gallons are listened to, that seven hundred and twenty gallons are continually changed and worked through. That's work!

George Adams: With regard to geographical medicine: I remember that somewhere Rudolf Steiner, speaking about history and the epochs of civilization, says that one can get a kind of physiological feeling or perception of an era. He says that when one contemplates the ancient Egyptian civilization—Egypt itself—one gets a feeling of "liver."

Dr. Koenig: As far as I remember, it is in the lectures which Rudolf Steiner gave in 1914*, when he explained the pillars of the first Goetheanum. There he speaks about it. I cannot recall it exactly, but he speaks about Egypt as connected with Jupiter, and therefore with the liver, and so on.

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George Adams: In connection with leguminous plants, there is a sentence in the agriculture course which we have always found difficult to understand. It is where Rudolf Steiner, speaking of the leguminous plants and their green color, says something about the winter. Now I should be very grateful, and I am sure other friends in the agricultural movement would also be grateful, if perhaps you could throw some light on it. [This passage from the Agricultural Course was then read:]

> Therefore, in these plants, everything that belongs to nitrogen lives far more nearly inclined to the earth than in the other plants, where it evolves at a greater distance from the earth. See how they tend to color their leaves, not with the ordinary green, but often with a darker shade. Observe too how the fruit, properly speaking, tends to be stunted. The seeds, for instance, only retain their germinating power for a short time, after which they lose it.
>
> In effect these plants are so organized as to bring to expression, most of all, what the plant-world receives from the Winter — not what it has from the Summer. Hence, one would say, there is always a tendency in these plants to wait for the Winter. With all that they evolve, they tend to wait for the Winter. Their growth is retarded when they find a sufficiency of what they need—i.e. of the nitrogen of the air, which in their own way they can carry downward.

Dr. Koenig: Stunting of the actual fruit comes about. This I think is important. From just hearing it, I have the impression that the legumes go much more into this picture of the liver. They go much more to the side of the bile and therefore lose a certain amount of the sugar aspect. Whether this is to I don't know, but I will think it over.

George Adams: Morphologically, I have always felt that this great difference can be seen if you look at the fruit-forming of the leguminous plants. I think there is hardly any other kind of plant in which are carpel — the "Fruchtblatt" and the "Fruchtgehaeuse" and so on (the container of the fruit, the ovary and the carpel system) — is a metamorphosed leaf.

There is hardly any other kind of plant in which you see the leaf form there so clearly. It is as though the whole thing has been carried down from the region in which it completely metamorphosed into the sphere of the flower and is carried down into the region of the foliage. The pea pod is like two leaves together, so that it is carried down into the leaf region. That I can understand, but what he says about winter and summer, that I don't understand.

It seems as though with the nitrogen (what you called peach-blossom, the peach-blossom region where one comes to the region of the flower) the whole universe is working with the power of nitrogen in the colored flower. All the colors of all the flowers take their start from peach-blossom. Whereas in the other flowering plant the nitrogen remains, so that it only comes into the material of the plant to a delicate degree, in the beans and peas it comes into the material world in an enormous quantity. This is the great difference, one which is also connected with the Pythagorean school.

I heard once someone, I think it was at Penmaenmawr, ask Dr. Steiner whether it was true that beans were bad. Dr. Steiner answered, "Everything is bad for something." Then he went on, smiling but quite serious, "Beans are bad for the faculty of perceiving in the universe the secrets of number." I've never forgotten that.

Dr. Koenig: Which is Pythagorean—intimately connected with the whole chemistry of our organization. For there the secret of numbers is in how substances connect themselves in ones, or twos or threes, or fours, or sevens, or tens, and so on. So one can imagine what these two regions have to do with.

George Adams: And do we understand that the liver is the chemist?

Dr. Koenig: Yes!

George Adams: And that is the ether of numbers?

Dr. Koenig: Yes.

The Kidneys

2-11-58

Lecture V

We are now entering the sphere of the kidneys. We are concerned this morning especially with the realm of the Silver King. In the first scene of Goethe's fairy tale, when the old man carrying his lamp appears in the cave of the Kings, there is a very short conversation between him and the Silver King. The King asks, "When does my realm end?" and the answer of the old man is, "Late or never." In one way, this sentence is a kind of prophecy; in another way, we can sense how everything which concerns the very special realm of the kidneys is involved.

We can speak of such an organ not only in a physiological and pathological way; we must try to elucidate the subject. For these organs are the sensory organs of higher beings, and thereby carry the destiny, the karma, the whole becoming of these beings within them. So the kidney has a destiny which we can describe in the same way as we did that of the lung and the liver.

The kidney has a very special destiny, a destiny very different from that of the other three organ systems. Perhaps in considering these words "late or never," we can see that the kidney is embedded fully and totally into the history of mankind. "Late or never" means that the destiny of the Silver King is fulfilled when the destiny of mankind on earth has been resolved.

We shall now try to visualize the physical figure, the morphology, of the kidneys. Underneath the vault of the diaphragm, we see two strings, the ureters, reaching down

from the kidneys and ending in the urinary bladder. All this is quite different in structure and form from the liver, because here the two organs are symmetrical. The liver is one, the kidneys are two. To understand this form you have to add another organ, which is also twofold and symmetrical: the lungs and the bronchial tree. The kidneys are acutally the living image, but the reflected image, of the lungs, and vice versa. The mirror is the diaphragm, and above the diaphragm the lunds mirror the kidneys; below the diaphragm, the kidneys mirror the lungs. (Fig. 30)

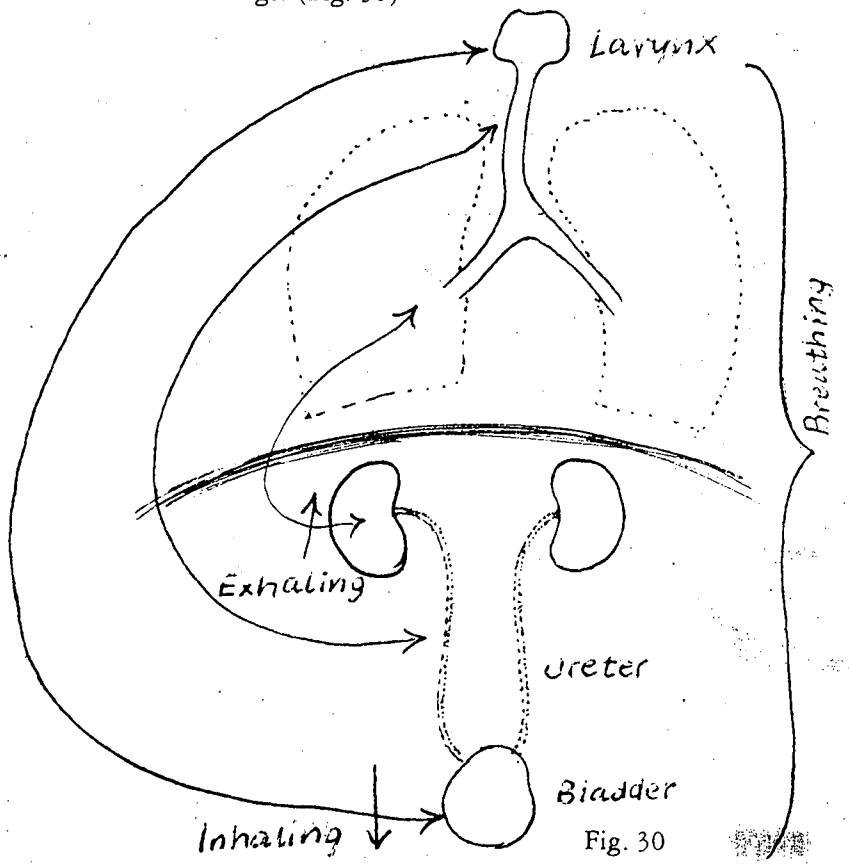

Fig. 30

So, it would be quite wrong merely to say that the kidneys are a mirror image of the lungs. They mirror each other—the one above, the other below, the surface of the diaphragm. We can also understand that not only the upper side of the kidney mirrors the lower side of the lungs and vice versa, but that the bladder mirrors the larynx and the ureter mirrors the bronchial tree. In this way you will have an insight into how living mirror images are formed out in our whole organization.

Only the whole of what we have described, not one or the other organ, but the complete structure of the lung, together with the kidney system, is the organ of breathing. In our discussion about the lung, we described how the bladder pulls and how the kidney itself pushes, so that inhaling and exhaling are actively performed. The result of this inhaling and exhaling shows itself in the expanding and contracting of our chest, and thereby in the intake and expulsion of air from the lung. But you cannot see the breathing process as something connected only with the lung. The breathing process shows itself there, but the act of breathing, the pull of "in" and the push of "ex"-haling, this rests with the kidney-bladder system.

You can say that a kind of living, dynamic power—the pulling and pushing behind the breathing process—goes on underneath where the kidney/bladder act and work. This is the first thing we have to take notice of when we discuss the Silver King. The Mixed King, for his existence, depends entirely on the other three. For breathing he depends entirely on the Silver King.

Now we go one step further and ask ourselves: where does the kidney come from? When we spoke about the lung, we mentioned that it has its source in the intestines; it buds out of the intestinal tract. So does the liver. The liver is part of the intestine. The lung buds out of the upper part and the liver out of the middle part of the original intestinal canal. The kidney has nothing to do with this. The kidney comes from quite different regions—and I say regions, because among the

four the kidney is the only organ which hails from not one but from two sources.

The kidney comes from above as well as from below. It is not that these two grow together in such a way that the one rises and the other falls or sinks. The power of the bladder in its sucking action is so strong that it pulls the kidney, step by step, down, and then it pushes it up again. The kidney itself is more or less part of this sucking power from below.

When you study the embryology of man and the higher animals, the whole tragedy of the kidney reveals itself to you. What were the kidneys before they sank underneath the diaphragm? They started high up in the region of the ear, as tiny caticles, the so-called pro-nephros. If you ask where the pronephros come from, you are led by the facts of comparative morphology and embryology into a very special region, the kingdom of the fish. You are led into the region where, by way of the gills, the fish breathe. (Fig. 31)

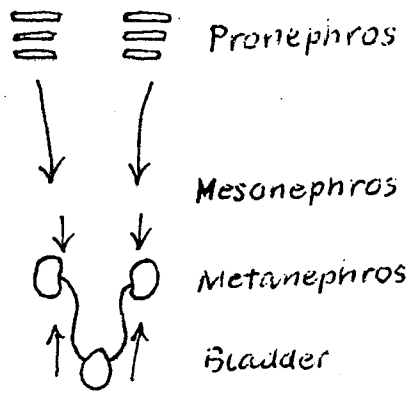

Fig. 31

This is where the kidneys are born. They were, to begin with, those organs which took the living power of oxygen out of the water. Now compare such a statement with what Rudolf Steiner says about oxygen in the agriculture course. There he says that in the air which we inhale, living oxygen is killed; otherwise we would faint when taking in living oxygen. With such a statement, the whole background of the history of the kidney is revealed.

Once upon a time the whole of the oxygen was alive. When man was still floating in the primeval atmosphere of the earth, oxygen was alive, and breathing and eating—breath and food—were the same. At that time the pro-nephros in the region of the ear took in living oxygen. But gradually, and especially as a result of the Fall, we had to come down into solid substance. We had to incarnate into matter. This incarnation process was led by the kidneys. The kidneys, which began as organs which took in the living ether power of the oxygen, were more and more pressed down into the depths of the developing and evolving substantial human organization.

Now, if you can try to imagine yourself into the fish organization, you might experience how fish, by way of their gill-breathing, listen in to the whole life, existence and etheric power of the surrounding water. All the oceans of the globe are open to them. The kidneys, in the form of the pronephros of primeval times, listened in to the world powers which were forming, streaming, and acting throughout the whole primeval albumen atmosphere. Animals were built. Plants derived their form and dissolved it again. The music of the spheres sounded throughout all this; the kidneys heard it. The substances streamed into this floating, very subtle, thin physical organization of man. All this the kidneys did.

Then came the Fall (Fig. 31), and down came the kidneys. They became the mezo-nephros. Still lower, they became the meta-nephros. Today this is the actual form of the kidney in man and the higher animals. In the embryo you can still see how, out of the bladder, the meta rises up. You can feel the serpent power in them pulling the kidneys down and uniting

themselves with them.

Rudolf Steiner, in one of the lectures of October, 1923*, pointed to a fact which supports what I have tried to show you here. He says that in man the form of the ureter started to come about at the time when, in the outside world, the snakes developed. So what is outside was in, and what is inside was out. This is the tragic story of the kidneys. If, for instance, you study the morphology of the ureter, you will see that where the ureter reaches the kidneys, the head of the snake divides into several heads, and becomes the so-called calyces.

We are immediately reminded of the beast which is described by John in the book of *Revelations*, the beast with the seven heads and the ten crowns, which rises up. We carry this within us, because we carry in us the whole history of mankind's being on earth.

The next question is: how does the kidney assume its new function? Once upon a time it was the ear which listened to the ocean of primeval earth existence. There it heard the symphony of creation. Then it fell. It dived into the lower regions of existence. There are many stories which have come to us about mermaids. There is a wonderful poem by Goethe, "The Fish," which is a poetic description of what has happened to the kidney. In this poem, it is a mermaid who gradually draws the fisherman into the depths. One has to learn gradually to see such things when considering the organs in an appropriate way.

The kidneys assume their function in the following way (and it is very wonderful to see how the structure reveals the function which is streaming in, as it does into every organ): from the blood, a small arterial blood vessel leads out and divides itself in a convolution of tiny glomerules or capillaries. (Fig. 32). It is very small. The whole thing can just barely be seen with the naked eye. Out of each of these capillaries, veinous capillaries arise. They form themselves together into a very small veinous blood vessel and then stream back into a bigger vein. It buds out and goes back again. This now is sur-

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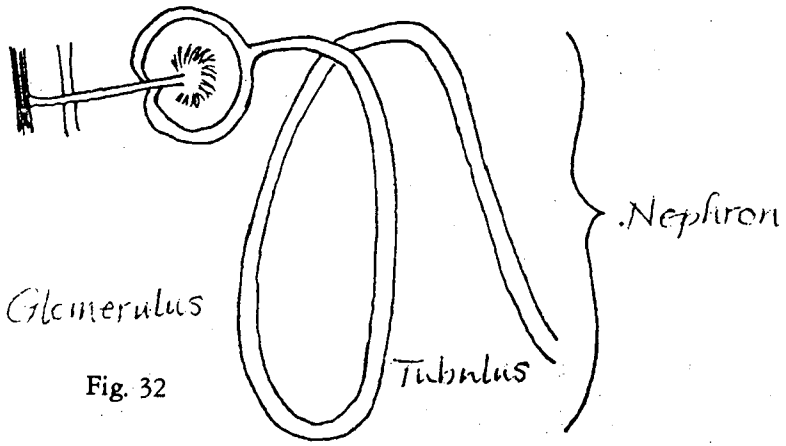

Fig. 32

rounded by the last top end of the actual kidney. About a million such organs build up one kidney, so that we carry in us about two million such organs. This is surrounded by a formation which you must imagine that the blood has, as it were, inverted—invaginated. From there now, [pointing to drawing], this whole thing is called the glomerulus. From there, in a very complicated way, the tubuli of the kidney develop, then go out to the calyces and thereby join the ureter.

You can see how different this structure is morphologically from the structure of the end organ of the lung. The vescicle of the lung was once surrounded by the capillaries of the blood. In the kidney, the whole thing is invaginated. The power of the blood has become much stronger, has become part of the whole organ. It is not like the lung, which tries to find the blood and to lean at the ear of the blood. In the kidney the blood has assumed its power. It has invaginated the end organ of the kidney. This is exactly the same structure, anatomically, that we find magnified in the form of the human eye.

The eye organ is built in exactly the same way. What once listened to the creative forces in the primeval atmosphere of the globe now has become a "looking into" the ocean of the blood. With thousands of eyes the kidney is forced to see into the blood. What once was outside has turned inside. What was

once the ocean of the globe has now become the sea of blood within us, and into this sea of blood the kidney looks. We should learn to experience this as an eye activity, a seeing activity, whereby the actual manifold functions of the kidney are performed.

We can now ask ourselves what these functions are. Of course it is quite impossible to describe them in detail; we should need at least a week to do it properly. We can, however, at least begin to visualize what the different functions are.

The functions of the kidney are, generally speaking, different from the functions of the liver, and altogether different from the functions of the lung or the heart. If we would lovingly learn to see the kidney, we must imagine that it is condemned to excrete continually. The liver can both build and destroy. But even as it builds and destroys, nearly all the substances of the liver remain within the body, within the whole of the human frame. The kidney is condemned to excrete, to shed. The kidney creates and builds up only to a minor degree. To a much greater degree (I would say to about 70% to 80%), the kidney excretes. The kidney takes what is broken down and tries to keep up the necessary internal environment of the blood.

You know, or I hope you know, that our life depends on this internal environment of the blood, on the proper level of very many substances which are contained in the blood serum. That we remain conscious and active, that our Ego has a certain grip on the blood, and that our astral body can work as it should work—this depends upon the distribution of the blood urea. It depends on the blood uric acid, the phosphorus substance within the blood, the blood sugar, the different kinds of proteins, albumins, and globulins within the blood, and on the distribution of potassium, sodium, calcium and so on. All this must be kept in a related and very exact order.

If we lived according to the exactness of the blood, some order at least would be established here on earth. The kidney is the organ which is constantly condemned to regulate the disorder which we create within ourselves. We should learn in-

creasingly to understand this. We depend upon the goodness —meaning, on the discrimination—of the kidney. We destroy continually what—through our temperaments, through the inabilities of our human existence here on earth—continually defiles our bodily nature. This is balanced, healed, always put in order again by the kidney. The kidney is like a good mother who runs behind her children, putting their misdeeds into order. We depend entirely, through our emotional existence, on the goodness of the kidneys.

The kidneys are like the galley slaves who, at one time, were fettered to the oars of the boats. Day and night they had to go on pulling the boat through the water. Such slaves are the kidneys, and we are those who misuse them, must misuse them, because we cannot help it. We are born into this earth and thereby are meant to defile the divine structure and temple which time and again is handed over to us. The kidneys do not mind. Please do not think that they pity themselves. They are represented by the Silver King. They do all this—and they do it with kingly gesture—because they know it it is necessary. Therefore when the Silver King asks, "When does it come to an end?" the old man replies, "Late or never."

What does the kidney do? How does the kidney perform? First of all, through the excretion of urine, the kidneys keep, not only the blood, but the whole fluid or our organism in balance. If there is too much they excrete more, if there is too little they excrete less. When we sweat excessively we have much less urine than if we do not sweat at all. Water (body fluid) does not depend upon the kidneys alone for balance. Water is, so to speak, a free agent; it can go out by mouth, nose, and many other doors and windows. But if it can't, there is always the exit of the kidneys left. Whenever there is danger, the kidneys open up.

This is the kidney's first function. You cannot say that one function is more important than another; you can only enumerate them. The second function of the kidneys is the one whereby all minerals within our body, if they are in excess, are excreted. Again it is an act of balance. Sodium, potassium, and

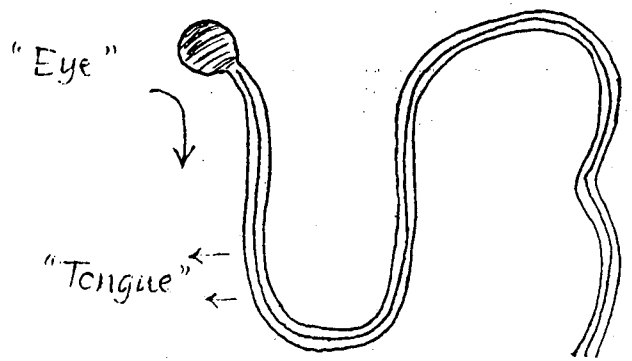

Fig. 33

so on, are either excreted, or if not excreted, they are sent back into the stream of the blood. In the kidneys you have the glomerulus (Fig. 4). (The whole thing is called the nephron.) In the glomerulus, the drops of urine coming out of the blood are formed out. Then they gather together and flow along the tubules, or nephron canals, to the calyces, and then into the bladder. What is excreted here is tested—better to say tasted —along this flow, so that "looking" in the glomerulus is transformed into "tasting" in the tubules. But the tasting again is an active one. If too much of one or another substance has been excreted, it is greeted with: "Hello, dear friend! Back you go" and it goes back into the blood. You see, it is the living possibility of the kidney to regulate the flow, or overflow, of substance — especially mineral substance — between eye and tongue; I mean calcium, magnesium, potassium, sodium, phosphorus, sulphur, and so on. This is the second function of the kidney.

The third function is a very important one in the whole realm of functions performed by the kidneys. The acids and alkalies within the body, as well as in the serum, are kept in an equilibrium. If we eat too much protein, we excrete more acid substances; if we eat too many vegetables and become too alkaline, then we excrete more alkaline ions.

Then, through another function, the kidney even pursues the possibility of forming a substance. It forms, in its own realm, ammonia from the waste products of all the body's protein. The proteins have come to an end, after being excreted, but the form the excretion takes is due to the formation of ammonia and other substances which are connected with radical nitrogen.

There is one thing in the kidneys which reveals the Kings. The kidneys create a substance which is called "renin." This is a substance in its own right. It is a substance which is not given. It is something which the kidney creates out of its own power. The kidney assumes its sovereignty through creating renin. Renin rises up and radiates out into the whole of our body, thereby regulating the tension of all blood vessels. The tensions of the blood vessels, whether they are too hard or too soft, whether they are passive or active, depend on renin.

Renin is, of course, only a kind of ash or excretion—a kind of end—behind which another reality is hidden. This reality is the one to which Rudolf Steiner points time and again when he speaks about the function of the kidney. Here we come to the heart of all that concerns the kidney. The kidney is the organ which, from above, dived below. The kidney is the organ which led us into the Fall, thereby making it possible for us to breathe, not the living but the dead form of oxygen. Hence we assumed our day consciousness. We do not faint anymore, because the kidneys have helped us to clear the atmosphere of living oxygen. Oxygen is dead, but the atmosphere has become transparent and we can see the light. In the light, the form of all created nature appears to us. Just as the outer light appeared around us and we assumed our day consciousness, so the kidney has become the organ by whose deeds inner light can be created.

The kidney is the originator, the creator, of the inner light; what Rudolf Steiner describes to us as the so-called radiation—the Nierenstrahlung, as he calls it—is like a Northern Light. This is not in the form of electricity, but in the form of pure light, colored light, which radiates out, thereby enabling

our astrality (our astral body) to insert itself into our bodily nature.

Once upon a time, the kidneys carried the listening function and thereby related the living oxygen to our existence. Through the Fall, oxygen became dead, man's consciousness woke up, light appeared around us, and the kidneys went down to become the bearers of the Fall in us. At the same time they became the creators of the inner light. Perhaps you can see it like this (Fig. 34): here, in the depths of our organization, the kidneys are bound to the bladder and thereby bound to our sexual organs; this is the urino-genital tract. But above, light appears, and in this light the possibility of pure thinking is given to us. Something has fallen down, the Silver King has accepted his destiny; but something has also remained within us. Into this empty space the lung entered and united itself with the kidney. You will understand if I write here EVE and here ADAM as a kind of destiny which is imprinted into our existence. You will also understand why Rudolf Steiner, when speaking about the lung, called it the representation of Isis. Here is Demeter the earthly mother—all this is now apparent

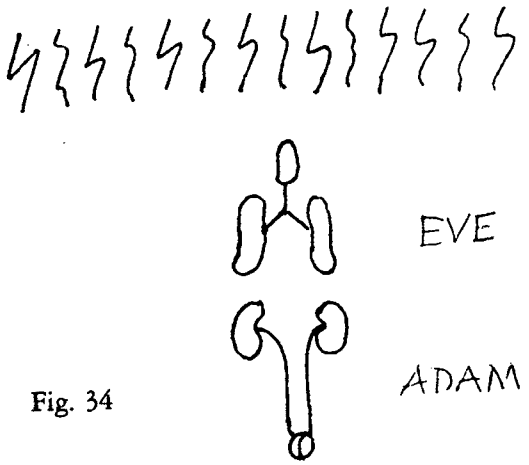

Fig. 34

—and the kidneys bear the destiny of Adam. The kidneys give to us what Rudolf Steiner calls, in the lecture on the 23rd of October, 1922*, the dullness—the Dumpfheit—of our thinking.

Can we find the intuition from which the kidneys were formed? It goes back into the realm of Lucifer, of course. It goes back into this realm of light. We can read what Rudolf Steiner says that the kidneys must accept, in the same way that the surface of the lung accepts our hardened thoughts and the surface of the liver our thoughts filled with sentience and heart. The kidneys become heavy in bearing up everything that during our life has developed into habit.

Can you imagine what this means? One organ has to bear all our habits from morning till evening! You know how we depend on our habits: how a cushion must lie in a certain way before we go to bed, how we must have a particular kind of food, how our bed must be placed just so in the room, how we must carry a certain number of cigarettes in our packet from morning to evening in order not to become too restless, or how we need a particular kind of fountain pen. What is built up by this cosmic jumble which we continually gather around us is borne by the kidneys.

This creates a force, a tremendous force. It is carried over from one life to the next, and in the next life our temperament develops out of the habits of our former life. And the Silver King has to carry this. He does it with grace and in beauty, but he has to do it. However, if in this life that force already streams up (just as it can for the lung in fixed ideas or for the liver as hallucinations), then for the kidneys all different kinds of excitement, anxiety, and restlessness appear: all the phases appear which mark the onset of insanity. Neurotic and psychotic tendencies rise up when this power is too great or when the organ is too weak to hold the power inside.

You will now understand why nothing is so important for today as our ability to contain ourselves in the structure of our habits. As soon as a habit is broken, a hollow starts to appear. Anxiety, fear, or restlessness overcome the human be-

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ing, because he is not inwardly strong enough to stand an hour which is not filled with some kind of so-called activity. We have to see this in order to gain an insight into ourselves. I am sorry to say that on this point those present in this room are not excluded. We all suffer continually from this.

What, then, is the disease of the time related to the kidneys? It is a disease which again has assumed almost epidemic proportions. It is the disease which is usually described as "hyper-tension." Suddenly the blood pressure rises over 200, up to 250, up even higher. The person is quite unable to stand this tremendous tension under which he suffers. This is due to the King, who raises his head if he is overtaxed by us when so much renin is produced. He cannot prevent it being produced. His warning is: "Do not defile too terribly the garment which you have been given, because I am unable to keep up with my laundry business, or to wash clean what you have soiled."

Although this is said in a jocular way, you understand it is meant very earnestly, because only in this way do we really grow nearer to understanding such an organ. We can really only start to do justice to the world powers which are living in us and which, thanks to Rudolf Steiner, we are now able to begin to know in their fullness and greatness. Tomorrow we will speak about the heart.

Discussion

George Adams: What are the differentiae between albumins and globulins, and what are their functions in the human body?

Dr. Koenig: We usually describe the whole of the Eiweisstoffe as protein. Mainly, there is albumin on the one hand and globulin on the other. There are others, but I cannot go into all these. They are not so widely distributed as albumin and globulin. The characteristic of the albumin, to put it briefly, is a

kind of stabilized protein, a protein which is not easy to break down. It is a protein which is intimately connected with several other substances and becomes the carrier of other substances, such as gold, iron, lead, tin, and so on. They, when connecting themselves with the living substance, take albumin as their vehicles. The globulins are much more dynamic, much more continually in the process of becoming. They can be broken down easily; they are much quicker. I would not hesitate to characterize them as younger, and the albumins as older. Also in the young child and in the embryo the globulins far outweigh the albumins. As we grow older, the albumins outweigh the globulins. On the other hand, if we turn to our big subject of protein building, it is here especially that we should imagine the globulins are created; therefore it is the more cosmic form. The albumins, on the other hand, are connected with the nutrition stream, with oxygen, hydrogen, and nitrogen (you remember this dynamic process of which I spoke). There is not yet enough proof to say it is so, but the character and the form in which the albumins and globulins appear within the blood serum (many of the facts of which have been collected by G. Husemann) seem to indicate that this is a possible way of accounting for the known facts of today.

Mongol children, right into their later age, have a much greater amount of globulins than albumins. Therefore they are more cosmic, so to speak, and much less individualized.

George Adams: When you used the words "more cosmic," to which of the two were you referring?

Dr. Koenig: I referred to albumin. The globulin is the younger. The albumin is the more cosmic one—the more individualized one—which comes out of the nutrition stream.

George Adams: Do I understand rightly that if scientists now distinguish with certain technical terms a lot of other kinds of protein, that each of those would, in its character, be assigned to either albumins or globulins?

Dr. Koenig: Quite so.

Question: What about the primary light of which Rudolf Steiner speaks in the lectures to doctors?

Dr. Koenig: Rudolf Steiner speaks in the first lecture course on the primary light. In the third lecture course to doctors, in 1922, he speaks about the kidney radiation. But these two are intimately connected. Just this week we have turned again in *The Calendar of the Soul* to a verse which describes the light —outside as well as in. "The light from the depths of the spirit streams up into the without, permeating our sensory organs." When we follow this up in *The Calendar of the Soul,* we see that there are four verses which exactly belong to each other. These four verses speak about the light but always in a different form. We come gradually to the following image. The last verse in the course of the year—verse 48—speaks specifically about the light which streams out of the heights of the world, carrying with it cosmic ideas into men and waking up within the human heart the power of life. Then, in the circle of the year, we come to verse 5. There the light is described as the powerful being which brings the whole creation into existence so that men can behold it. The following verse, No. 22, which is the opposite one to the one which we have now, says the light from outside streams to the within and brings fruits within the human soul to ripeness. The verse of our week—No. 31—speaks of the light from within streaming out. This is a complete circulation. We can actually see that the light circulates.

Let us start with this week (verse 31). The light is within us. Now, through our sensory organs, through the awakening of the summer (the soul's summer—the summer of the soul within us), it streams outside. After Christmas, at the beginning of spring (end of February and beginning March), it appears in the heights of the cosmos again, bearing the cosmic ideas (verse 48). It opens up the world of creation. Then, at the beginning of May (verse 5), during the summer, it streams in.

The beginning of autumn is marked by a crossing point which is like the heart of the year.* This circulation of the light moves our kidneys.

Comment: If the oxygen in our lungs is dead.

Dr. Koenig: As soon as you have inhaled, it is already living, even in the nose, before it reaches the lungs. As soon as it has crossed the border of our existence, it is alive. On the outside it can't be, but behind the nostrils, or if you breathe through your mouth, behind the lips, it is already alive. You should not imagine that air streams via the ordinary bronchial passage of the windpipe into the lung. It does this only in case of emergency.

In the same way, if you take a sip of water, only a fraction of this water pours down the esophagus (perhaps a third, or if you are very thirsty, one-tenth). If you are forced to drink the fifth of a pint of beer, 90% of it will go down the esophagus. It depends, because the fluid is taken up by the gums, by the tongue, and by the cheek, Certainly the air streams in, and a certain part also streams in by way of the windpipe, but air is within us. We are not built like the pictures in an anatomy book. This is only the ash of our existence. The air flows in and out. You would never get a cold if the air only travelled round this passage, because then it would be restrained. It would come out again, and go in, and come out again.

The cold wind blows through you and through your whole system, and suddenly your nose is part of the outer world instead of part of yourself. Then it starts to run, because within it is alive behind the partition. I mention this, because we all have such restricted ideas that we think the elements do what we think they should do. This is not so. When we are ill, for instance, and our cheeks are swollen, our gums swollen, and everything is inflamed, then the air cannot get through

*The structure of Steiner's *Calendar of the Soul* is in the form of a lemniscate, as is the structure of the year itself. Summer and winter are at opposite poles, while the spring and fall stand at the crossing point, like a heart. Editor.

these walls. Then it streams in and streams out again, but usually it takes our astrality in and out. Don't say this to any scientist, of course; he would think you were absolutely insane! But, in point of fact, it is so. You feel this, that it comes in and out. This is no exaggeration.

It is the same with the earth. The oxygen underneath the earth is quite different from the oxygen above the earth. With water, it is the reverse.

Question: You spoke of the sunlight that we see as not coming from the sun, but from the light-sphere around the earth. Can you say where the light comes from that affects the plants?

George Adams (who was asked to reply to this question): The other day, Dr. Koenig, when you drew the diagram in Lecture I, you referred to what Rudolf Steiner says about how the light springs and sprouts. If I had been making the drawing, I don't know that I should have put in any arrows. But if I had, I would have made them spring and sprout downwards and not upwards. I have the feeling that it springs and sprouts towards the earth.

In some of the quite early lectures, when Rudolf Steiner was speaking in an esoteric mood and context, he used a certain sequence, saying that the plant lives by the mineral light, just as man and animal get their food ultimately from the plant. We know that the plant owes its life to the assimilation of the light by the green leaf. You will, no doubt, be familiar with this. Yet, as I remember it, Rudolf Steiner says that it is not the primary light, but the light as reflected from the mineral kingdom, by which the plant lives. I think that is a very important point.

Now let us take quite seriously what Dr. Steiner says in lecture eleven of *Spiritual Science and Medicine* (1920), to which Dr. Koenig was referring. Here is the atmosphere. Then around the earth there is the mantle of warmth, and then farther out, reaching actually farther out, is the sphere of original, primal light. Rudolf Steiner says that is where the

light comes from. It doesn't stream as light from the sun.

I think we have to think of it as follows. The light is the body of the Spirits of Form. You were speaking this morning about the radiation from the kidneys. Whether, as in the 1920 lectures*, we consider it to be the original, primal light in the microcosm of man, comparable to that primal light that envelops the earth, or whether we think of it (as described in the 1922** lectures) as the formative radiation from the kidneys, we still see in it the activity of the Spirits of Form, who bring about the forming of our organs, so that we can be in the physical world. Are we not formed in the physical world and for earth-evolution by the Spirits of Form? Their body and instrument is the light.

Now if we speak as scientists, it is very easy, it is extremely plausible, it is almost necessary for us as scientists to say, at a certain stage, that the light streams from the sun. We need only put a shadow thrower, and you see that to shade yourself from the light of the sun you have to put the parasol here. It is quite obvious that the light streams from the visible sun, but that obviousness only arises when you put a shadow-thrower there. No other way.

As to what works from the sun, the sun in the whole spatial cosmos, I think it is like this: The visible sun is only a focus for an activity which streams from the periphery of the entire spatial cosmos. In fact, the spatial cosmos is due to the presence of the sun. (See what Rudolf Steiner says about this in the lecture of 4th June, 1924***, given at Dornach immediately before the agriculture course). In that spatial cosmos, which is sun-created, the powers of the universe spiritually pour in towards the visible sun, so that it becomes a focus. It is still quite spiritual and not seen by any physical eye. It is the unseen spiritual light, the light that the mystic seeks for, and not the external sunlight. The old-fashioned mystic shuts himself up in the monastery cell, and seeks to experience the light that no physical eye can ever see. For him, this is the first of three steps in the mystic path. Rudolf Steiner describes it

*GA 218 **GA 312 ***GA 353

in his lecture-cycle *Man in the Light of Occultism, Philosophy, and Theosophy*. It is the light of the spiritual sun, which creates the spiritual organism of the entire solar system, the entire planetary system, to which the earth also belongs.

The earth is a brother-sphere of the sun. Earth and Sun are akin. Separated in the Hyperborean Age, they will join again in some future time. They have never lost their kinship. Now, in the sphere of "original light" around the Earth, there springs the light which, at a further stage, becomes the visible light. In this visible light—light as we on the physical plane experience it—the spiritual structure of the entire cosmos, the whole solar system, with all the planets and the sun and moon and the fixed stars and constellations, the spiritual structure of the orb of heaven, becomes a spatial form. That is the spatial form of the heavens as we see them physically. As we geometrize with our earthly geometry out into the cosmos, we get it all beautifully confirmed. It is all wonderfully confirmed, to the very last approximation. It all agrees, it all says, "Yes, you are thinking exactly right, and so it is."

Yet it is a great "construct," if we may use this word. It is the great Maya, for Maya means nothing else than a construct. We now have to perceive that that construct is relative. It is not absolute, it is Maya—a Maya filled with wisdom, but which we must nevertheless get through without becoming imprisoned in it.

So there is no contradiction in the saying that the light springs and sprouts in that sphere around the earth. It is no contradition if in the sphere of light, as it becomes visible, the appearance arises showing us the spatial picture of the sun, the picture of Venus, the picture of Mercury, the pictures of the constellations. In the rhythms of the cosmos everything behaves in an ordered way, making a wonderful cosmic geometry for our experience. Yet it only comes into being in that form in the sphere of the earth. The earth-sphere is touched by the influences of the spiritual sun. Then it springs into form, just as our organs spring into form according to the

*GA 137

archetypal pattern of the human physical body, and also from out of the spiritual formative life of which we have been hearing.

Question: Can you say something more about animal and vegetable proteins? What do they mean to us in our food? Dr. Steiner says that they are mutually destructive. I wondered whether this means that they destroy each other in our digestion.

Dr. Koenig: Everything that we take in has to be broken down. You know how Rudolf Steiner once drew the ladder of the organic kingdoms—plant, animal, man—in connection with the protein substances which we eat. He said if we break down plant proteins, we have to do it in two steps. First, we have to make it into animal and then into man. If we take animal proteins we only have to take one step.

I have the impression that what Rudolf Steiner means by saying that they are incompatible with each other is simply the fact that as soon as we take foreign protein into us, it acts as a poison. It immediately destroys the plasma of our blood. We should always be aware of the fact that whatever we say about protein in the blood serum means the protein from the blood serum around the cells. Within the cells the protein is no longer as important as it is in the blood serum, because there the blood serum is still living substance. There it is used by the human being himself.

When Virchew brought the cell into the foreground of all living existence, he actually excluded the soul and spirit. If you enter the cell (and I say this in connection with what I said about the proteins), you are already in a million-fold region of the human being himself, where I, as an I AM—I as an astral body—have no say any more. Our cells are not bearers of our individual being. The blood is. The fluids of our body are. But as soon as we are in the cell, we are already in a cosmic sphere, where our ether body can just work and live, but we ourselves are not there.

This is difficult to grasp from the geometrical point of view, but every cell, so to speak, has an inside. This inside has nothing to do with us any more. This inside is cosmic space. Therefore it is as if you have here a cell [draws], and then within the cell you already have the nucleus. The nucleus is a cosmic image. It is usually—I say usually—the moon. If it breaks up—as when the cell is divided—it breaks up into the different forms, which again reflect the course of the planets. But we, our protein, our albumin, our globulins, we are here: it [referring to the cell] is not us, yet it maintains us.

Dr. Koenig: (in answer to another question): Too low a blood pressure is usually connected with a failure in the functioning of the kidneys towards the alkaline side; when the blood pressure is too strong, the failure is more towards the acid side.

Question: What types of habit make the blood pressure rise or fall?

Dr. Koenig: If you remember, I spoke on the first evening of the four meteorological organs and then referred to the remark that Rudolf Steiner makes in connection with the sucking power of the bladder, where he speaks about inner mobility. If we gulp down our food, if we run after everything, get up in the morning, shave, wash, because time is pressing, the train is leaving, the car is waiting, then our inner mobility is continually destroyed. This leads to high blood pressure, especially when connected with the first-born child.

On the other hand, if you are in the habit of saying (as is not so seldom today) "Oh well, the Welfare State pays everything anyway, I can't be bothered," this leads to a low blood pressure, and inner mobility becomes more and more a kind of low-tide. Here the attitude is, "We might work, or maybe it would be better to drink a cup of tea." Here, all responsibilities have been shifted to THEM. Nobody knows who "they" are, but "they" have to care for the education of your child; "they" have to care for you if you are old or ill, if you don't get on with

your wife, or if you are unemployed. This is low blood pressure.

Question: About jaundice: Could you tell us a little bit more about the origin of this virus? Is there any indication at all of the source?

Dr. Koenig: We don't know much about it. We don't even know exactly the type of virus. Probably it is one of those which continually change their form and function. We don't even know whether it originated in the east or the west. This is all still being investigated.

There are many ideas—wild fantasies—but to me it seems that the virus is a crystalline form of what once was life. When life is no longer permeated by ether, but becomes an intermediary state between living and dead, this is a virus. It refers back to a kingdom which Rudolf Steiner described as inhabiting the Old Moon, where there were not only plant-animals but also mineral-plants. This is what the virus actually belongs to. It is something which, for the earth, is, so to speak, "out of bounds" and therefore it creates disease.

Question: Could scientists prove the existence of living and dead oxygen?

Dr. Koenig: I have the impression that an ordinary scientist would not be able to, but an extraordinary scientist would certainly be able to do so. I am convinced—and I mean this quite earnestly—that the difference can be elucidated even in experiments. If we could come so far as to be able to apply living oxygen to a crystallization and dead oxygen to a crystallization —or something like this—the difference would show itself immediately. If we could find a way of biologically experimenting (I don't know how to work such a thing out) with living oxygen and dead oxygen, a difference could definitely be proved. I am quite sure of it.

The Heart

3-11-58

Lecture VI

Dear Friends, in this last meeting we come to the last of the Kings, the golden one. I don't mean to say that it is the best, but it is the Golden King. When considering the heart, however, we shall try not to simply reach conclusions about gold, heart, sun, etc., but really to try, from an entirely spiritual point of view, to grow nearer to an understanding of the heart organ.

When the green snake enters the cave of the four Kings, Goethe clearly describes the Golden King as small in stature. On his head is a crown of oak leaves. I think it is most important that at the end of the fairy tale this wreath of oak leaves plays a very great part. When it is placed on the head of the young King, he is told to "Know the highest" ("Erkenne das Hoechste"). In this way all that we should learn to understand with regard to the heart is introduced. Therefore, as soon as we place the heart in the position of one of the four creators of protein (just as Rudolf Steiner has placed it in position among liver, kidney, and lung), we have to ask ourselves: is this altogether justified? How is it possible? Because the heart is not,

in the true sense, an organ at all. Physiologically—anatomically—it has nothing to do with what we understand when we speak of an organ. It is not naturally a part of these big glands like liver, kidney, and lung. The heart has nothing to do with them, yet it is there. It is there and we speak about it as if it were an organ.

In fact, the heart is a muscle. It is a muscular composition and physiologists say it is a muscular organ. The word organ is generally understood to mean something entirely different. From this question we have to start. We have to ask ourselves: how did it originally come about that the heart lies where it is placed today? In order to follow up how the heart develops—how it is built up every time in the human body and formed out in the mother's womb—we must take a step into the study of embryology.

The heart is one of the earliest parts to be built in the human embryo. It develops almost as early as the primeval organs (the primitive gut, etc.). Imagine that here (Fig. 35) is the first primitive form (and I speak only about the human embryo, not about any animal embryo) out of which vein, brain, nerves, and spinal cord are formed. Here is the primitive gut—the ectoderm and the endoderm—but the heart does not develop within the frame of this primitive form. The

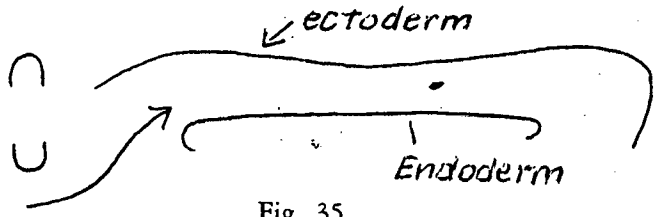


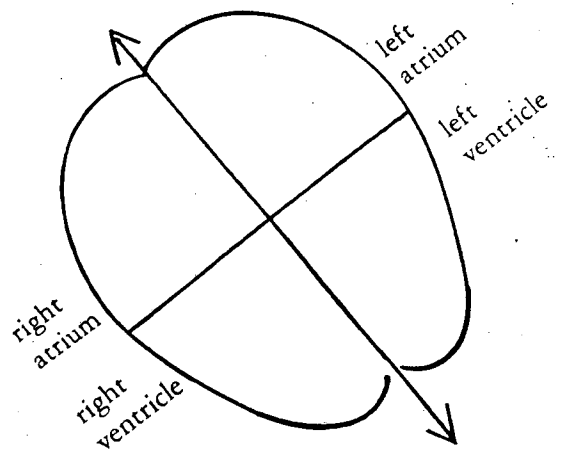
Fig. 35

heart develops outside. The first seed of the heart begins outside. Only gradually does this whole develop in such a way that the heart finds its place between the ectoderm on the one hand and the endoderm on the other hand. It must also be taken into consideration that it finds its place between the upper part and

the lower part of the human frame. We can also see in rather primitive vertebrate animals, in fishes, frogs, and even in the reptiles, that the heart lies behind the upper part of the chest, below the throat. It lies not only higher, but also exactly in the center. It covers the median line. It lies in the place where, for instance, our larynx is formed out.

You can deduce certain things from this. (I am not going too far into this question, because it would lead us away from what we must discuss this morning.) What I want you to understand is that the heart has only gradually assumed its present place. Throughout evolution the heart has turned to the left side of our body and rests, intimately connected with it, on top of the diaphragm. The position of the axis of the heart* goes from behind, above on the right, to below in front of the left. Thereby its axis is placed exactly in the center of three-dimensional spatial existence.

Above and backward to the right.



AXIS OF THE HEART

Below and forward to the left

*An added diagram for the sake of clarity. Editor.

Could we dare to ask how the heart would be situated if man had not gone through the Fall and if what we call the Luciferic impact in the development of earth and man had not taken place? From certain arrangements in the anatomy and physiology of the four glands to which Rudolf Steiner pointed, and which have been occupying us so intimately, I think we can deduce what follows. I would ask, however, that you take this with a certain amount of reservation. I have come to it through years of occupying myself with these questions. I simply propose this as a possible way of imagining the primeval, morphological arrangement of man.

It is possible to imagine the development of the kidneys as we did yesterday. It is more or less clear that the kidneys were in the upper part of the human organization. You must imagine that what I am describing does not mean physically formed out, hardened organs, but human existence during the time when, according to Rudolf Steiner, the whole atmosphere of the globe was still primeval milk. This was the primeval albumen, by which we were fed and which we also inhaled at the same time.

No doubt the liver was still in the same place, but opposite the liver was the spleen, in a similar way as it is today, yet very different. Then the lungs came out of the intestines as a kind of bladder of air. This probably was the harder of the structures in such a primeval form. In the center was the heart, keeping, as it were, the balance between the four.

Thus the heart was, in this morphological arrangement, like the sun within the courses of the planets. I will draw it like this so that you will understand (Fig. 36). Here is a sphere, and within this sphere there is a center. Then the Luciferic temptation took place and what happened? The kidneys dived down into matter, as a kind of counter-action. Rudolf Steiner described it once when he described how Jehovah placed the lung in this position in order to counteract Lucifer's stroke. Then men developed, and the way men developed led into disorder of the organs. It led into a very deep disturbance, because each of the organs tried to assume a very outstanding

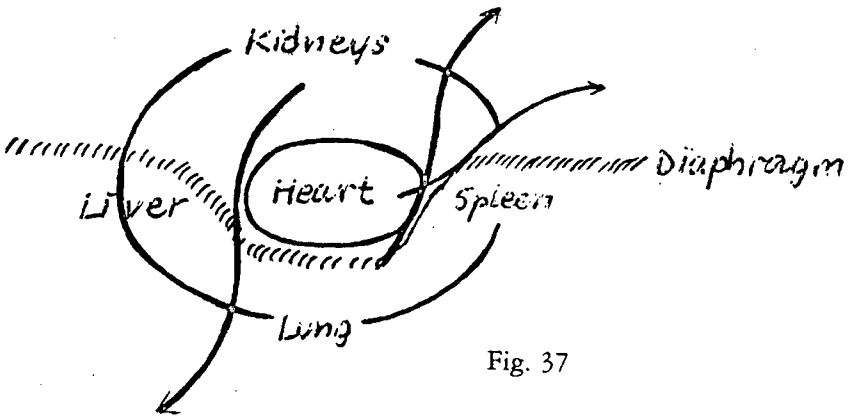


Fig. 37

position. Then Rudolf Steiner tells us that one of the pre-earthly deeds of Christ was, with the help of the Krishna, to bring order into the disruptive activity of the human organs. The heart is intimately connected with this.

The heart moved into the place which it has today. The diaphragm came about through this, the spleen had to go below, and the heart took over the spleen's former place. Now we have this arrangement (Fig. 37). Now the diaphragm has divided the upper and the lower part, which was not the case before. The diaphragm is a recent morphological structure. In the vertebrate animals it isn't always present. To understand the heart, not only in its position, but in its function, being, and whole existence, we have to see the other side of the heart, which is the spleen.

The spleen is the unconscious existence of the heart. It is impossible to understand the heart (and I mean exactly as I express it) without our unconscious existence. Without our unconscious existence we are unable to understand the conscious one. The spleen, like the heart, is an organ which is enclosed and enshrined within the flow of blood. When you study the great mystery of the spleen, remember how important an understanding of the spleen was to Rudolf Steiner. He advised Mrs. Kolisko to make very special experiments in this

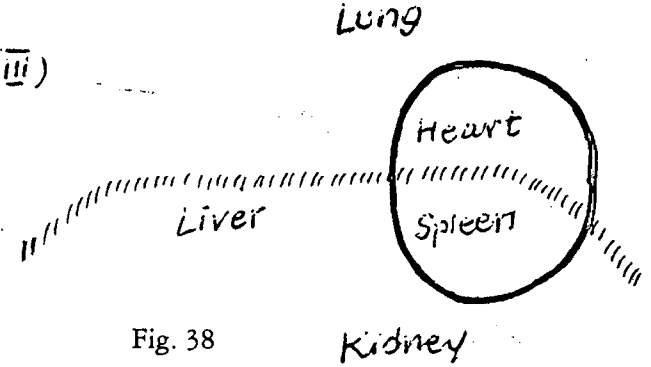


Fig. 38

area, and in the lecture cycle *Occult Physiology* (1910)*, he brought us near to a first understanding of this organ.

The spleen is still a **magnum mysterium** today, although science during the last twenty years has arrived at many new insights. The spleen itself, in its full function, is still a riddle. Similar to the way in which blood flows into the heart, it also flows into the spleen. The spleen is like a vast sea or a lake into which the spleen artery leads the blood. Out of this lake comes the spleen vein. Yet if we study the spleen exactly, with all its possible functions, we gradually learn to understand that the flow of the blood in the spleen can also be reversed. Blood can flow in through the vein, and the artery can take the blood out again. It is, so to speak, a very primitive heart, which can reverse its action according to need.

If we go one step further, we will see that the heart has not only taken up the place of the spleen, but the heart and spleen together act in connection with the blood in the following way. The spleen is much more concerned with the chemistry and the life-ether working in the blood; the heart is much more concerned with the warmth and light within the blood. These upper and lower ether forces connected with the blood (upper and lower are not meant as a judgment) are now differently distributed. In this way the spleen has joined the whole activity of the liver.

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Since 1920, science has learned to speak of the hepato-lienal system. This means the liver-spleen system, as it is more or less one organ. Rudolf Steiner at times also speaks about the oneness of spleen and liver. If you study the microscopical anatomy and histology of the spleen and liver, you find a special kind of cell that is present only in these two organs. You will find, for instance, that the metabolism of iron within the blood, and the blood constituents, are, so to speak, spread out between liver and spleen. The spleen can become a reservoir for iron, but so can the liver. In cases of pathology, spleen and liver together are able to produce blood in exactly the same way as the bone-marrow is able to produce blood. Spleen and liver are, one could say, the chemicators—the life-givers and the life-takers—within the whole of the blood. In the same way as the spleen has united itself with the liver, the heart has united itself with the lung organ. Both now form the rhythmical organization. They form the whole organization which, as you will recall from earlier remarks, has to do with the oxygen process whereby digested mineral food is lifted up into the sphere of life and ether. So that you have, as the result of this pre-earthly deed of Christ, that order was brought into the organ structure of man. By this order the spleen was pushed underneath, because the heart took on a new task. (Fig. 39)

The heart lowered itself. The heart gave up its sun position, stepped into the sphere of the three other organs, and said: "Yes, I will become one of you." When I consider this, I always think of how Rudolf Steiner spoke about higher spiritual beings who, out of sacrifice, renounced their position. For instance, an Archangelic Being due to rise into the realm of the Archai might renounce this "promotion" and remain in the lower position in order to take up a very special and great task in the cosmos. The heart did something which can only be considered as being akin to this process. The heart renounced its key position as a central sun being. Thereby it brought balance and order into what had been disordered. What was chaos became order. In this moment the heart became a kind

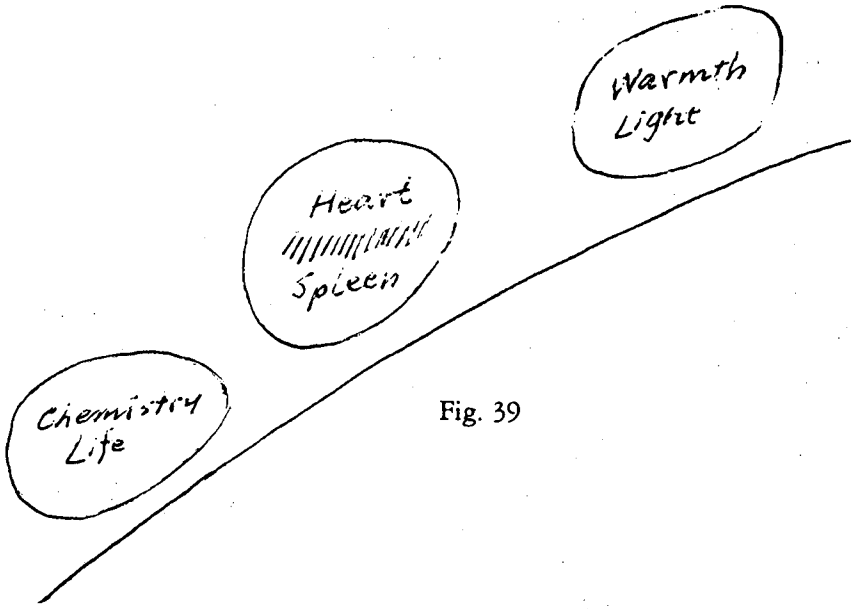

Fig. 39

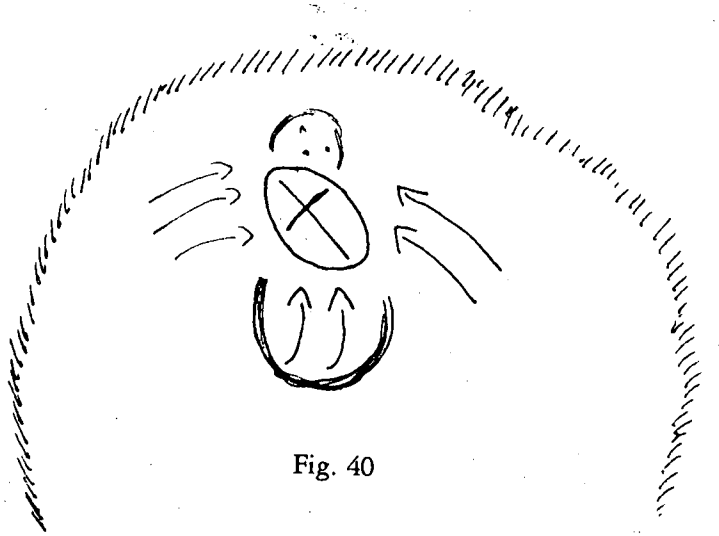

Fig. 40

of Mercurial, or Raphaelic, organ. Only now can we understand why Rudolf Steiner points to the fact that the heart is the mediator between the upper and the lower part of our organization. (Fig. 40)

At this juncture we have to consider Rudolf Steiner's often repeated statement that the heart is a sensory organ. What does this mean? We say it so lightly—"The heart is a sensory organ." In a lecture which he gave in Vienna (30th September, 1923), Rudolf Steiner again describes the heart as a sense organ.* He describes, very exactly, how the heart sees (and he uses this word) the whole metabolic process, all which is going on in our limbs and in the whole metabolic system of our body. Then he says that the upper part of our existence, which he names especially as the cerebellum or the small brain, becomes, through the heart's seeing, aware of the lower metabolic processes. In this way, we are able to keep a balance. We must learn to visualize one thing, however: it is not the heart which sees; the heart is really a kind of telescope. It is a kind of living eye-organization, perhaps also an ear-organization and a taste-organization. This will not be one sense organ, but it will probably be (I don't like the word "mixture") a combination of these four senses of the soul: smell, taste, warmth, and light. It would also probably include hearing. This would give the upper part of our existence the possibility of tasting, seeing, hearing, smelling, and receiving information about everything that is going on below. Just as the lens is transparent and therefore gives to the retina the possibility of receiving light and color, so the heart, like a lense or cornea, permits the upper part of our organization to receive, to sense, to experience what is below.

As soon as you grasp this idea, you will understand why Rudolf Steiner was frequently up in arms when he spoke about the silly conception of modern science that the heart can be regarded as a pump. Nothing, I would say, is as far from the truth as this idea about the heart. But how we can gradually

*GA 223

and scientifically bring this point home is another question.

Now that we can imagine the sensory organization of the heart in the way I have tried to describe it to you, where all the senses by which we experience the world around us are united, there is a remark of Rudolf Steiner's which I would like to bring near to you. When speaking to doctors about the heart, he said: If I look outside into the world and behold the universe, where do I find it? In the Within. He says further: If I look into my own heart, there in the Within is the whole universe which we behold through our sense organs. This means dear friends, that all which constitutes the sphere of warmth is within, in this very, very complicated, yet wonderful organization of the heart. The warmth outside and the warmth inside, this is the heart. Within this warmth are contained all the sense possibilities for judging the lower existence by the upper one. Through this, equilibrium is continually brought about. This is the function of the heart.

We will now go one step further and ask ourselves a question: The lung gives to us in our next life the form of our skull; the liver gives to us the disposition of our brain within this skull; the kidney gives us our temperamental possibilities; what does the heart give to us? Rudolf Steiner describes how into the heart—on account of its being a sensory organ—stream all the activities of our metabolic system, all the activities of our limbs, arms and legs, where we go, what we do, and how we do it. All this is stored up in the heart, as in a casket (Rudolf Steiner uses the word casket). This now, going through the life between death and rebirth, becomes the whole of our karma in our next incarnation.

With our present deeds we prepare the karmic arrangements and possibilities for our next life. Rudolf Steiner describes this in the following way. We bring with us through what we have stored up in the casket of the heart (the story of Pandora's box) a hunger to fulfill our karma. Rudolf Steiner uses the word hunger. We are not satisfied before we have met all those people for whom we hunger, for whom we long. This is arranged through the heart. If in this life the powers of

future karma already stream out, then fits of mania come about. Then people no longer know what they are doing and they may disturb, or even try to kill, everybody in their surroundings.

You can imagine what a tremendous force this is, this stored-up power which arranges the karma in our next life. In this we find the cosmic power of hydrogen. We find this power almost exactly as Rudolf Steiner describes it in the third lecture of the agriculture course. It can lead the spirit back into the cosmos in order, so he says, that it can return again. In this context we need only point to the words "hydrogen bomb" to know how intimately the modern trend of our existence is connected with all such questions, problems, and insights.

Yet all this is on the surface of the heart. The heart has formed itself into the other three organs, in the same way that the surface itself (like the surface of the lung, liver, and kidney) becomes an organ of memory. Here, however, it is no longer thoughts or sentiments but the pricks of our conscience —our Gewissensbisse—which sound. The voice of our conscience—this is what is so intimately related with the surface of our heart. Because the heart is the mediator in the body and therefore the conscience of all our functions, it can also reflect the voice of our spiritual conscience. They flow together, come together.

Through all these insights we can increasingly understand the complicated, all-embracing deed, function, and activity of the heart. We can understand how intimately connected with the heart, through its hydrogen and warmth, are the activities of our own self, our Ego. The Ego has united itself with the heart because once it was the center and because now it is the mediator, the Raphaelic organ. Our limbs are the mercurial existence in us. And if our limbs are gradually coming to a rest (as has happened during the last fifty years: we don't walk, we drive; we don't act, we sit!), then the production of our inner, individually created warmth is very much reduced. So these deformities in the warmth organization of the heart are extended. I refer now to what Rudolf Steiner says in

connection with the heart as a meteorological organ. You will understand that another epidemic has come about in our time, and this is the destruction of the heart.

We read continually how this or that man, suddenly, after a short illness, breaks down. All these deaths are brought about through the deformity of the heart. Through the inactivity of limb movement, too much strain has been put on the heart.

In Goethe's fairy tale, the old man has a conversation with the Golden King. The conversation goes in the following way: "What is more wonderful than gold?" and the answer is: "The light." "And what is more beautiful than the light?" "Das Gespraech" (translated as "the Word"). So the conversation leads from Gold, to Light, to Word or Logos. This is a kind of closing thought to what we have discussed about the heart organ.

Let us now go back and try to survey these four organs. We see the Mother lung (Demeter lung) carrying carbon (black) with the green vein of oxygen. We see the liver, the Brazen King, with the peach-blossom color of nitrogen, covered with the white veil of hydrogen. We see the Silver King of the kidney and then the heart, which is entirely permeated by hydrogen. We might also, as a kind of last image, remember that this Brazen King, the liver system, where the mystery of the creation of the Will takes place, is no doubt a Michaelic organ, as the heart is a Raphaelic organ. We might also learn to understand how behind what the kidneys have to suffer, the Being of Uriel stands in the heights. Connected with the lung stand the deeds of the Being of Gabriel.

Do not try to connect this immediately with the seasons. You would not reach the truth by doing so. Remain within this image of the Beings of the Archangels, of the colors, and of the Kings. I hope this will help all of us to draw another step nearer to the understanding of the protein-creating organs. I hope that these few lectures have served to strengthen such an insight.

Discussion

Question: I would like to ask how the blood is moved around.

Dr. Koenig: The movement of the blood is not only related to the etheric forces. The movement of the blood is the result of etheric, astral and ego forces. All three together make it possible. You will understand this when I say that long before the heart acts in the embryo, the circulation is already established. The blood flows out of its own power. Everything which is alive moves and the blood prepares its own channels. The blood builds its own blood vessels, in order to move in them. Then the even movement of the blood is pulsated, and the pulsation comes about through the astral body and the Ego. So the heart, in point of fact, is nothing else but a kind of place where the direction of the flow is made possible.

In this complicated re-directing of the flow of the heart, the veinous blood coming up from the right is directed into the lung, re-directed again into the body and so on. You must imagine that about one and a half gallons (five litres) of blood stream through the heart every minute. I would also like to add something which would have been too much to mention in the lecture. This is about the temperature of the heart. The muscle of the heart does not move through nervous activity. It is absolutely obvious—obvious even to scientists—that the motor activity of the heart muscle is not brought about by incentives which come from the nerves, but that it develops its own motor activity within itself.

Again, in connection with the motor activity of the heart: the heart consists of four chambers, two auricles and two ventricles. Each moves separately, but this movement is co-ordinated in the heart and an entirely new, unique organ is created. Nowhere else does anything like this structure occur. It is neither a muscle nor a nerve. It is the so-called "Bundle of Hiss" (Hiss being the German physician who discovered it at the end of the last century). This Bundle of Hiss and several other parts

(the auricular-ventricular node and so on) direct the action of the muscle.

This is an amazing organ. It is one of the most beautiful structures we can find anywhere in the body. If we see it properly, it is, no doubt, a kind of plant root. Reaching up are two tiny "leaves," so that suddenly we have a plant starting to grow within the center of the human (also animal) organization. So you see the heart and the blood move out of their own devices.

Question: What about the healing forces of certain plants on certain organs?

Dr. Koenig: I cannot give a definite answer as to all the organs, but can say that the **Compositae** would be valuable for the kidneys, and the **Ranunculacae** for the lung. I am doubtful whether any family of plants would be of value to the liver. But for the heart, all types of **Rosea** would help. The rose has a certain amount of Mars in it.

George Adams: That the rose relates to Mars should turn our thoughts to the question of an element which is coming to the attention of mankind and being used more and more. Perhaps one could say, very roughly speaking, that in its function and place it is somewhere between silica and steel. I mean titanium. It is known that, among the plants, the rose in particular contains titanium.

Dr. Koenig: How interesting! This is most important. I am very grateful for this indication. During the last four or five years it has been found that cobalt is of very great importance for the building up of the blood. Cobalt is a trace element. It is contained in the bone marrow, for instance, and the lack of cobalt brings about severe diseases. So far we don't know anything about titanium, but this remark might lead us to some insights.

George Adams: One of the astonishing things was when I studied chemistry, I was told that titanium was a rare element, but if we list very crudely the proportion by weight of the elements of the earth, including calcium, oxygen, hydrogen, and all of them, titanium is in ninth place. There is an enormous amount of titanium in the earth. There are whole mountains of titanium ore in the earth.

Dr. Koenig: Of course I have mentioned very little, in point of fact, of what Rudolf Steiner has said with regard to the heart. In 1919*, for example, he drew our attention to the fact that since the year 1720, the heart has altered its condition. Since that year, the etheric heart has loosened its connection from the physical structure of the heart and very great changes in the whole life and existence of man have come about. He doesn't say what they are, but I personally, having long thought about it, have the impression that they are connected to the pietistic movement which started at that time. In England, this movement found its expression in the brothers Wesley. It also arose on the continent. Probably these events were initiated by the changes Steiner referred to. In the future the heart will continue to alter its whole physical-spiritual composition.

In lectures given in 1920**, Rudolf Steiner drew our attention to the fact that during our own individual development in childhood, the whole structure of the heart alters. He even used these words: what we bring within us through birth as etheric heart gradually withers away and is rebuilt by an entirely new ether heart. One day we should bring such things together, but we will need a whole lecture course to speak of it.

George Adams: I think what you referred to as the pietist movement found its strongest expression in England through George Fox, the founder of the Quakers. It came to a culmination about that time. He, in particular, had a spiritual experience connected with the blood and the Christ impulse. He had a direct experience of the Christ Light through the blood. At the end of the first war, when the Quakers were doing so much

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relief work in Europe, Dr. Rittelmeyer was very interested in them. He knew some of the leading Quakers, and he asked Rudolf Steiner what that movement was. Rudolf Steiner answered that he did not know, but that he had the impression that it had something to do with the blood.

Dr. Koenig: It would be very important, in connection with this remark about 1720, to mention the fact that great movements sprang up on the continent, especially in western Germany. There were some amazing people. Swedenborg had his great initiation in London in 1740-42. All this, as it were, reached a peak. I have always thought that, with this freeing of the ether heart from its bondage to the physical function, something quite new as a Christian experience sprang up in the people of that time. Bach's music is another case in point.

George Adams: Can Dr. Koenig say any more about what Dr. Steiner says in his Torquay lectures* about the need to "think with the heart?" In one of these lectures (which Dr. Koenig recommended us to read in preparation for this Conference), Rudolf Steiner speaks of hydrogen, the heart, and the faculty of thinking. Can we connect this with what we read in the agriculture course about the functions of hydrogen?

Dr. Koenig: Again, I can only give some indications. I would recommend the study of the lecture on hydrogen which Rudolf Steiner gave in October, 1923.* Even if you make every possible effort to understand this lecture, you may say: "My goodness, it is absolute nonsense." Yet I know, because of certain things contained in this lecture, that the deepest truth is in it.

Rudolf Steiner tells the story of the snake. If you have a snake, it produces eggs. Of course the eggs are laid outside, so that the cosmic warmth can surround them. The cosmic warmth is needed for the development of the young. But if you

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take the snake out of its natural surroundings and withdraw the water (you know that hydrogen is in the water), the snake will lose its ability to prepare another skin—a new skin—and it will go about in old rags. In the same way it will also be quite unable to produce the shell of the egg and thereby within a year you will have made the snake produce living young. All this is due to hydrogen. Steiner then goes on to deal with sodium—sodium carbonate.

I have studied this lecture again and again and it has helped me to understand many things, although not hydrogen yet! Still, there is no doubt that hydrogen has the following function. You will soon know what I mean when I give you the facts, without at present bringing them together. In this lecture to the workmen, Rudolf Steiner speaks on the one hand about light, and on the other, about electricity. With light we do our thinking. With electricity we have our reproductive activity. Then he links up both thinking and reproductive activity with hydrogen. He mentions that in the semen of the human male an especially large amount of hydrogen is contained, whereas in the female ovum there is nothing but protein. It is the hydrogen which stimulates the protein to become, divide, grow and reproduce.

Therefore we have to see the substance hydrogen in connection with the two activities for which the Old Testament uses the phrase "to know." I have the impression that this is one more key to the tremendous problem of hydrogen. Because here also we have warmth, in one case containing the light, in the other case containing electricity.

In this lecture there are other remarks which can raise the hair on one's head. Rudolf Steiner says: You know I always speak about hydrogen, but hydrogen is phosphorus and phosphorus is nothing else but hydrogen! Going behind this would, I am sure, reveal to us wherein hydrogen and phosphorus are the same. He even says that if our chemistry were far enough developed, we would be able to change phosphorus into hydrogen and hydrogen into phosphorus. This may yet be proven. I have not been able to follow up modern chemistry.

George Adams: If we get hold of it in a direct, tangible way, it is simply this: when there is decaying organic life, hydrogen arises as gas (marsh gas, sulphuretted hydrogen, and phosphoretted hydrogen). It stinks grandly! Rudolf Steiner says that we develop carbon dioxide in our head nature, which makes us clever and intelligent. However, in our intestinal organism we develop marsh gas, which is carbon hydrite, which stinks, and which makes us stupid and dull. Then he says that we take a little of the marsh gas into our head nature, so that we are not altogether too clever. That is important, because oxygen was spoken of as that which brings the light into the physical. In so far as the light of intelligence is brought into the physical, we are clever. In those who are dull, intelligence is there, but it is not brought into the physical so much. There again we have hydrogen.

Dr. Koenig: To this I can add another of Rudolf Steiner's remarks in the same lecture. There he says that as soon as hydrogen is connected with light, it is good and clever. But when it is connected with the marsh gas, in the dark, it is stupid. So hydrogen in the darkness and hydrogen in the sphere of light are two different things.

George Adams: Dr. Koenig, I am very grateful that, in drawing attention to the hydrogen lecture to workmen, you emphasized the question of electricity. I think that a very great part of our task now is that we must find spiritually what will enable us to hold the balance. We shall never do that if we are frightened of electricity, or if we really think that it is something to be shunned.

We have to bring knowledge to bear upon it. I think that in the picture you have given, there lies a key. I couldn't help but be reminded of a particular lecture which has meant a great deal to me. In England we have in one volume a number of Steiner's lectures on color, which are separate in the German edition. Dr. Koenig referred to one about the peach-blossom, the green, the black, and the white. In the same

volume are the lectures that Rudolf Steiner gave on the 5th and 10th of December, 1920. He speaks of light and thought on the one hand, and darkness and will on the other. He also speaks of the darkness as matter. When speaking of the polarity of light and will, or thought and will, in one sentence Rudolf Steiner mentions "Will, or, if I gave to what I am speaking a more oriental coloring, I could also call it Love." When Dr. Koenig tells us of the two aspects of knowing—to know in the Biblical sense—we can see both in the sphere of cognition and in the sphere of will, or love.

One must venture to touch upon that secret, because then, again speaking to scientists (physicists especially) in those three special courses that he gave to scientists in Stuttgart, Rudolf Steiner says: In the realm of electricity and magnetism you have the essence of matter. If you seek the secret of matter you will find it in electricity and magnetism. In saying that, Rudolf Steiner absolutely meets the present knowledge of the scientists, because they would say exactly the same thing.

He says there that electricity is immediately akin to what lives in man as will. And if you find those elements of experience that man can raise out of his will system, there you find what is immediately akin to electricity and magnetism. The whole thing is linked up together. The call to us is that we have the courage not to run away from the realm of electricity, but, guided by Rudolf Steiner, to find our way into that secret.

I have heard with very great satisfaction, now from Dr. Koenig, and a few weeks ago from other friends on the continent, how at the last of your great conferences of doctors, I think it was last Easter, you met as doctors and healers, to face the realm of present-day atomic science and technics.

In conclusion, I would like to say a few words more. We have been reminded again and again during these days of the World Conference in 1928, in London. It was almost as though a number of threads which were woven then came together again now. Maurice Wood was there, Carl Alexander Mier

was there and Dr. Koenig was there. It was a particularly important experience for Dr. Koenig and for us, too.

That World Conference came about through the impulse of Dr. Wegman. It was only three years after Dr. Steiner's death, and she was there with all her heart-forces, with a great belief that the Michael forces and the healing, therapeutic impulse of Anthroposophia could stream through the western world. It was Mrs. Pease who then became the president of our agricultural work, enabling with her resources that World Conference to be. Also Mr. Dunlop was behind it with all his good forces.

Now I would like to say this: You as farmers and gargeners, because Dr. Koenig is here now giving us this course, think of this question: how can the healing forces, how can the medical wisdom Rudolf Steiner developed in conjunction with Dr. Ita Wegman, how can this come to life in the English-speaking world? Because it lives in your farming and gardening work, too. It lives in the educational work of the anthroposophical movement; not only in the curative education, but in the Rudolf Steiner Schools for normal children, there lives that healing impulse. Yet that impulse, as medical wisdom, has somehow been hindered from coming into the English-speaking world. There is something in what we have received in these days which contains the possibility for that hindrance to be overcome.

Think how you might, by holding that in your heart, give a returning impulse to help. For myself, I feel that the key to it is partly this: What Rudolf Steiner gave in a middle-European language—a middle-European language speaking to the wisdom of the human being and to all that power of methodical thinking which was the necessary spiritual method in middle Europe—needs in some way to be translated into the kind of understanding and the kind of impulse of the heart that is called forth by cosmic wisdom, by the cosmic and religious approach, the cosmological approach, which lives in the English-speaking world. Perhaps the agricultural movement in this country could help, in the echo that comes from Dr.

Koenig's lectures, to awaken this impulse. This could happen especially if we carried in our heart that we want the medical movement in the English-speaking world to prosper and to overcome those deep occult hindrances that have stood against it. We can help it to come forth, for I really believe that it can, in the near future, and to no small extent through the work that you, Dr. Koenig, are doing.

Insect and Plant

Lecture I

5-12-62

I must confess that I am always a bit hesitant to speak to farmers and gardeners, because I am never sure that they really mean it when they talk about "spirit." To be honest, I often have the impression that they think that going to the wedding of the King's son* is right for all the others, but they have just bought a new pair of oxen and therefore are not able to attend the wedding at this very particular moment. But, dear friends, we must attend, time and again, every kingly wedding, in spite of a new pair of pigs or oxen or a new plough; we must really try, in spite of our daily concerns, to draw near to the world which is the foundation of everything with which we work as farmers and gardeners: the world of the spirit, which makes everything grow and wither away, develop and be destroyed again. If we do not take this earnestly, right into our heart, into our whole existence, into our system, we will not be able (except in words, and this is not enough) to fulfill the task we have chosen, to really help make this earth the place where the gods can communicate again with man.

*Matthew, 22.

When we look out of our windows, or walk over the fields, we see the great wonders displayed around us. The morning mist is painted all over the world from the sky down to the earth, the grey mist is rising up off the ground, gradually breaking up, dissolving through the light of the rising sun. On such a morning we can immediately feel, if a certain amount of humility is still left in our hearts: "The gods and the spirits, they all are working, in order that our souls and senses can be filled with wonder, with good and gratitude."

It is an appropriate time now, during Advent, to try to draw near to the world of the elemental beings. You heard Dr. Mier say, in his introductory words, that the man of today, by virtue of his whole constitution (his physical and etheric structure, the way his soul and spirit work) is not meant to enter the world of the elemental beings. Yet Rudolf Steiner has time and again drawn our attention to this world. In the last lectures which he gave on the elemental beings,* he gave verses which can enable man once again to communicate with this strange world, this immense multitude of beings called, by those who have met them, gnomes, undines, sylphs, and spirits of fire, or salamanders. In these lectures, he also told us how the elemental beings cry out to man:

Gnomes: Strive to awaken.
Undines: Think in the spirit.
Sylphs: Live creatively breathing existence.
Fire-beings: Receive in love the will-power of the Gods.

What kind of world is this? Of course we speak about the elemental beings, but if we look out into the world as I described today, do we experience them around us? They do not create colors; although they may help in one or another way, they themselves do not create colors. They do not create the mist, although they help bring about morning and evening moods. Behind them, among them, outside of them, however, there stand much greater beings who work through and with

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them. If, to begin with, we try to imagine this world, where the small beings, the servants, work, we must imagine the world of the hierarchies, the great nine choirs which fill the being of the whole planetary system. Within this world of the hierarchies (not only below and between, but also permeating them, serving them) there is an entirely different world, the world of the nature beings, **die Welt der Naturgeister.** These are the beings which are described in the Norwegian fairy tales as the trolls, or by our forefathers as the spirits of the wells and fountains, of the mountains, and of the clouds. There are also those spirits and souls which stand behind the world of the animals. We must take all this huge army of spirits into account. This is the second great kingdom of spirit-beings. Then, interwoven into the sphere of the hierarchies from whence they have come (into the sphere of the nature beings), there is this crawling, moving, weaving, wrestling, and active world of the elemental beings. Here we have the small nature spirits who build the foundation of physical existence, who build, form, destroy, carry substance, weave substance together, and build in certain plants and animals the vessels to contain this substance. Here is the world where the elemental beings live.

Considering the whole planetary system, we can dare to imagine that the hierarchies are the soul and spirit of this immense planetary existence. But the spiritual organs (liver, lung, heart, and so on), imagined spiritually and not seen as only physical, are surrounded by the world of the nature spirits. The elementary beings are, as it were, the living, weaving souls of the whole organism of our single cosmos or planetary system.

The next question, after we have dared to draw this image, is: "How does man communicate with these three different spheres, the spheres of the hierarchies, the nature beings, and the elemental beings?" There are three forms of communication, because there are three spheres of spirit being.

Communication with the hierarchies is done through such acts of worship as the Mass, prayer, and meditation.

When we gather together for a service—be it in a church or temple, or wherever—our aim is to communicate, or at least to start to try to communicate, with the world of the hierarchical beings, be they angels, archangels, or even that higher, innermost core of all spirits which we can only fathom with the words "the Holy Trinity."

Another sphere we communicate with is that of the beings of nature. We do this even if we think we don't do it. We must continually pacify these nature spirits. We have to acknowledge them, to bow in front of them, learn to live together with them. We do this, for instance, when performing certain rites and customs throughout the year. These are nothing else but signs and symbols whereby we pay tribute to certain nature spirits. We do this when, for instance, we say a verse, knock three times in order to ward off something bad, recite nursery rhymes and poems which we have learned as children, make certain steps in order not to cross a line, count the windows on a house, or think it will rain if a jacket is put on the wrong way round. Our souls are filled with all manner of such customs. Without them we could not communicate in a proper way with the spirits of nature. If we become aware of this, we will learn that such customs have nothing to do with our own unconscious (as it is described by psycoanalysts) but with the continous communication of the nature spirits with the soul of man.

Now, how do we communicate with the sphere of elemental beings, since our eyes no longer behold them? Our eyes were closed when we grew up, both as mankind and as individuals. Some of you will perhaps remember how you experienced certain elemental beings when you were children; in the same way, we, as children of the human race, experienced them. We have no customs, no words, no verses, no rhymes. If we want to communicate with them, we must build up new motives. It rests within our own souls, and with our own decisions, whether or not we want to draw near to the world of the elementals again. Carl Alexander Mier, in his introductory words, said that the elementals do not like to be approached

directly. I would say that they do not like to be approached directly unless they sense an inner decision of the soul. A motive—a decision—must be there. Why should we decide to communicate with the elementals? For no other reason than simply to become aware of the reality of the world, for which modern science has substituted the illusion of the cells, making believe that the single cells revealed under the lens of the microscope are the real building blocks of life, the elemental beings. It rests with us to decide whether or not we want to approach and communicate with these beings.

In order to communicate with the spirits of nature, you must be aware of small events. This is not difficult when you fall asleep on a field or in your bed and have become aware of such signs. If you are going behind the plough, milking the cows, or working in the field, you can sense that these beings are continually around you. You will learn to work together with them, and they will be pleased—very pleased indeed—to communicate with you. This is a special world.

The world of the elementary beings is an entirely different world, beautifully described by Rudolf Steiner when he tells us how the gnomes interact with the roots, feeding the roots, carrying substance to the roots, bracing the plant against gravity, out of the soil up into the world of light and air. At this point, the undines receive the plant, work out the forms of the leaves, build in (with the help of the sylphs) the special substances which grow out of the light and water. Then, the flowers and fruits are handed over to the spheres of the fire beings.

Nothing is known to us directly about these elemental beings. We can know of them; we can decide, from certain motives, to learn about them. But how is it possible for us to find a gate so that we may enter this sphere, a sphere which I would not even dare to say is around us? The spirits of nature are around us, the hierarchies are around and above us, but the elemental beings are in a world which is completely foreign to us. Rudolf Steiner says that just when we are able to catch the dream when going to sleep we might suddenly meet gnomes;

in the same way, just before we wake, when we take hold of our thoughts and images, armies of sylphs may appear to us. I would not be far wrong if I said that these beings are deeply inserted into our unconscious. We can say that somewhere in the depth of our existence there crawl, move and weave and work the elemental beings. But if we are to find the gate that for our consciousness opens into this world, one special sphere is necessary.

In approaching this gate, we need not meet the elementary beings. Please listen carefully: we need not meet the elementary beings, but we meet their opposites, their mirror-images, the shadows of the elementary beings. This means that we must build up a kind of looking glass into the world of the elementary beings, and, in doing so, we meet the world of the insects. The world of the insects is the mirror producing a shadow-image of the world of the elemental beings. This we need to take hold of. Therefore, we should study the whole kingdom of the insects.

The world of the insects intersects with the plant world in a way different from that of other animals. In the same way that the elemental beings build plants from root to fruit, the world of the insects is related to the plant world. We know that without plants, no animal could live. But the life-cycle of the insect world is the polar opposite of the growing, ripening plant. I only need to remind you how, for instance, Rudolf Steiner has drawn our attention to the beautiful interplay between flower and butterfly. It is not just poetry, it is true, if we are told that the butterfly is a free flower and the flower is a fixed butterfly. The bees, for instance, are connected with pollen and stigma. The beetles are connected with decaying substance, with the waste products of the plant world. I only need to remind you how each particular species—of beetles, of flies, of butterflies—interacts with specific trees, bushes, and vegetables. To describe plants without insects or insects without plants is hardly possible. A new science of nature that will pay proper attention to insects will be possible only if the whole world of the plant is also described.

If you realize that insects are a very special group among the animals, you can find a way not only to understand them, but, through them, to come closer to approaching the elementary beings. The insect world does not, like every other animal, vertebrate or invertebrate, consist of single individuals. This idea is a superstition. As soon as you start to imagine that a louse, worm, fly, or any other insect is comparable to an individual animal, you already bar your way to the world of the elementary beings. Rudolf Steiner drew a circle of the twelve classes of animals (Fig. 41.)

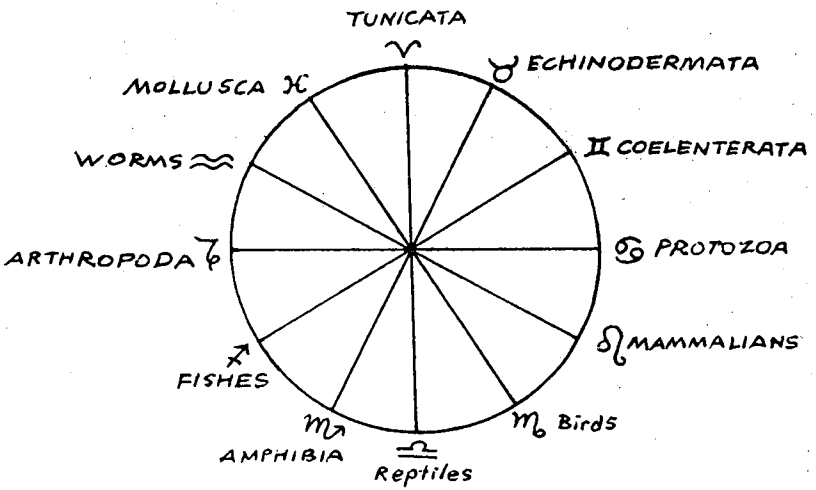

Fig. 41

He placed the insects opposite the Protozoa, the vertebrates opposite the invertebrates; they mirror each other.

The development of insects is something very special. No other class or group of animals shows a similar type of metamorphosis. Whether we consider the more primitive insects or the more highly developed ones, we see that there is always one very special thing that brings this metamorphosis about, organically. Through each step of metamorphosis—and there can be many steps, gradual, or more revolutionary—one thing is achieved: no insect, when hatching out of the egg, is endowed with wings.

After the insect hatches the wings grow, develop, and unfold, step by step, until in the end the imago is born. The imago is endowed with wings, and is usually the last stage, often a short one, by our reckoning. If we imagine that such steps of metamorphosis in single insects or groups of insects can take up to twenty years until the wings have grown, we will understand that this growing of wings is a very special step of development. We can perhaps define the steps of metamorphosis as follows: first of all there is embryonic development; then there is a stage which we can call the "caterpillar." As we imagine the caterpillars, we remember that thousands of species of insects do not grow beyond the caterpillar stage (centipedes, millipedes, etc.). Then there is the stage of pupa or chrysalis, and finally the imago. Now it is not necessary that these stages are exactly interlocked, as they are in butterflies, where we can clearly see the first, or egg, stage, then the caterpillar, then the pupa or chrysalis, and at last the imago. The changes can, for instance, go gradually from one stage into the other, as in the development of a vertebrate animal. Usually, however, there is something that keeps the pupa at rest, a waiting period until the birth takes place. We would be quite wrong to believe that these three stages, peculiar to the insect world, are similar to the development of any vertebrate animal, because here it is not an individualization—but something entirely different—which takes place.

In the embryo, the whole idea of the three-fold insect (head, thorax, abdomen) is very soon outlined. We may even receive the impression, from the embryo, that this strange being is somewhat conscious. I don't mean that it has an ego-consciousness, but that in a state of embryo, the insect world has the possibility of becoming aware of its existence. As soon as the caterpillar stage is reached, however, this awareness becomes a dream, and with the pupa or chrysalis, it goes to sleep completely. When the imago is unfolded, this potential being is now in a complete trance. It is in a stage of consciousness whereby beings are completely given up and become nothing else but organs of the cosmos.

Perhaps you can start to grasp now what I mean when I say that all other animals are meant to go the way of individualization. They are near us and are somewhere part of us, because they go the way of incarnation from egg to animal form. Insects go the opposite way: they go the way of excarnation, and the further they unfold and develop, the less they are. A butterfly, a bee, a grown-up beetle, all have become organs of the spirit of the world. They do not grow together, they do not condense in order to meet, from within, the world around them. They give themselves up and become part of that world. If we can begin to understand this, we will take the first step towards finding the gateway to the world of the elementary beings.

At the present stage of evolution, man has to depend on his etheric body for the means of soul activity, and on his physical body for that of spiritual activity. The physical body, which provides, through the senses, the instrument of the spirit, is not capable of getting in touch with those beings who are at the foundation of the physical world. The same applies to the etheric body, which is necessary for the development of the human soul. Because of this, man is unaware of half of what surrounds him on earth. All that comprises those elemental beings escapes him; there is no way that he can approach them through his physical and etheric bodies.*

Discussion

A question is asked as to whether the elemental beings reveal themselves differently throughout the seasons.

Dr. Koenig: During the winter and summer and spring and autumn the insects are simply the mirror of the elemental be-

*Rudolf Steiner: *Man as Symphony of the Creative Word.* GA 230.

ings and of how they display or do not display themselves.

Perhaps it would help if I would still say [pointing to the words: "embryo," "caterpillar," "pupa," "imago"], this is the world of gnomes, this is the world of the undines, this is the world of sylphs, this is the world of fire-spirits. Because it would be wrong to imagine, for instance, that the beetles are the gnomes, or the butterflies are the fire-spirits. It is the whole world of the insects which is a unity—one world. A single insect is not even a cell; it is a tiny little brick of one cell within the organ of the insect world and the many different species are the cells. Therefore, the entomologists are hardly able to count the number of different species over the whole world. I think 75% of the different species of the whole animal kingdom are insects. I seem to remember that there are special lists simply for dragonflies. It is quite impossible to know every species.

Question: Could you say something about the Protozoa?

Dr. Koenig: They are simply single cells. Protozoa are the waste products of the developed animal kingdom. The modern scientific mind, turned to the waste products, thinking to find the archetypal laws of everything there, only finds the shadow of it. The cells are the shadows.

I give you a picture which the doctors especially can understand. We have twelve cranial nerves. These twelve cranial nerves are such that eleven of them are entirely concerned with structures and organs of the head, eye, ear, nose, and so on. But one of these nerves, the vagus nerve, goes down into the whole body and spreads out into every organ. This is the same as the world of the insects among the animals. The insects go down into the whole kingdom of the plants and unite with them. The cows eat grass, the elephants break trees, the fish eat up all the leaves of the waterplants. But the insects unite themselves as a counter-image of each single plant. Can you understand what I mean? Therefore, it is impossible to compare an ordinary animal with an insect. The insect is the opposite. How much it is the opposite we will see tomorrow.

Agricultural Conference

6-12-62

Lecture II

We have been trying to find a gateway to the world of the elementary beings. First of all, we attempted to relate the sphere of the elementary beings to the whole world, to the cosmos and to the spirit "beinghood" of this cosmos (which is our planetary world). I don't think it is possible—at least in the form of speculations—for men of today to go beyond our cosmos. We can only divine that other cosmic structures and beinghoods also exist. But our cosmos is in some way ordered so that there are the beings of the hierarchies, our spiritual guides, after whom we are made and built. Then there are the nature-spirits who turn our day into night, and our nights into days, who make us live and breathe, suffer and enjoy existence in this world and grant us life in the spirit world. And our bodily nature, except for the living element in it, ensouled and inspirited, sometimes described by Rudolf Steiner as the astral or ethereal sphere, bears in itself a structure of living cells. I do not mean the cells of our organism, but the cells of the astral world.

These cells are the elementary spirits, the elementary beings. We must imagine that these elementary beings are continually alive, are on the move, are weaving, working, striving, continually coming and going. We learn from Rudolf Steiner's lectures, for instance, how the undines move up during summer, with the rising colors from the oceans, into the

spirit-heights, in order to be consumed, received by the hierarchies. The sylphs have the same longing simply to come up and to be inhaled by by hierarchical spirits, while it is the drive and the aim of the fire-spirits, the salamanders, to be beheld, to be seen, by the eyes of the hierarchical spirits. "Thereby," says Rudolf Steiner, "they have their eternity (*So haben sie ihre Ewigkeit*)." They again become part of those beings from which they once divided.

Dear friends, to imagine the world of the elementary beings means to see them continually on the move. In moving, they experience their existence; in wandering, carrying, hovering, flying, they have their life. Rudolf Steiner describes, for instance, how, for the gnomes, the whole globe of the earth is not hard and solid; through the metals and crystals, through the rocks, everywhere, they reach with their movements. Migrations of the elementary beings go on continually. This is the world of these beings. We must learn to understand, however, that these wanderings are not wanderings in space, because for them there is no space. Their wanderings are in time. So that, for instance, in the time-space of the world, of the Platonic years, the gnomes carry the form of the earth into the next stage of this earth evolution; the undines move in the process of the consciousness, the sylphs and fire-beings in the time-space of days. We may say that time becomes space for the elementary beings. We must acquire these thought-forms step by step, in order to draw near to the elementary world. With our ordinary thinking we cannot do it. We must learn to imagine that their space is time, and that the time-cycles are simply the abode wherein they move and migrate, and that behind this migration through time they reach their Nirvana, when the eyes, breath, and digestion of the hierarchical beings take them in again.

If we can more and more think, imagine, and realize such things, giving a certain amount of understanding to these beings, then we will hear the cries which they extend to us. Then we become more awake. Then we learn to imagine in terms of the spirit.

When we turn to the whole world of the insects, we can see how a study of the insect world helps us to find the gateway into the world of the elementary beings; this is because the insects are a kind of mirror-image of the elementary beings. When we look at the beetles, bees, flies, maggots, and so on, we experience the shadow-image of this living world of time, wherein the elemental beings have their existence. And, in terms of their metamorphosis, this insect world cannot be measured by the criteria which we apply to all other animals, because insects are not the usual type and form of animal. If I had to divide the animal kingdom, I would say that the **Arthropoda** (the whole group including the insects) can be called animals only under certain conditions.

If you draw near to the sphere of insects, you will find two outstanding things which indicate that sphere. One I mentioned yesterday, although I gave you an entirely wrong figure. The whole insect world, so far as we know now, has 750,000 different species. Experts think that there may actually be over a million species in existence. At least 75% of all animal species are insects. It is impossible to imagine what this means, especially since each species certainly has millions and billions of individuals. The true world of insects exists both underneath and above the surface of the earth, as well as upon it, from maggots to caterpillars, pupae and imagos. Those who have spent a few weeks in South Africa or in the tropics or even in North America will understand that the number of insects in the world is unfathomable. Here in Scotland, one cannot imagine a place where, if the windows of every single room were not protected by wire screens, the house would be filled with millions of insects all day and all night. And even in Germany, about 15,000 different insect species are found on each apple tree not sprayed with poison.

If we consider this, we can begin to realize what the world of the elemental beings is; I don't think they are any less numerous. The insects and the elemental beings hold each other in a kind of equilibrium. Although we can see (and often do not like) the one, the other is also there, and in tremendous numbers.

The second outstanding quality of the insect world may be suggested by the following thoughts. If the insects buzz, hover, creep, and crawl around us, we can hardly bear it; at least it is difficult for me. But if you take, for instance, one insect and look through a magnifying glass at its structure, it is absolutely unbelievable. It is impossible not to be astounded by the face of a fly or a spider, the leg of a bee, the tools which stick out of the butterflies, or the colors and shapes of the wings of any of the insects. Dear friends, if this were lifted up into the space which is common to humanity (so that, for instance, the face of a fly could look at us and we at it with unbiased eyes) it would be an incredible phenomenon. Just look at the forms of a dragon-fly, a grass-hopper, or a walking stick! Look at the colors! It is a wonderful, incredible world (even more so when magnified), but hard for us to understand, perhaps even a bit forbidding. Morality seems to have no place in it at all; what we call morality is foreign to the insect world.

If we investigate and describe in detail what science calls the eye of the insect, we can see that it is something quite different from our eyes. It is a lens multiplied—eight, ten, twelve thousand lenses put together—but we cannot call it "eye." Or if we look at the feelers, the legs, or the jaws, we find definite forms there. The jaw is like a pincer.* A whole world of tools appears with the insect; what we place around us—a pair of scissors, a brush, a comb, a knife and fork—is all there. Can you imagine this? Here are the implements of our bathroom, kitchen, and dining room, but in an organic form; these elements are all part of an organism which—unlike our implements—reproduces, grows, metamorphoses, eats, and excretes. In this sense, it has all the features which any other animal has; still, it is something different. (Fig. 42)

Let us return to the image of the earth's surface. Over this surface there spreads the hydrosphere, the atmosphere, and the sphere of warmth, where the world of insects can be found. Now perhaps we can begin to understand what Rudolf Steiner meant when he described this continuous belt of warmth, held

*Dr. Koenig showed greatly enlarged photographs.

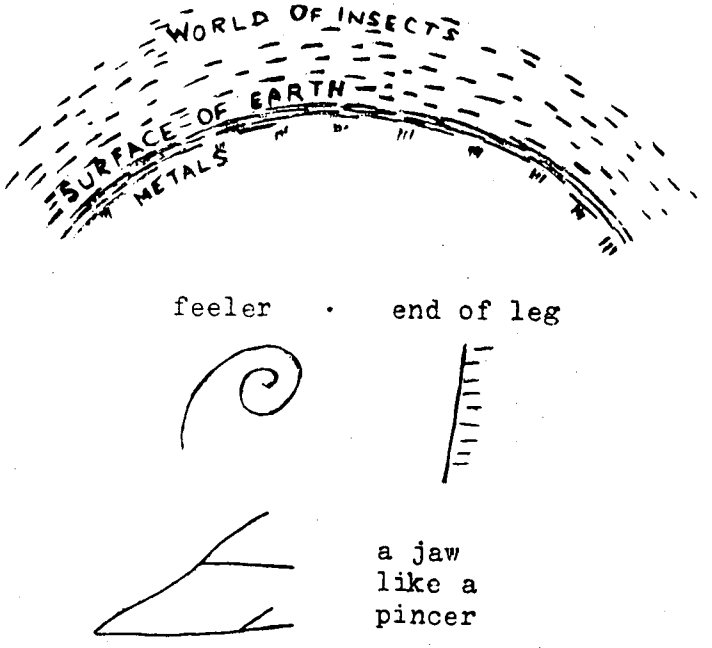

Fig. 42

by the spirits of warmth. But since we can also see how, here below, the embryos of insects start to develop, how the caterpillars begin to creep and come out and gradually turn into the imago, can we really divide the surface of the earth from the belts of insects? Are we not much more alive to reality if we say that insect development is a remnant of what, once upon a time, the earth was. Gradually the earth condensed. The whole world of insects indicates, stage by stage, what the earth has been. So we have to imagine up here the image, here the crysalis, here all the different forms of caterpillars, and here the embryo. You

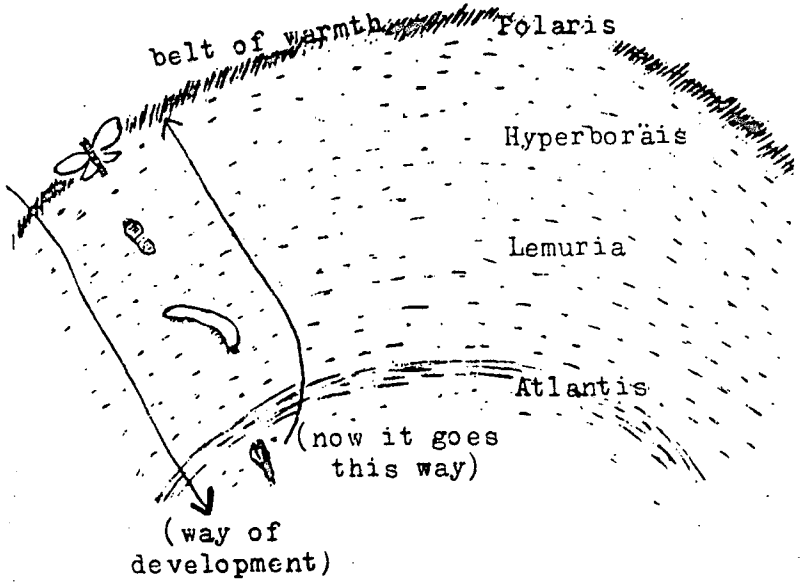

Fig. 43

know the four stages of development. I spoke about them yesterday. Is it not so that Polaris, Hyperborea, Lemuria, and Atlantis show us the four stages of insect development? In the Polarean epoch there were the archetypal images (not physical yet, but in the form of warmth) of all the imagos. Then the earth gradually evolved into the Hyperborean epoch. There the archetypal images of the chrysalis and the pupa developed. The silkworm, for example, with its pupa which is all sun, condensed rays of sun, is here formed out. This is more and more condensed in Lemuria: water appears and, with it, maggots and caterpillars. All this is now developed physically, materially. Only in Atlantis is the embryo built. This is the true sequence of development, in time, of the insect world. The insects now go through the stages of metamorphosis because they want to go back into the past from whence they came. (Fig. 43)

Dear friends, to speak of 700,000 different species in the insect world really is as nonsensical as to speak of each insect as a single being. If we begin to understand this, we can say that all the insect worlds are the memory of the becoming of the earth. Just as we cannot describe the face of our earth without describing the world of plants, so we cannot describe the becoming of the earth with out describing the insect world. The insect, the plants, the earth—they are one. Can you understand what I mean when I say the insect is quite different from any other animal?

Now, why are they so strange? Why do they look at us so directly? What is it about them that makes them different?

If we go into the anatomy of the insects, we learn that they consist of three different parts, the "head," the "thorax," and the "abdomen." These three parts have gradually developed out of a much more primitive form, a form we can imagine if we see a caterpillar or a worm which consists of segments. A certain number of segments together build one part, the abdomen, for instance. A few (usually three) segments build the thorax, and the rest build the head. These are the main parts of insects. Spiders, for instance, differ in their structure (i.e., the chest has swallowed the head); they only consist of two parts, a cephalothoracic part and an abdominal part. Now what is called the "head" of an insect is similar to that of the other animals, the center of the so-called sense organs. The huge eyes, for example, take up the greater part of the head space. Then there are these very strange tools which stick out like brushes and feathers and claws and scissors and all the rest. The thorax part is the breathing system, and you all know that the breathing in arthropods and insects is very special; with the exception of the spiders, these creatures have no lung. Even the spiders have, instead of a lung, "lung books," so named because they consist of many pages. The thorax always has three pairs of so-called legs, very dominantly arranged. Then there is the abdominal part. In this abdominal part there are the stomach, intestine, liver, sexual organs, everything; all this is centralized here. The head (you will guess this) has of course no brain; there is also no spine

and no spinal cord, although there is a network of nerves which, in the insects, goes along the frontal part instead of the hind part. So everything is actually the other way round.

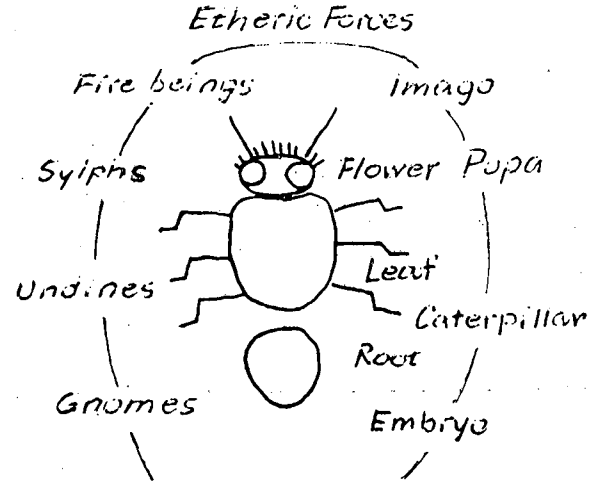

Fig. 44

Dear friends, what kind of structure is this? Can we really call this a head, an abdomen, a thorax? Or is there some distinct difference between the insects and all other animals? Is it not just a matter of agreement to say "this is a head organization and a thorax and an abdomen"? Remember the drawing which we find in Rudolf's Steiner's lectures on the elemental beings* where he quite consciously depicts the plant in a certain way? Is it not much more for us to imagine flower, leaves, roots, parallel to the insect? Whereas in us the inner plant is turned the other way round, here the whole structure fits together. What we call the head of the insect is, in the plant, a flower, what we call the thorax is a leaf, and what we call the abdomen is a root. (Fig 44)

*see Man as Symphony of the Creative Word. *GA 230

What then do we meet, in the structure of the face and head of an insect, or of its legs or abdomen, if we try to grasp the inner experience of these beings? How do they live? Do they altogether feel, experience themselves? Somewhere they must, because they move, they reproduce, they live in light and air and sound. My impression is that in the head they are completely asleep, have no consciousness whatsoever. If we study all their tools and so-called sense organs, we understand that these are organs on which the powers of the world play. It is not the insect which sees through the eyes; it is the light and color of the world which look into the eye of the insect. The cosmic powers experience themselves in the center of this space, but the insect—the group-soul of the insect, the astrality of the insect—sleeps completely and fully here.

In the thorax, a certain dreaming state begins to wake up, although we should not imagine that the insect's movements are motivated from within. The powers from around move the thorax of the insect. The air goes in by the trachea and it is the wind and the water and all the elemental powers that make these so-called (and I always say so-called) limbs move.

Only in the abdomen does a certain amount of waking up come about; it is here where poison is produced, where the sexual glands are laid out, where the organs act. Here, for instance, the spiders have their spinning glands, the excretories, which produce a very special fluid that hardens into silk the moment it comes in contact with the air. In the spiders we can visualize, even experience, what never actually comes about in the insects. Such a spider's web, for instance, is nothing else but an image of the kind of organ of becoming awareness. In this web the spider, so to speak, has its low-grade, "becoming" awareness.

But can we really speak of a head organization? I said that the cosmic powers find themselves in this space as a kind of central point; the circumference, the sphere, in a billion-fold way has, so to speak, its focal point in the heads of the insects, which may be compared to flowers. Which powers are these? They are the powers which Rudolf Steiner calls the ether

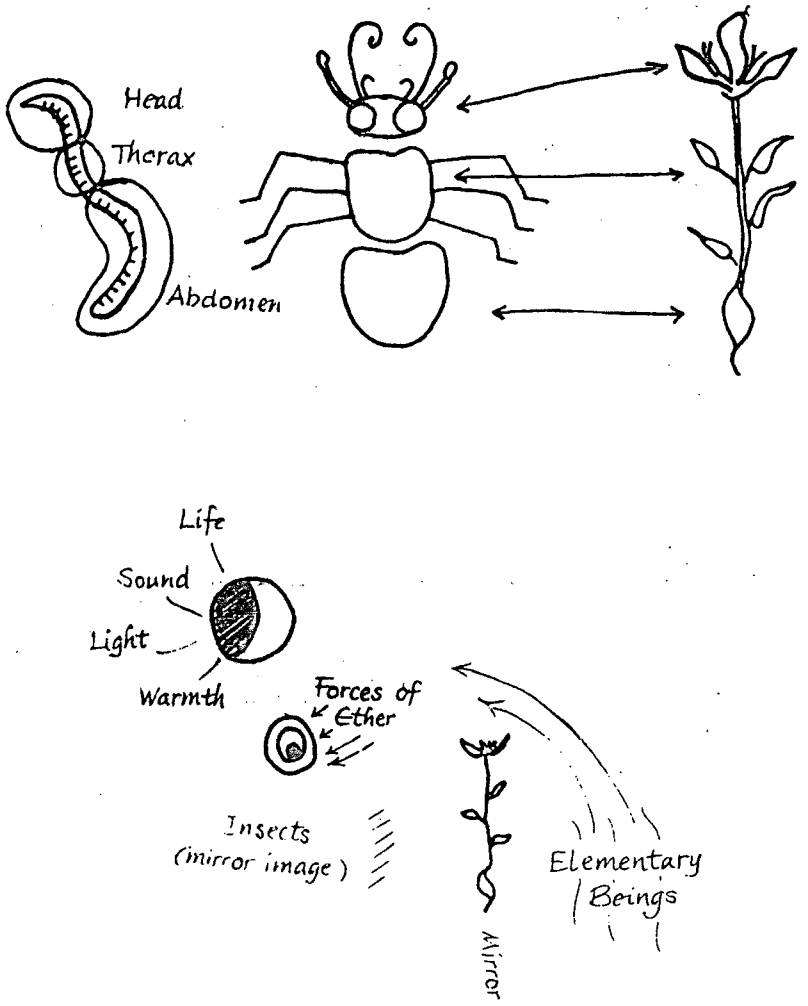

Fig. 45

forces: the powers of life, sound, warmth, and light. One can actually enumerate the different tools of the head, and it is very interesting that there are not (as in the thorax) three but four powers represented: the ether warmth, the ether light, the ether sound, and the ether life. In the head of the insect they find the "eye" wherein they can behold themselves.

We can now come to a first conclusion. Here we have the world of the insects (see Fig. 45), and we shall imagine how the totality of the insects provides in their head organization, the focal points for the four forces of the ether world. We know that, on the other hand, the elementary beings have their existence and life here (see Fig. 45). Here there is a kind of living mirror. The elemental beings find themselves consciously in the world of the insects; they live together with them. This whole world is a mirror-image, a material-substantial shadow, of what lives and weaves and acts behind the mirror.

Behind all this, dear friends, there stands a great threefold existence, a threefold existence of which we are going to speak tomorrow night. Behind all this there stands the threefoldness of sulphur, mercury, and salt. These are the three great powers which are the beings, the true beings, of the insect existence. These are the three great powers which formulate the whole living existence of nature within and around us: the power of salt, the power of sulphur, and the power of mercury. And if we call the insect body threefold, we must understand that the head of the insect is the image of the power of sulphur, the abdomen is the image of the power of salt, and the thorax is the image of the power of mercury. It is of very great importance for farmers and gardeners that these great powers, these three great beings of salt and mercury and sulphur, direct and guide and rule all the living forces, whether of insects, elementary beings, or the fourfold structure of light, sound, life, and warmth.

Discussion

Comment: At the end of your explanation you spoke about sulphur, mercury, and salt in relation to the insect, but not to the plant.

Dr. Koenig: No, because (and this I will try to explain tomorrow) this [pointing to the drawing] mirror is the plant. Do you understand? Here is the flower, here are the leaves, and here the root. But I will speak about this extensively tomorrow. The plants are the living mirror between the insect world and the elementary beings, and through them flow the etheric forces. This is all four-fold, but it is also threefold because of the great power that stands behind it.

Question: Will you speak more about the spider in this connection? The spider is twofold instead of threefold, and I cannot get it into that picture.

Dr. Koenig: It is outside the picture. The spider is no longer an insect. The spider has become something which does not go in the ordinary line of development. If you are afraid of spiders, you are quite right; if you are not, it is not so good. Human beings have to be afraid of the spider because it is not threefold anymore; the dream stage is, so to speak, swallowed up. The spider is no longer given up to the etheric forces: therefore the head of the spider, for instance, has nothing of the appendages which all the insects have. You will never find any kind of antennae or any kind of jaw or anything like this. The spiders have huge eyes, and there is nothing else. They are cut off because they want to be much more conscious. They have turned away from being given up to the powers of sulphur. You could say: "For the spider, sulphur does not exist; there is salt and mercury, and this is the world of the spiders."

Question: It is interesting to see what the spider catches.

Dr. Koenig: For the insect world, you have to change your form of thinking when you say such things as "kill," "eat," or "live." I will give you an example. When insects reproduce, they have a kind of sexual mating-life that is very strange in many ways. They behave in these acts almost like what we know from gruesome fairy-tales. But if we really try to understand this, we can say: here a primal expression of thought life comes about. As a result, embryos develop in the insect world in the same way that ideas develop in human beings. I especially refer to the powers of sexuality because they are directly connected with the life of thinking.

It is a superstition to believe that the insect sees the world; on the contrary, the world sees the insect. Don't think insects see you—they experience your hand. The sting of bees, for instance, is the first waking-up, and then they die. Read the lecture of Rudolf Steiner about bees, and you will understand.

Question: What happens if insects become a plague, like locusts or so? And what happens if we burn these insects to make "pepper" out of their ashes and spread it over the land as repellent?

Dr. Koenig: I would not be able to answer this so straight away because I don't know. Our human thoughts are quite unhelpful. It is quite inadequate to call these insects "pests," because for themselves they are not pests. If we want to keep an equilibrium in nature, "pests" can provide the greatest healing. Today we already know that we have to introduce pests in order to kill pests.

Question: What effect has it on the elemental beings, if we start to destroy some insects because we do not like them?

Dr. Koenig: I don't think it has any effect if we do it with the right intention.

Agricultural Conference

7-12-62

Lecture III

We have tried, in the course of the last two lectures, to draw near to the world of the elemental beings, in order to gain insight into a kingdom which our forefathers knew and which has been brought near to us again through the work of Rudolf Steiner. We have tried to find a new approach and attitude to this realm, based on the verses in which Rudolf Steiner draws our attention to the admonitions which the elementary beings cry out to man.*

We have also turned to certain examples in the world of nature in order to gain an understanding of the world of the elementary beings. We have described, for instance, how the whole kingdom of the Arthropoda (and especially the insects) is related to the elementary beings in a special way. We could even say, when studying this vast unfathomable world of the insects, that we find in them the shadow-images, the mirror-pictures of the elementary beings. We have also tried to look at the being of man when he really develops his human qualities. All this has really been a manifold attempt to come near to the world of the elementary beings, and without romanticism or any mention of *Gartenzwerge* (garden gnomes) or talk of little elves and fairies. Nevertheless, dear friends, in spite of

*Man as Symphony of the Creative Word. GA 230.

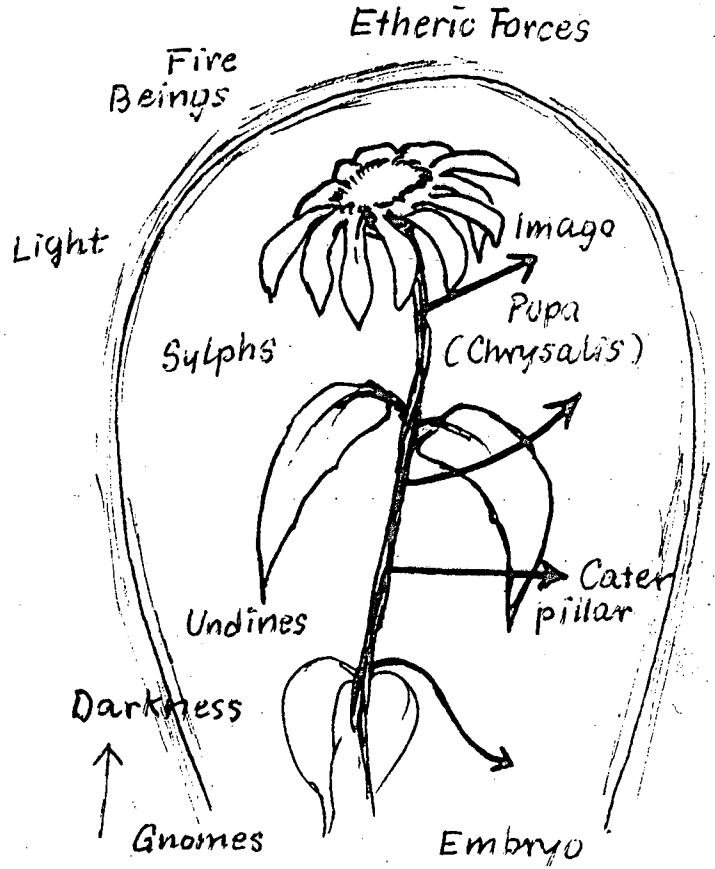

Fig. 46

these efforts there is one great question which has run like a thread through all these days and attempts. It is: "how does man himself stand within this whole world?" Time and again the question arose among us: what have we to do with this world? How does man himself stand within this world? In *Man as Symphony of the Creative Word,* Rudolf Steiner describes, in very special verses, what the elementary beings have to say. They speak, but man remains absolutely silent; man is spoken to, but he gives no answer. It appears that we have nothing to do for and with these elementary beings.

Yet the question facing all of us who have gathered together in this conference (and I think it is a burning question) is: "What should be man's relationship to these beings?" Is theirs a world which man has lost entirely? Is he meant to regain this world consciously again? Should he draw near to the elementary beings? What is he to do? Although this question will not find a ready-made answer, it may, in the course of the following discussion, find a certain explanation.

Before I elaborate, let us go back to yesterday morning, when I described (with reference to Rudolf Steiner's picture) the plant with its petals, ovary, stem, leaves, and root. Rudolf Steiner describes how the gnomes, undines, sylphs, and fire-beings work in these different spheres. May I remind you that we learned to see the world of the insects as a kind of mirror-picture, not by looking at all the different species, but by observing the developmental stages as a whole: out of the embryo of the insect there develops the caterpillar, the pupa, or the chrysalis, and at last there appears the wonder and beauty of the imago. In this realm (see drawing), we drew all the etheric forces connecting both worlds. And then we learned that the plant itself, the archetypal plant which lives within every plant and tree and bush, is the mirror which throws the images of the insects into the world. These images of the insects have their realities in the domain of the elemental beings. Fig. 46

This is the first image. May I remind you that this whole world has, of course, a tremendous history behind it, a history

which goes back to the beginnings of the earth, when th earthly globe was much bigger, much wider, much greate Step by step, through the stages of Polaris, Hyperbore Lemuria, Atlantis, the hard matter of this earth solidifie more and more, and the different layers of the insect deve opment remained around the earth. The elementary being came with the earth. The insects come and go back again. Her is something we have to learn to understand.

As soon as the plant was no longer outside the earth, n longer in a "coming-and-going," floating existence,* it at las took root with this gradual forming process, with the condens ing and hardening of the earth. In evolution, this is the las process. First there were fruits and seeds; then there wer flowers; then came the leaves; and finally the roots forme out. But as soon as the roots had formed out, in this evolution ary process, somethng happened with the plant; it began t manifest what Goethe called "a revealed secret." The plan began to show that it is not only fourfold but that it is going t have a threefold existence. From above there streamed ligh from below there streamed darkness—and between light an darkness, the world of the colors appeared. A revealed secre came into existence.

As soon as this secret became revealed, it mirrored th insect world in such a way that this threefoldness appeared i the imago. Dear friends, instead of describing the plant, I onl need to indicate the archetypal form of the insect world: firs the so-called head organization, with the huge eyes, feeler and antennae; then the thorax with the three pairs of legs; an finally the abdominal part. You can see that this is the mirror image of the flower, the leaf, and the root. We have alread spoken about this. Within the fourfoldness, threefoldnes reveals itself. (Drawing of Etheric Forces here.) This is one o the most important steps in the evolution of the world, tha out of the fourfoldness of nature the threefoldness—and w

*As when, according to Rudolf Steiner, greeness appeared and disappeared, whe within the silica of the air and atmosphere plants came into being and withere away again.

ght say the threefoldness of man—became apparent. With s step an entirely new development in the whole process of th evolution was reached. We could also say: out of the rfoldness of Mars the threefoldness of Mercury began to lve. But the threefoldness comes into existence only grad- ly, step by step.

Men have tried to understand this threefoldness. They ve found different ways to describe it. The French philos- her Louis Claude de Saint-Martin, in his book *Des Erreurs de la Verite (Of Errors and of Truth,* 1775),* used termin- gy which shows his attempt to understand this threefold- ss which gradually appears in man, in nature, in chemistry, d in the human soul—in every fourfold creation where a reefold form, a threefold "beinghood," is gradually born. int-Martin, for example, speaks about salt, sulphur and ercury. This is how he tried to grasp what the alchemists of e Middle Ages—whose pupils were men like Paracelsus and ob Boehme—had also tried to understand. In very moving rds, Rudolf Steiner (in the lecture on the Rosicrucians hich he gave in Neuchatel in September, 1911) spoke about e way in which Rosicrucian scientists, or alchemists, began draw near to this world of salt, mercury, and sulphur. He scribes how the true alchemists used only the outer proc- ses that happened in front of their eyes to produce certain anges within the soul, effecting a transformation through attitude of prayer. They watched how, out of the solution, e crystals of salt were gradually condensed, how the beauti- forms of crystal processes emerged, how copper or copper phate formed itself out. And within their souls they started think: "If I cannot overcome my drives and emotions by the t-forming process of my thinking power, if my thinking wer does not crystallize through inner effort, I will be born my coming life with conditions of illness and destruction." hind the forms of the crystal there appears divine wisdom. these alchemists, sal or salt was not at all what we call salt day. Sal was a description of the ways of God, reaching right

ranslated into German by Matthias Claudius.

into the minutest atom. Divine wisdom, reflected in material substance, appears in sal.

And when they looked at sulphur, they could only take hold of it if they tried to burn substances, observing how each substance burns in a different color, how two and three substances burn off in a mixture of colors, how the smoke arises, how the ash falls down. And again, beholding this in a prayerful attitude, they began to understand that behind this process there was a sacrifice of the Gods. They sensed that the lower gods sacrificed to the higher gods. Divinity sacrifices itself to higher divinity. This is the process of combustion here in matter. In themselves, they experienced how giving oneself up to man and nature means the realization within one's soul of this process of sacrifice. And mercury was seen as a process of dissolving, just as that which had condensed, dissolves again. Witnessing this dissolving, they learned to experience: "This is nothing else but divine love." Divine love in mercury, divine sacrifice in sulphur, divine wisdom in sal. These were the experiences of the Rosicrucian alchemists when they looked at the experiments taking place before their eyes.

What Saint-Martin describes, however, was an end. It was not a new beginning; it was the end of an old view, of the old possibility of thinking in terms of salt and sulphur and mercury. Modern man is quite unable to do this. Today we can no longer speak in such terms, because they are foreign to us.

If we now consider the calls which the elementary beings extend to man (out of which, according to Rudolf Steiner, there sound the formative powers of the Word of the World, building the human limbs, metabolic system, rhythmical system, and sensory-nerve system), we realize that the voice is a fourfold one.* We discover that these are not only four voices but four streams, two of which become one when they work in

*Man as Symphony of the Creative Word.
System of Movement. Gnomes: "strive to awaken."
Metabolic Organization. Undines: "think in the spirit."
Rhythmic System. Sylphs: "live creatively breathing existence."
Nerve-Sense System. Fire-beings: "receive in love the willpower of the Gods."

man. The limb and metabolic system are one; then there is the rhythmical system, and the nerve system.

You would have to read these lectures by Dr. Steiner in order to understand fully what I mean. The call of the elementary beings to man is a fourfold call, but in man (in as much as he is a being of nature) this fourfold call turns into a threefoldness. And the threefoldness of the old Rosicrucians—salt, mercury, and sulphur—has become in modern man the metabolic-limb system, the rhythmical system, and the sensory-nerve system. A threefoldness is developing out of the fourfoldness.

Dear friends, this realization of the threefoldness, an insight revealed by Rudolf Steiner in 1916 and 1917, is an insight that he carried within himself. The realization that the threefoldness of the human body and soul, and of thinking, feeling, and willing, are interwoven and interconnected with the sensory-nerve system, the rhythmical system, and the metabolic-limb system, is the first step for a modern spiritualizing of human knowledge. Can you understand what I mean? The elementary beings call out in four voices. But these four voices are more and more turned into a threefoldness. This threefoldness is not something which existed all along. It is something which begins to come to birth only step by step. And the more vividly we learn to think in terms of threefold man, the more will it be possible for us to draw near to the fourfoldness and to the elementary beings, not to reproach them, not to preach to them, and not to romanticize about their existence, but to teach them the threefold nature in such a way that if we go out and look at the different flowers in spring, summer, and autumn, these different flowers become for us a voice. They speak to us, dear friends, in such a way that we learn, through the spring flowers, how in our souls we try to lift ourselves up to the heavenly spirits. In the autumn flowers we feel our own darkness; we feel our mistakes, our errors. And in gradually learning this communication, we begin to understand that the world of flowers around us is the spread-out conscience of man. This mood is what the old

alchemists, the true Rosicrucians, experienced when they spoke about the sacrifice of the gods in the process of burning, of sulphur. Or if we go out in the morning and see the different forms of the dew, where all the colors of the morning light are mirrored, and our souls are filled with the joy and wonder of this renewed life, when the darkness recedes and the sun appears, when our breathing is enhanced and enlightened, when we feel freedom within ourselves, then we begin, like the Rosicrucian alchemists, to experience the care of the gods. And when we follow up the different forms of the roots—the heavy ones and the light ones, the crystalline ones and the bizarre ones—we understand that within the roots lives something which holds the plant fast and keeps it down to earth; we learn that this is the same salt process which had formed and can still form the power of our thoughts.

If we learn to do this, if we learn to communicate with the world of the plants, not seeing them only as fourfold beings, but seeing within the fourfoldness of nature an image of the threefoldness of man—then, dear friends, the elementary beings will begin to stop mocking man; they will suddenly see: "We wake in the spirit, we think in the light, we do not refuse the powers of divine will which are coming to approach us." Without our speaking to them, their faces will change—because it is their greatest desire to learn what man has to teach them and to behold what then develops as joy, as conscience, as the power of strength in thinking. If hope and love and faith begin to grow within our souls, then the spiritualizing of the whole world of the elementary beings begins to come into existence.

As a background to all that I have tried to say, let me go back to certain indications which Rudolf Steiner has given to us. Time and again, in lectures from the years 1906, 1907, 1908, he explains the following archetypal law: wherever in the world space is assigned, there rules the number 12 (the twelve signs of the zodiac, and so on); wherever time is assigned, there rules the number 7 (seven planets, seven metals, seven days of the week, etc.). Why do I mention this? Because,

within the 12 and the 7 there rules the 3 and 4. Because 3×4 is 12, and 3 + 4 is 7. And this relationship of the 3 and the 4 of man and nature brings about a new revelation of time and a new revelation of space; the old time and space gradually fall away and give rise to an entirely new time-space perception.

If we now dare to ask a last question—at what moment did it come about that man, out of his fourfold being, began to unfold a threefold existence?—then there is only one answer. This answer is simple and obvious, but also shattering: it happened at the moment when man began to speak his first words—when in the Atlantean time, within the population of the Rmoahals, the first spoken sounds came from within the human body, when the Tlavatlis began to converse, when gradually the beings who introduced language into man withdrew and the human ego itself grasped the word. From this moment on, the natural existence of man—the physical, etheric, and astral bodies and the Ego—began to develop into the threefold existence of the metabolic-limb, rhythmical, and sensory-nerve system. What in the insects, dear friends, is nothing but a kind of mechanical image which is fixed and immobile (head, thorax, abdomen), is a mirror-picture; in man it has started to be a seed, a seed which is continually renewed by the word, by language, by conversation, by communication.

MERCURY
SULPHUR
SAL

12 $3 \times 4 = 12$ 7
$3 + 4 = 7$

MAN NATURE

Once we learn to grasp this, we will understand what Rudolf Steiner means when he says, in a lecture entitled: "Spiritual Science and Language," that the whole human body is designed to be the bearer of the human voice.* The larynx, out of which we speak, still has a fourfold form. It consists of four differently formed cartilages. But within this larynax there unfolds the "plant" of the human voice. From above there come the thoughts, and in the center there appear the words. And out of these words the feelings, which come from below, are perceived. From this threefold Word, the threefold existence of man gradually emanates, forms itself out, mirrors itself.

*GA 58/59, Jan. 1910.

The Earthly and Cosmic Nutritional Streams

10-15-53

Lecture I

It is particularly important that doctors and farmers be willing to discuss a problem such as nutrition together, and I feel that on these mornings I should not give you a series of lectures, but we should rather devote our time to the common study of one of the most important problems of mankind, that of nutrition. I hope we will be able to consider this in connection with all that Rudolf Steiner has said on this subject in the course of his teaching. I think that we are nowadays insufficiently aware of the importance of this subject and of the deep layers of morality which are connected with it. The subject is mysterious and tremendous at the same time, and one can only approach it step by step.

I would like to say this as an introduction. Those who have closely followed the writings of the pupils of Rudolf Steiner throughout the last, say, ten years, will have noticed that a great change is taking place, a change which, being also a pupil of Rudolf Steiner, I have experienced within myself. To begin with, say, from 1925/26 until 1935, we were simply

enthusiastic. We went into the world proclaiming the threefold nature of man, the cosmic and earthly nutrition streams, the unreliability of the motor nerves, and so forth. We thought that we need only look around the corner, and these problems would be solved in a simple way. We were too sure, and because of this assuredness the problems were not considered earnestly enough. But now, when we consider all the material collected together by anthroposophical writers and lecturers, and from Rudolf Steiner's published lectures, and also consider everything which modern science has brought to light on any particular subject—then we tend to become exceedingly hesitant. We consider every word which Rudolf Steiner said much more carefully and with much deeper deliberation. Then we gradually discover how in fact all that Rudolf Steiner said, throughout the years, on one or another subject, adds up bit by bit until a more or less complete image has been developed; only the image is so tremendous that one is hardly able to comprehend it all at once.

If, for instance, you follow a subject like nutrition through the lectures of Rudolf Steiner, you will find that he started to speak about it as early as 1904 and 1905. There you will find various remarks about the substance, milk. You will also find that he indicates how complicated nutrition is. Then, in the succeeding years, he adds one bit of information after another to enhance our understanding; it is only in the last year of his teaching, in the lectures he gave to the farmers in Koberwitz, that he, as it were, puts the crown on it, when, in the eighth lecture , he reveals that the whole of our organization is not built up and nourished by the food we take in through our mouths but that this food, as nutritive substance, goes to the brain alone; the organism as a whole, both in animal and man (including claws, hands, muscles, bones, all our organs) is built up, and its hidden structure maintained, by everything that comes to us as nourishment through our sensory organs. He enlarges on this point in almost the last lectures which he gave, in September, 1924, in the Pastoral-Medical course.*

**GA 130

With this message we are left, and it is now up to us to find out what its real meaning is. What does it really mean, dear friends, and I ask you now to be honest, what does it really mean if we say that the brain is nothing else but a dung-heap? This is what Rudolf Steiner says. In considering this eighth lecture, and I think we will have to do this throughout our studies here, we shall not simply accept this statement, but learn to understand it with our whole nature. If, as intellectual beings, we can cease to feel offended by such a statement, we can in fact easily understand that the brain is nothing else but manure. Then there is another statement which Dr. Steiner made two years earlier, on the 31st of October, 1923; *Das Gehirn im Menschen ist eigentlich verhaerteter Milchsaft:* "The brain in man actually is nothing else but hardened milk juice."

Now let us compare these two statements. On the one hand Rudolf Steiner says: "The brain is nothing else but hardened milk juice"; and elsewhere he says it is something which has more or less finished a process which started in our intestines; that it is finished-up, hardened manure. Only if you go through many of Rudolf Steiner's lectures and find your way through all the statements and descriptions which he gave about milk can you gradually begin to see why dung and milk should be more or less closely related. Now I have said all this as a kind of introduction to our work, and let us take the eighth lecture of the agriculture course as the background to our work.

Now we shall start with something which is known to all of you. If we consider the green leaf of a plant, we know that the process of photosynthesis is carried on in this leaf in such a way that light streams in from above and carbon dioxide enters from below. (Fig. 47)

You remember that the cells of the upper part of the leaf are arranged parallel in such a way that the light can stream in with ease through the transparent surface. Underneath, sponge-like cells take up (I do not say suck up) the carbon di-

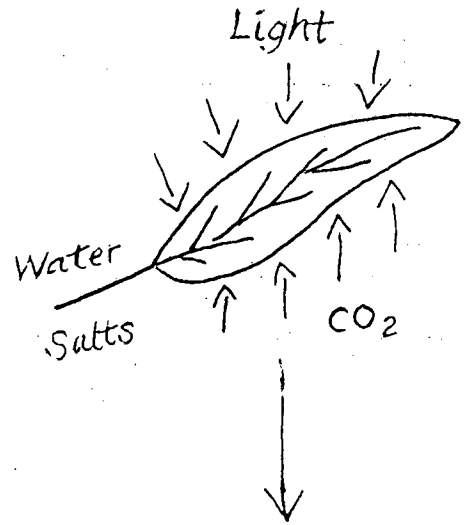

Fig. 47

oxide. The third process is the in-flowing stream of water and salts which is taken up by the roots. Thus there are three processes: light from above, carbon dioxide from below, and water and salt flowing in through the roots, so that the process of photosynthesis, the formation of special plant substances (mostly carbohydrates), can take place.

This process is, in its finer details, still a complete mystery to the science of today. We do not know how this process comes about because, quite simply, light is not understood in the right way: it is seen only as a source of energy and nothing else. In his *Metamorphosis of Plants,* Goethe said of the leaf: "The whole plant is nothing else but leaf." The roots are leaf, the flowers are leaf. The plant, as an archetypal being, consists of nothing else but leaf, and the metamorphosis of leaves. If this is so for forms, should it not also be so for processes? Thus we may ask, how does this process of photosynthesis, or assimilation, metamorphose in the various regions of the plants?

If you now take the whole plant, you have the roots below, the leaves in the middle, and the flowers above. Is it in any way possible to understand how light and carbon dioxide metamorphose into the upper and into the lower part? When we look at a plant and follow this process of metamorphosis, going from the green leaf up into the colored petal, we see that the colored petal no longer has the power of photosynthesis; nor has the root the power of photosynthesis. Only the leaf has it. To call the leaf the food-factory of the plant is of course utterly wrong, because it gives to the whole thing a different meaning. The leaves do something which is lost to the roots on the one side, and to the flowers on the other. But why? If you try to transform the green leaf into the colored petal in your imagination, as an inward soul metamorphosis, you will then experience that the flower no longer freely accepts the light. The leaf is given up to the light, and therefore the light enters as if there were nothing to hinder it. But the flower, as it were, hinders the light, and reflects it. Only because the light does not penetrate but is reflected, refused (because the flower does not want the light) does the flower appear in its colored beauty. I do not want to add any psychological remarks to this; but you can understand that to be beautiful always involves developing a certain element of rejection. This is what the flower does. (Fig. 48)

The root, on the other hand, has something else. Usually the root, if it is in its proper realm, is not colorless, but is dark, brown or black. It is not rejection which is associated with this color, but rather a kind of sucking, receiving, a kind of taking in. And it is this which arises from the carbohydrate process, where it descends into the sphere of the root. And now you can see how the leaf processes of the plant change upwards into the flower process which rejects, and downwards into the root process which absorbs and sucks in.

If this is properly understood, we can go one step further. Imagine that we change the leaf out of a flat structure into a kind of round sphere. (Fig. 49)

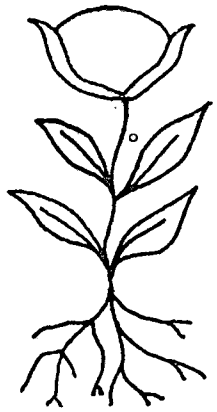

Fig. 48

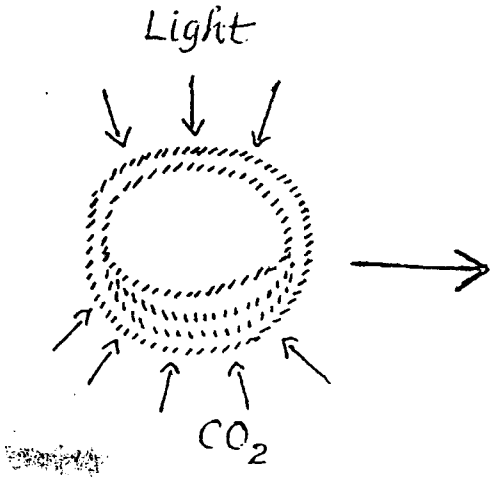

Fig. 49

The upper side is the realm where the light from out of space streams in; the other side is the dark side where carbon dioxide nourishes the leaf. It would be quite wrong to say that any kind of nourishing process, digestive process, or metabolic process goes on in a plant. All this is entirely outside the plant kingdom, because the plant provides nothing else but a kind of scaffold, whereon cosmic powers and cosmic substances meet one another. The plant is nothing else than the meeting place of cosmic and earthly forces.

If this archetypal picture of the plant process alters in such a way that animal or man starts to develop, then we find that the lower part is invaginated. It becomes invaginated like a ball which has been squashed in, and we see the formation which commonly is called the gastrula. (Fig. 50)

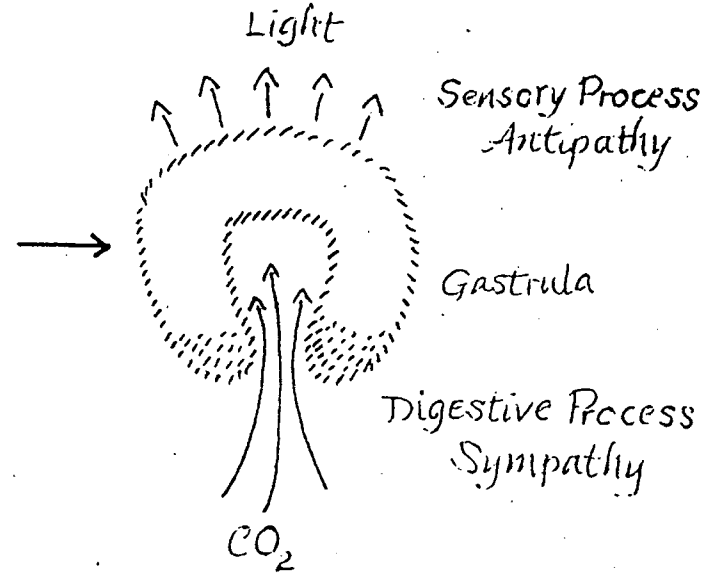

Fig. 50

We have now gone from the round sphere of the leaf to the archetypal form of a simple animal. On the upper side sensory processes arise, and in the lower, invaginated part, digestion and nutrition processes begin. Thus we have made the step from the plant to the animal.

This step has come about for the following reason: nutrition and digestion are processes which take in the substances of the world, and sensory processes are processes which reject the world. The lower part accepts, the upper part rejects.

When you understand this, then you can begin to understand what Rudolf Steiner means in the first chapters of the book which he and Dr. Ita Wegman wrote about the same time as the Koberwitz Course was given; here he speaks for the first time of different conditions of substances: physical substance, living substance, and sensitive substance. He speaks of sensitive substance in the following way: nutrition and digestion are only possible when the substance, the sensitive substance, develops sympathy with the surrounding world; and sensory processes are only possible if sensitive substance develops antipathy to the surrounding world. We must learn to become conscious, with all our thinking, feeling, and willing, of the fact that sensory processes are connected with rejection and antipathy, and that nutrition and digestion processes are connected with sympathy.

If we try to become conscious of this still half-conscious, and therefore dreamy, idea—which we usually have when describing how the world comes to us via our sensory processes, and how we go out into the world with our hands and limbs (implying that we are sympathetic to the outside world in our upper organism and antipathetic below)—we will see how deeply rooted it is in every one of us. Throughout our school and university education it is instilled into us that our sensory organs are passive, and do nothing but rest and let the world come in. This is what the physiologists want us to accept. The truth is just the opposite. We see, we hear, we smell, we taste, we touch, we experience the world, simply because we reject the world. If we did not reject the world, if our sensory organs did not make it possible for us continually to go out and work against the world, we would never be able to see, to hear, to listen, to taste, to smell, and in spite of this to remain ourselves. Whenever food comes in, a process of sympathy is involved. We must learn to understand this, not simply intellectually, but with our whole being. We would never "get in touch" with the food we eat, if all the sensitive substance in our body did not take this food and make it its own.

Dear friends, do not think that sympathy simply means to embrace something, to be kind and nice and good. If for instance I find it necessary to be sympathetic to somebody, and strike him a blow in the face, it is one of the strongest means of showing him my sympathy. For the fact is that every contact with the world is an act of sympathy. There, something happens: karma happens. This can come about by embracing someone, but also by striking someone.

Antipathy does not bring about anything real when a meeting takes place. This is the second thing which we shall now have to consider. In the sensory process, it is antipathy which continually changes the world, which it rejects, into an image. Our sense organs do not give us the world itself, but only an image of the world. We have an image of the world (which is of course a true, and not a wrong image, as physiology and psychology today want us to believe), but nevertheless, it is an image. There is a very simple experiment you can can make. It is not a very agreeable one, but revealing. If you twist around, quicker and ever quicker and quicker, you will suddenly see that all that you see of the world is an image, because it moves in an entirely different way from you yourself; then, when you stand still, you will find that the table, the walls, and the ceiling go on moving round you, for they are nothing but images.

On the other hand, in order to help you understand what I mean by rejection, consider the following: in the course of the evolution of mankind we have acquired the power to walk upright, to take a position whereby we contradict all the laws of

gravitation. We are able to overcome gravity, thanks to a very complicated process which has culminated at the point where our three semi-circular canals are formed. What have we gained by acquiring this equilibrium? We have in fact freed ourselves from all forces which make our earthly globe revolve on its own axis and move around the sun and the whole planetary system move through space. The plants are given up to these forces, and therefore we can detect in their growing forms how the earth, the planets and the sun are moving. They have built the plants. We have freed ourselves from these forces and therefore we always know, in our own experience, that where our head is, is up, and where our feet are, is down, on whichever side of the earth we may be. It is up, because neither the rotation of the earth, nor the movement of the earth round the sun, nor the movement of the whole planetary system throughout cosmic space is any longer within us. We have rejected it. In the same way, we have rejected the light, and therefore the colors and the forms of the world appear to us. We have rejected sound, and therefore we can hear. We reject substance, and rejecting it makes it possible for us to smell and taste.

Perhaps you can understand now why Rudolf Steiner, when speaking about the head, continually calls it the antipathetic organization.* This organization which is, as it were, closed up, which has formed itself and made itself independent, this head is nothing else but formed-out antipathy which has removed itself from the whole of the surrounding world. As the head is removed from the world around, the world appears to us, and our head becomes a kind of mirror for this world. With our nutritive organization, with our digestive tract, with everything we need in order to take in nourishment, we accept the world, we receive it sympathetically. We want only to unite with, and in uniting with to overcome, the world. But this, of course, is the first stage. It is a stage which holds good for the invertebrate animals.

*GA 293

If we go one step further, into the world of the vertebrates (those animals with a backbone, a heart, and a closed circulatory system), and especially if we enter the kingdom of man, this does not cease to be true, but to understand the fundamental sensory processes of man on the one hand, and his digestive and nutritive processes on the other, something more must be added. If we recollect how we considered the plant, the flower and the root, and how we tried to understand the flower as being on the way to containing digestive processes, we will suddenly find ourselves with this question: did not Rudolf Steiner say just the opposite? And I would have to say: yes, he did.

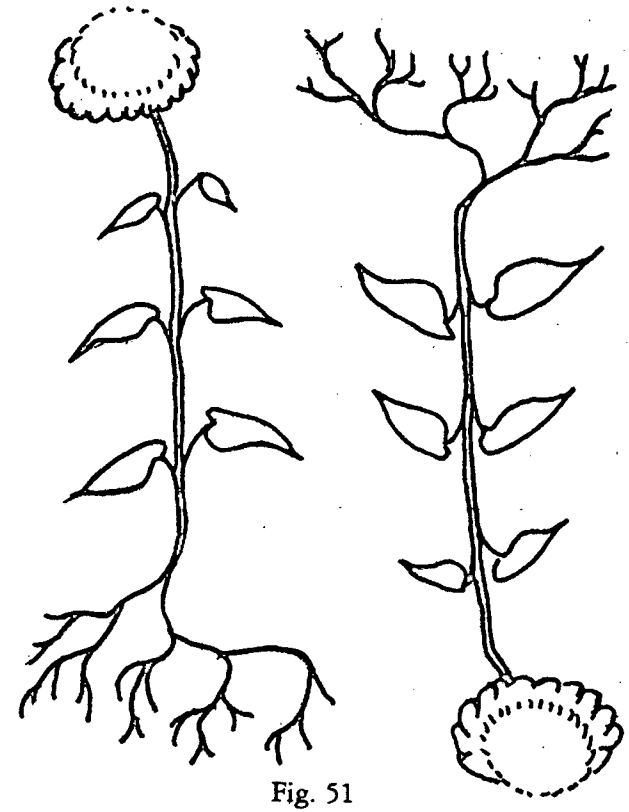

Fig. 51

Now we have to ask ourselves the following question: in the plant, we have the flowery-sensory pole, and the root-nutritive pole; on the other hand, Rudolf Steiner said that the roots are connected with our head organization, and the flowers are connected with our metabolic-nutritive-digestive organization. Why? (Fig. 51)

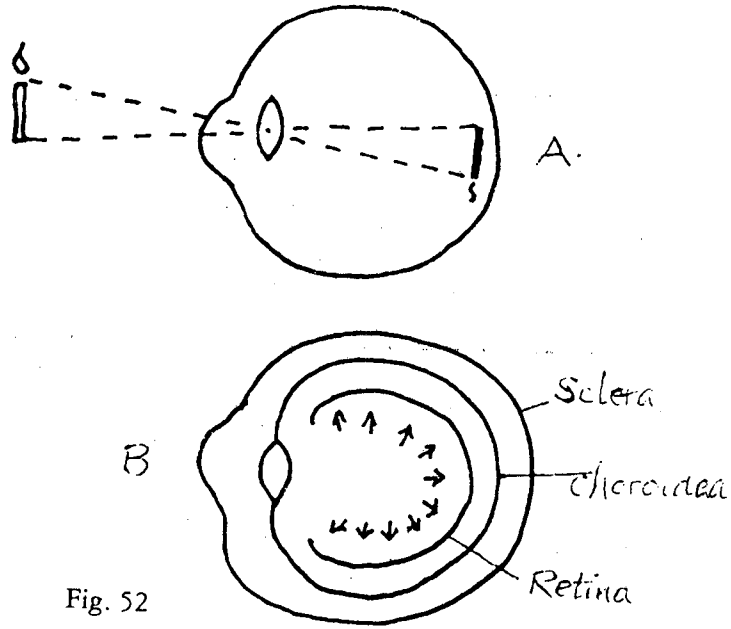

Fig. 52

Let us consider the human eye. The human eye has an outer cover (I am describing it now from a very special point of view), the sclera, which develops in front of the eye into the cornea, which then becomes transparent so that light can enter. Within this eyeball, formed by the sclera, is the choroid coat and, within it, as an inner layer, the retina. Because it consists of nervous tissue, the retina has up to now been thought to be the organ responsible for the process of seeing. The familiar idea, which is still found in every text book, is that a candle held in front of the eye produces a candle image on the retina. (Fig. 52.)

Certainly, this is possible. And there is no doubt that if you examine an animal's eye, you will find that the last forms which this eye saw are imprinted on the retina. But if you investigate this retina in both man and animal more closely, you will find that the retina consists of about one hundred million tiny little organs, nervous organs, which are described as rods and cones, owing to their different shapes. (Fig. 52.) You can imagine how tiny they are if you consider that there are about a hundred million of them in each of your eyes. But one thing, dear friends, is most astounding: quite clearly, these rods and cones have been made responsible for the process of seeing because it was thought that they are tiny little mirrors; this is probably true. They function more or less as kinds (and I emphasize kinds) of mirrors. But it is exceedingly amusing that these mirrors should not face out towards the world, but away from it. It is as if I were to look at you with my back turned. If one tries to discuss this with a scientist, he will say that it is very difficult, because there is simply no explanation for this structure; one can only take the bull by the horns and say, well, the rods and cones must know what they are doing. In fact, they face into the choroid coat of the eyeball. And why? Because there they have something to see. The choroid coat is the layer which carries all the blood vessels, arteries, and veins which stream into the eye. The rods and cones are in fact mirrors in exactly the same way that the papillae of our tongue are mirrors. They eat substance in a most complicated way. And the function of the choroid coat is to receive part of the cosmic nutrition stream. I will say more about this later.

In vertebrates and in man, sensory processes are accompanied by digestive processes, and only when both are seen together can one learn to approach the real problem. We shall find the same thing in the digestive process; i.e., that the digestive processes in men and the higher animals are filled with sensory processes. We shall only understand this if we realize that, both above and below, we find nutrition and sensory processes. Of course, at one pole the sensory process is in the conscious foreground.

First Discussion

Question: Dr. Koenig described how the senses reject the world. Otherwise one would have no perception of the world, no beholding. The world would just stream into one. And that is an antipathetic movement one makes. I found it difficult to understand how, when you give your friend a blow in the face, that that is a sympathetic act. Unless all one's outer movements, such as walking on the ground, are also sympathetic acts. Could you say a little more about that?

Dr. Koenig: In his lectures on Psychology* in 1910, and also in his lectures on Anthroposophy in 1909, Rudolf Steiner describes the fundamental activity of the human soul thus: The human soul has two sides, the antipathetic and the sympathetic. On this point, he goes into great detail. When, a few years later, he revealed the threefold being of man, one could learn to understand sympathy and antipathy as the two fundamental functions of our rhythmical organization. It is our rhythmical system which carries all our feelings. In our feelings we develop sympathetic and antipathetic emotions. If antipathy goes to the extreme, the upper organization predominates; if sympathy becomes too strong, the lower organization predominates.

Then Rudolf Steiner went one step further: in 1919, when addressing the College of Teachers of the Waldorf School for the first time, he gave his fundamental course on ***Allgemeine Menschenkunde*** (Study of Man).* In the very first lectures he gives the following picture: when we approach the earth, we bring with us all the antipathetic forces by which we have freed ourselves from the cosmic world. As he once expresses it, antipathy is then so strong that the cosmos spits out our head; we are born.

*GA-115.

*GA-293.

With these antipathetic forces (through prolonged pondering and meditation it is possible to understand this) we create the world of our sense impressions around us. In this way the world is turned into an image. That means that it no longer has reality in itself. If you imagine what it would be like if we only looked, heard, smelled, and tasted the world, that the world became for us nothing but perception—then we would have no will to exist, no will to live. We would simply be nothing but a sphere of mirrors; things would move around us, appear to us as a result of antipathy, with our head as a mirror. But we would have no drive whatsoever to act, to live, to exist. Such a condition you find today among children and adults as a neurotic condition. It can even go one step further; some people today, instead of experiencing the world, only experience books; they retire from the world into the imaginary garden of the printed word. All this is antipathy, which we bring from our life between death and rebirth.

But you see, we always have to break holes in the image of the world existence which the senses give to us. And we can do this only with the power of sympathy. This power is the one which continually brings about the destruction of the world of the senses. Instead of images, this power is the origin of what Rudolf Steiner calls, in these lectures, the germ within the seed (Keim). With this seed we move into our life after death, carrying with us the new destiny which we have built up. The sympathetic forces are not only the loving ones. The loving forces are one part of sympathy, but sympathy is actually everything which connects itself with the world, takes hold of the world, builds the world and destroys it as well. You can't build anything without first destroying it. If you start on a new work, you simply have to put aside all that has been done before. You may take a few seeds of tradition, but at first you must create chaos. Have you never experienced how an angry word spoken to another human being may suddenly clear the air? It may also darken the air, and then a few more cross words are needed. Being sympathetic means getting in touch with theworld as closely as possible, and creating seeds,

germs, for the future. This is how I understand the sympathetic forces. What does it matter if sympathy is expressed, for instance, as a blow, if it is honestly given? I will in any case get it back after death in Kamaloka! And in this way I create the seed for further friendship.

Please, don't think that I am recommending going through the world like this. Not in the least! But you can't plant without breaking the ground. To plough is as sympathetic as to sow, only the one is more gentle, the other is more energetic. But there is no other possibility unless you become a Buddhist. Then you withdraw your existence as far as possible into the forces of antipathy. But we must understand how Rudolf Steiner describes these forces of sympathy.

Since the beginning of the last century when the great physiologist Johannes Mueller announced his theory of sense perception in which he maintained that every sense organ can receive stimuli only from the outer world and transform these into experience—man's scientific outlook has gone entirely astray. When this law was accepted, the conclusion was inescapable that everything we experience through our senses is nothing but personal imagery. No colors exist, no sound exists, no smell, no taste. All these are simply created by our sense organs, while the reality around us is an empty, colorless, and soundless space where certain vibrations simply stimulate our sense organs. From this stimulation we create the imaginary world wherein we live. This is still believed to be true, although, practically speaking, we do not accept it. It is theoretically accepted by science. But scientists themselves do not accept it in practice, because they treat their sense experiences as if they were true. Johannes Mueller, dear friends, was a great man, and it was only living in the 19th century which made him formulate this law in such a way that it had these disastrous results. But something else lies at the back of this, which I believe we must gradually learn to see. And now I would like to elaborate some of the points I brought up in my talk this morning.

When we eat, we take in carbohydrates, fats, proteins, salt, and a great variety of other substances. These we take in in the form of many different plants, animals, and minerals. We put a great variety into our mouths. And what do we do with this variety, when we start digesting? We reduce the variety to a unity, we produce what we call chyme, in the small intestine. Chyme is no longer the sum total of the different kinds of food which entered our body when we ate; it is a general, unified fluid into which the different kinds of substances have dissolved. Chyme is a generalized substance; salt and plants and meat have dissolved their individuality and turned into a uniform substance. Therefore we can compare chyme with milk and state that both are common substances which do not contain any more individual parts.

At the opposite pole we have the sensory processes. And now, dear friends, I must say something which may surprise many of you at first. For many years I asked myself what made Johannes Mueller formulate this law in the way he did? It is contrary to everything he accomplished, for in fact he was clairvoyant; in describing his own soul processes, he was describing clairvoyant experiences.

I believe that this is the explanation. You may recall how I described the transformation of the leaf into the gastrula: how at one pole the light is rejected, and through this rejection the first basic sensory experience arises; and how at the other pole the carbon dioxide process is sucked in and becomes the fundamental process of nutrition. This stage of evolution has its roots far back in the past, on Old Saturn, where the first beginnings of the sense organs were created. At that moment, the process began which can only be described thus: our seeing colors is due to our having developed eyes; our hearing sounds is due to our having developed ears; our smelling various smells is due to our having developed noses. Not only the separate organs, but also the smelling process, the seeing process, the hearing process must be taken into account. The more the processes of seeing, hearing, smelling, and tasting have unfolded, the more the outer world

has become individualized. What lies behind our sensory organs is the creator of the differentiation of the world around us. This differentiation between sensory organs and the world has evolved until it has reached its present state. Now, it is not a question of individualizing, but of maintaining the differentiation. Only as long as we keep this differentiating, antipathetic process going, does the world remain in its manifoldness. This process is sense perception.

Now for something else, which I mentioned in my talk this morning from a different point of view. Rudolf Steiner described our head organization and our lower organization thus: he said that our head organization is actually a synthetic organization, it is synthesized; whereas our lower organization is analyzed. What is built together in our head is differentiated in our lower organization. This is the first, and fundamental, statement in his lectures on Curative Education.*

In our abdomen we carry our liver and our spleen, our gall bladder, our small intestines, our kidneys, and all our different organs. But in the head, if you open the skull, you find a single organ, the brain. If you investigate the brain, you will find that it has qualitites of liver, of intestines, of spleen, of kidney. All these qualities, which in the abdomen have their separate organs to work with, are synthesized, in the brain, into one organ. And this is now again the opposite of what I told you. Our head organization is in itself a synthesis, therefore it can maintain the differentiation of the sensory perceptions. And because our abdominal organization is itself differentiated, it can continually create the synthesis of the chyme. I said that chyme is milk. And now we can understand that the brain, in the synthetic head organization, is hardened milk. So you see that what is a process below becomes form above, and what is form below becomes process above. The organs of our metabolic system are the differentiation of the synthesizing of the differentiating forces in our sense perception. Now I can again point to the diagram of root and flower. We shall be going into this in greater detail.

*GA 317.

Dr. Th. Weihs: It is remarkable that the picture of digestion which Dr. Koenig has built up is also a picture of the modern scientific way of thinking. In describing the variety of colors scientifically, this variety has been reduced to quantitative difference, within a single quality. And so it is in all sciences. Science sets out with the aim of finding a single law which manifold phenomena obey. This is actually digestion. And I think this can help us to understand why, at a time when science has made tremendous progress, one phenomenon has increased appallingly, and that is fear. If we remember our grandparents, it is quite obvious that the main difference between them and an average person today is that they felt secure and were comparatively unfrightened. That this increase in fear should occur now is very striking. Science is not a process belonging to our head organization, but is in fact digestion, and it follows that quite clinically the picture of fear, or that which describes fear organically, should suddenly appear.

Goethe did not attempt to find which different animals could be grouped in one class, or which different phenomena obeyed one law; he tried to find how one phenomenon distinguishes itself from the other, and how it can be metamorphosed into the next. That is true head-sense activity, the holding apart of the manifold. The scientific method does not lead to knowledge, but to control over something. If one has a little bit of insight into one's own body, one knows that eating, particularly digesting, is the one process by which we assert our power over the world. When I have eaten a bit of cabbage, I have destroyed it, and I am, as it were, the victor. That is what happens in orthodox science.

Dr. Koenig: This is a most important point. Because time and again you will see that as soon as you come to nutrition it is no longer a scientific question, it is a question of morality. Nutrition has the deepest moral implications. Therefore it is so important that farmers in particular should learn to see it in the right way. Continually, in the first years after Rudolf

Steiner spoke of it, we went out into the world preaching about the cosmic and the earthly nutrition streams. And, quite justifiably, people asked: but if we are cosmically nourished, why produce proper vegetables, if we do not use them anyhow? They will only feed a tiny part of the brain, so why worry? And it was a perfectly justified question, which we did not put to ourselves because we were not honest enough (not because we were dishonest people, but because we were too enthusiastic, and therefore forgot to look into it properly). And only gradually are we now learning to understand the moral side of this problem. Without reestablishing morality in building up proper food, no true moral rearmament will be possible. When you eat artificially manured cabbage, flour, or whatever it may be, you simply take in immoral forces*, and have to struggle with them.

Lecture II

Our task yesterday was not an easy one, either for you or for me. I think that it will be still more complicated today. On such occasions, Rudolf Steiner often told the story of the Spanish king who was very cross because the world was arranged in so complicated a manner, and who said, "If I were God, I would have made things much simpler." But as we are not God, we must accept the situation as it is—and it is a very complicated one indeed. It is so complicated that I must warn you not to think that, at the end of this conference, you will know exactly what the cosmic and the earthly streams are. At present, it is not even possible for us to know exactly how, for instance, the process of seeing or the act of hearing work. Rudolf Steiner once said that it will take many hundreds of years before man will be permitted to understand how seeing

*Forces that have not gone through the process of digestion.

is actually performed and how hearing comes about; we must accept this. Whatever we do at the moment is a contribution which can help us to go one step further; without such attempts, we cannot build the road which in the end will make it possible to reach the goal.

This is one reason why, in Rudolf Steiner's discussions of many subjects, you will find apparent contradictions; they are necessary contradictions. For instance, in two different lectures on nutrition which he gave to the workmen at the Goetheanum, and which probably many of you will know (the one on 24th January, 1924, and the other on 23rd October, 1923), he speaks about protein, carbohydrates, fat, etc. And in fact he says entirely different things about these substances in each one of these two lectures. In the second half of this morning, we will be able to discuss this. There is a typical kind of contradiction, where, by one's own attempt to understand, one can clarify the matter. Then one can see how such apparent contradictions can simply dissolve into a better understanding on a higher level. Therefore, please take all that I say today as an attempt, and not as a solution. I myself am very conscious that it is nothing else but a minute contribution to this vast problem—the cosmic and earthly nutrition streams. Nevertheless, I think that farmers should contemplate this tremendous riddle at least once, every time they come together.

What I tried yesterday to make a little more comprehensible was the fact that in our sensory system we also harbor digestive processes, and in our digestive tract we harbor sensory processes. Both processes work in intimate connection. Above, sense perception is intimately connected with digestion; and below, digestion is intimately connected with sense perception. In the second half of the morning, I tried to show you how the sensory world is differentiated, but has as its organ the head organization, which is synthesis; and how, below, the digestive organs are differentiated, and how the chyme

which is formed from the different food substances is something which we could call a common, generalized substance. It is, as it were, nothing else but a kind of milk. And what we carry within out head, our brain, is, according to Rudolf Steiner's description, hardened milk. If we now imagine that we put these two together, the chyme below and the brain above, then you will at once understand that it is just in the sphere of the rhythmic system where man and animal produce the ordinary, common milk. This is just an introductory picture. (Fig. 53)

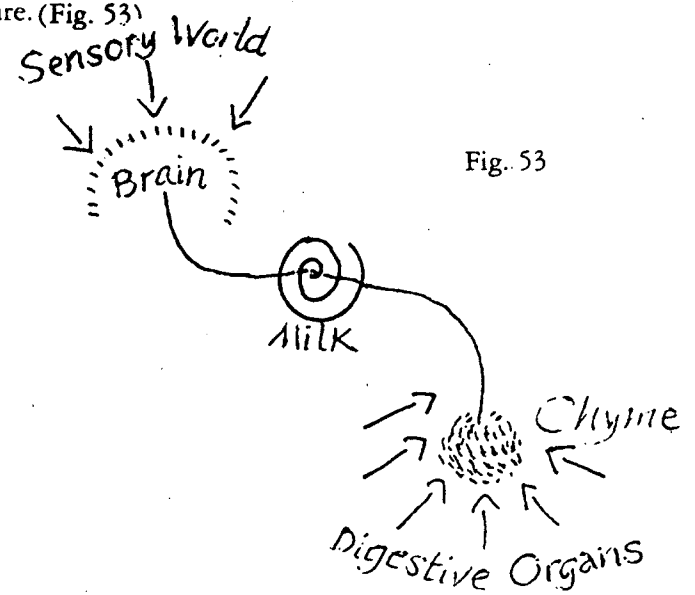

Fig. 53

Now we can go one step further. We can ask: where is the actual rift where sensory and digestive processes split from one another? Where is it that our whole organization is divided into two parts, an upper one and a lower one? This occurs at a quite definite place. This place is between our eyes and our mouth. Diagrammatically this could be represented as follows: we find that four sensory organs are distributed in a perfect harmony within the face; our eyes and ears, our nose and our mouth, make our face what it is. If we study the form of these sensory organs, we will see that two of them have

their main axis in the horizontal plane, and two of them have their main axis in the vertical plane. As soon as we start to consider this, we will find that there is something special behind it. Above there is the eye, and below, the mouth, with tongue, teeth, and all that belongs to it. If we follow the eye anatomically, via the optic nerve into the brain, and we follow the mouth into the whole digestive system, we will see that there is a corresponding structure of the one system to the other.

If we then remember Rudolf Steiner's diagram of the twelve sensory processes, we also may remember that seeing corresponds to Capricorn, and tasting stands under Saggitarius. (Fig. 54)

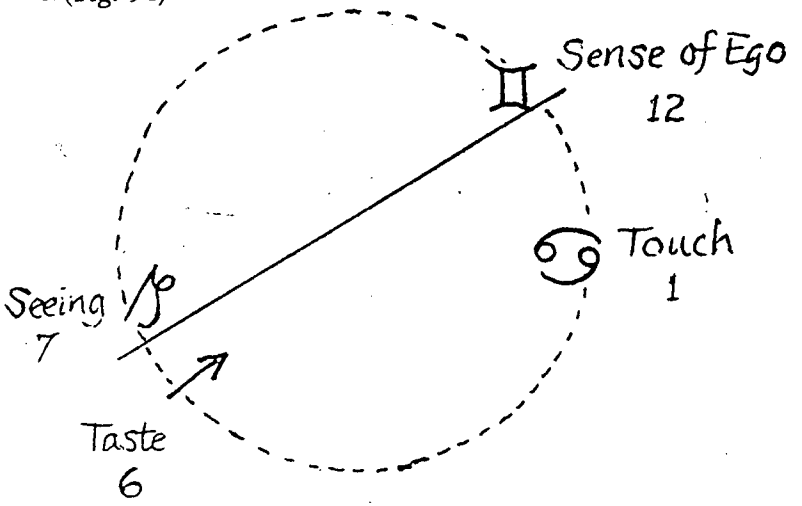

Fig. 54

Opposite are the sense of touch and the sense of Ego. If we consider all the twelve sensory spheres, we can now see how the line which divides the sense of seeing from the sense of tasting, when continued, becomes the line which divides the sense of touch (which is No. 1) from the highest of our senses, the sense of Ego (No. 12). And we become aware how in this

division between taste and sight something is contained which involves all our sensory processes. For one might say, this line was drawn, and "their eyes were opened." At this moment, Adam began to look into the world above the line—and the whole Maya of sensory existence came into being. Below this line, nutrition started in the way in which we have had to carry it on ever since.

This split has bundled together all our lower senses, but has also made it possibe for all our higher senses to unfold. Perhaps this is an indication as to why it was said that when the Tree of Knowledge was given to Adam and Eve, the Tree of Life was taken away. The Tree of Knowledge opened at the moment when, to put it pictorially, the eye was separated from the mouth.

If you study the anatomy of the human eye, and of the human mouth, you will suddenly find that there is not a striking difference, but rather a striking similarity between these two organs. I will not go into details but I must indicate some things which will be valuable for your further study. When considering the whole digestive tract, you will find it is built up in a most wonderful way. (Fig. 55)

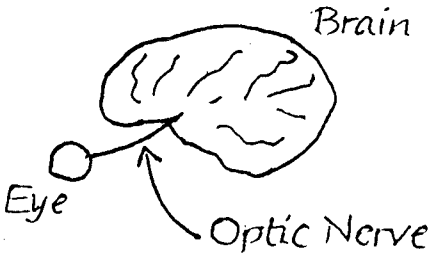

Fig. 55.

In it the same two forces are working which also build the plant. The digestive tract is built up so that, in certain places, everything is contracted, shortened, and "nodes" are formed; at other places it is expanded and elongated. Let us start with the mouth, which is a round, hollow organ. From the mouth,

the esophagus descends. There you can see the first contraction as well as expansion. Then comes the stomach, the second contraction, and then a tremendous expansion in the small intestine. Then, at last, there is the large intestine, where contraction and expansion have in a way grown together. Thus, there are three steps: First step, mouth and esophagus; second step, stomach and the small intestine; third step, the extended, hollow formation of the large intestine. Thus there is a rhythm of short-long, short-long which underlies the rhythmical structure of our intestines. (Fig. 56)

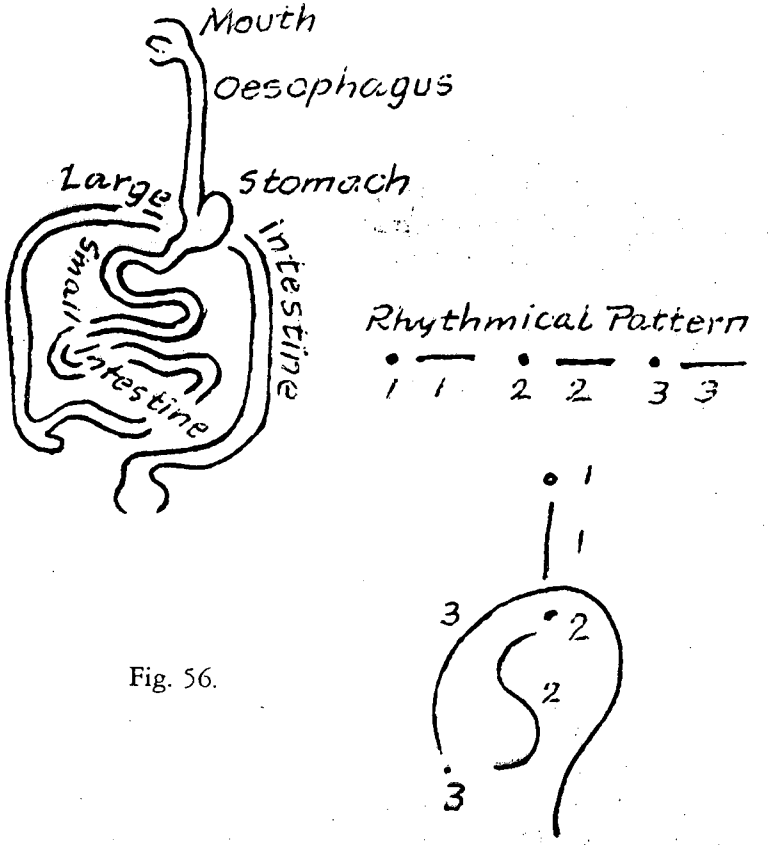

Fig. 56.

The mouth represents this whole structure, as it were, in a seed. Consider the tongue within the mouth and, on the tongue, the different papillae, the sensory organs of taste. You know that any upset in your stomach or small intestines will show itself on the surface of the tongue; the tongue is a concentration of what exists, expanded, in the whole length of the intestine. For this reason, great physicians like Schuessler, Hahnemann, and others, administered remedies simply by placing them on certain parts of the tongue. Again, there is a special disease of the human blood, especially connected with the stomach, where only the tip of the tongue is affected. When we know more, not only of general anatomy, but also of the finer anatomy of the tongue, we will be able to draw the whole geography of the intestinal tract upon it.

If, for instance, we inspect the open mouth, we will see how the rows of teeth, the upper as well as the lower, form a kind of arc. And we can find the same arc again in the large intestine. We can see how the tongue within the arc of the teeth is repeated in the small intestine, duodenum, etc., which are surrounded by the large intestine. Even in the finer anatomy of the large intestine we can find more or less the same number of structural units as we find in the sixteen teeth above and below.

And something else, to give you a general idea of how many things have to be considered: You know that where the small intestine joins the large intestine, the appendix is found. The appendix is nothing but a kind of lymph gland, in fact, a tonsil. Where the arc of our teeth in the mouth is connected with the beginning of the pharynx, the tonsils are found. So that exactly the same structure is found below and above. Why should we then be astonished that tonsilitis is always accompanied by appendicitis—a "tonsilitis" down below or vice-versa?

If you have understood this, we will now make a further anatomical study. We will consider the organization of the eye. Our two eyes continue into the optic nerve. (Fig. 57)

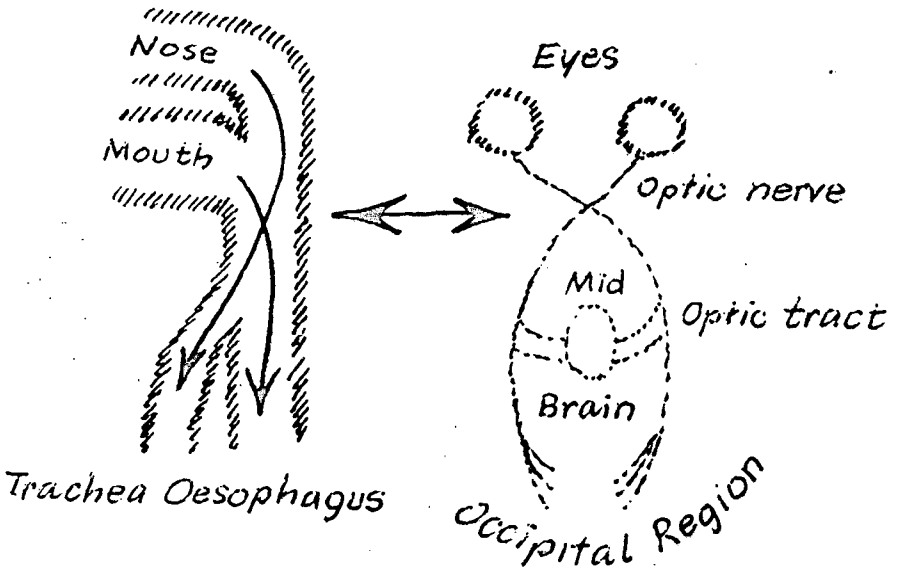

Fig. 57

I do not want to go into too great detail, but the optic nerves join together underneath the brain, and then, as it were, split up again. They split up inside the brain and then have a very long journey because they run right through the brain to the other side of the head, where they terminate in the occipital region of the brain. In between, they send connecting fibers especially to one part, which is called the thalamic region, the mid-brain. Here also, when we start to use the idea of metamorphosis, we find a repetition of the whole digestive organization. We must take into consideration only that this is a hardened form of what is soft and mobile below; it is a synthesized form of what is analyzed below.

There are, as it were, two mouths, that is, our two eyes. The one has split into two, or the two have united into one. It is not difficult to understand that our eyelids and our lips are somewhat the same, only we must realize that in fact our lower lids are the metamorphosis of our upper lip and our upper lids are the lower lip. You can also see the wisdom in

language, in that "lip" and "lid" and in German "Lippe" and "Lid," are almost the same. But try and see it thus: what is below is mirrored in the organization above, and vice-versa. So that really the lower lids are the organic, living mirror-picture of our upper lip; and the upper lids are the organic mirror-picture of our lower lip. Open your mouth, and you see the white row of teeth. Open your lids, and you see the white of the sclera. In the same way, the opening of our mouth leads into the throat; and in the most beautifully refined and subtle structure, the pupil of the eye, surrounded by the diaphragm of the iris, leads into the interior of the eye.

If we study the eyes of many of the vertebrate animals, especially of the birds, and also the embryological development of the eyes of the highest animals, as well as of man, we find that into the eyeball there extends an organ which is called the fan. It is a kind of conglomeration of blood vessels which project into the eyeball. Scientists have decided that this fan, as it is filled with blood, is a kind of central heating radiator for the eye, in order to keep it warm; otherwise the poor eye would be much too cold. In man, this organization of blood vessels has gradually disappeared, thus making it possible for the retina to become a flat lining on the inner eyeball. But in fact this fan is a metamorphosis of our tongue. It sticks out into the eye in exactly the same way that the tongue sticks into the mouth. The human eye is formed in such a way that the "tongue" has disappeared.

Now we must try and put together what I told you yesterday about the formation of the rods and cones. The eye is not an organ with which we see. It is of course an organ necessary for the act of seeing; when we shut our eyes, we do not see. But the eye itself is not the place where the actual process of seeing goes on. This structure really consists of two mouths, and, as it were, of two pharynxes.

If we go from the mouth downwards, into the esophagus, we find a further structure. (Fig. 57.) Above is the nose, and below the passage of the nose crosses over the pharnyx, to go into the larnyx and the trachea. This again is an organic

metamorphosis of what is up above. Up to the crossing of the optic nerves is what corresponds to the pharynx. Up to the mid-brain runs a metamorphosis of the esophagus, and the mid-brain itself corresponds to the stomach. The parietal and occipital region is nothing but the region which is similar to the small and large intestines.

Recent physiological studies have shown that wherever there are nerve endings, minute quantities of a very complex substance, acetylcholine, are discharged. Thus even up there, where the optic nerve terminates, a kind of secretion takes place, very subtle, fine, on a small scale, but in itself similar to what I have described previously as digestive organization. The eyes, with the optic nerve and their continuation into the brain, are in point of fact nothing else but a metamorphosis of the digestive tract. Only the one runs from the mouth downwards, and the other from the eye backwards.

Now all this is really just a kind of elaboration of what I tried to say yesterday. And I hope that you are now becoming more and more aware of the fact that, both above and below, sensory processes and digestion are found together; only the relation between these two processes is different at the one pole and at the other. Please imagine the following thing: if we start to eat various kinds of food, this act of eating lies, in regard to our consciousness, more or less entirely within the sensory sphere. Within our mouth we have a collection of different sense perceptions. There is not only the sense of taste, but mingled with it is the sense of smell. We know how sometimes, if we really eat (not gulp) our food, smelling and tasting are mixed up together. But we also sense warmth and cold; we have the sense of touch, and connected with it the sense of movement, because when we eat we know exactly where our tongue is, how our jaws are placed, how we are biting, chewing, and swallowing. So you see that all these sense perceptions, the sense of touch, the sense of life, whether we like something or don't like it, the sense of movement, the sense of smell, the sense of taste and the sense of warmth, are all involved at once when our food is taken in. Then, gradually, this

perception disappears. We can still follow our food into the gut, and sometimes the sense of touch and the sense of warmth may persist into our intestines—but our sense perception dies down. Only when we are ill do we have a kind of sensation in our organs, but this is not normal. The act of digestion disappears from our world of sense impressions into oblivion.

On the other hand, in the upper realm, the act of digestion is in oblivion from the start. We don't know anything about it. Sense perception has become so important, especially through our eye's power of seeing, that it takes us a tremendous amount of re-thinking to imagine that our nervous system, insofar as it is connected with our senses, is not in the least actively engaged in the act of sense perception. It is actively engaged in the act of digestion. Our retina, dear friends, our optic nerve, and the optic nervous tract, form one of the nerve centers or nervous systems by which the world which we receive through our senses as an act of nutrition is taken up and digested. If we took away the eye, our sense perception would, as it were, have no seat to settle down on. If, instead of "seat," I use the word "throne," perhaps you can understand how our sense organs are really the thrones on which sense perception sits. When I look out into the world, when I hear out into the world, listen to the world, what do I do? With my higher organization, my "I" and my astral body, I am outside, and this world which I see is mine, because I am in it. But all this must have a root, a seat, a throne. And in continually knocking into this throne, in sitting with my higher organization on this throne, I become aware: I see, I listen, I smell, I taste.

Here on earth it is much easier for me to understand this whole process, because things have to come to meet me; to understand that the tongue is just as much a throne as the eye is much easier. Because here we know, I (but I as a higher entity) and matter, that we have to meet, and then I am taste, and then I am smell. I, and the world outside me, we sit together as the image without reality on the throne of the eye. But the eye itself, although providing this seat, is at the same time an organ of digestion. For not only do I see this world

around me, but within this world, although it is nothing else but an image, there live etheric forces, there live entities which come to me from the cosmos, from all those spheres which are filled with light. It is this, then, which is digested, accepted by the retina, accepted by the organ of hearing, accepted by the tongue.

Now you will see where the doors and entrance gates of the cosmic nutrition stream are: everywhere where the neuro-epitheliums of our sensory organs are distributed. These are the entrance gates to the cosmic nutrition stream, and these gates are actually the seats whereon the sense perceptions for our astral body and Ego can hold themselves. The same holds good for the lower part. Only here we also start with sense perception, and then descend into oblivion, lose the manifoldness of sense impressions, and then unify all matter and substance, breaking it down into chyme.

Second Discussion

Dr. Koenig: Now I would like to consider the process of eating. When we take in food, the different substances which make it up, and the different sense-perceptions by which we are aware of it, are both gradually dissolved by the various intestinal juices within the stomach and the small intestines, and step by step become chyme. I already tried to explain to you how chyme is in fact nothing else but a kind of milk. But what kind of milk is it? What difference is there between this intestinal chyme and real milk? Rudolf Steiner said (and this conforms to what science has worked out) that all outer substance which we take in has to lose its individuality. We cannot accept cabbage, we cannot accept pork, we cannot accept spinach, potatoes and all the rest, for if we did, we would not be able to keep our own individuality intact. Therefore we break them down and destroy them. We wipe out their individualized existence and mold and change them into chyme. Chyme

is a substance which I consider to be entirely physical or mineralized. Both the etheric and the astral forces, both the sensitive substance of the animal kingdom and the living substance of the plant kingdom are broken down. They are destroyed so that the chyme is no longer living substance, or astral substance, but simple, mineralized, physical substance.

When I say simple, I do not mean that its chemical structure is simple, but that it consists of physical substance, of mineralized substances, only. The milk which is produced by man and animal is not just a physical substance, but also a living and sensitive substance, although the etheric forces in it are stronger than the slight touch of astrality which it carries. For this reason, Rudolf Steiner pointed out that milk, as a substance, is in just the same condition as the flowers of plants; they just reach up to touch the astral forces—where the astral forces, in the words of Rudolf Steiner, kiss the flower of the plant. We find the same condition in milk.

In chyme this is not the case, for it is mineralized, physical substance. Now a great deal of this chyme (I cannot give the percentage, because no one knows it) is, as it were, turned into death—and this is what we excrete. In the animal it is different. Rudolf Steiner describes how the Ego, which is not inserted into the animal itself, works in the excretory products. In man, the substance turns away from the Ego, it becomes deadly substance. In the discussion we might consider what really should be done with it.

Now consider the mineralized chyme substance. There is no doubt that a certain amount of chyme—of this mineralized milk, generalized substance—is now taken up through all the millions of villi of the small intestines, and carried into the lymph-capillaries which surround the intestines. Rudolf Steiner describes this as follows. With our digestion we build our blood. We build the blood by lifting this mineralized chyme step by step, stage by stage, from the physical state up into the living etheric, then into the sensitive, astral state, until it reaches in man a condition where it is able to carry the self-conscious Ego. This is achieved by means of various sys-

tems which we bear within our whole organization. Note that I do not say body; the body is only the last imprint of this organization.

As soon as the villi have been permeated by mineralized chyme, and the lymph vessels have taken it up, it is led upwards through the thoracic tract. The thoracic tract receives all the lymph vessels from the whole lower region of the body, including the limbs; it carries the chyme up into a special vein, whence it goes into the heart. From the heart it goes upwards into our lung system, where it receives through the rhythmic system the enlivening qualities of oxygen. In this way the physical chyme is lifted into the realm of living substance.

Then it is taken up by another system. At this stage, we cannot remain solely within the anatomical structure. The etheric, astral, and Ego spheres are inserted into different organs, but, as processes, do not terminate where the physical organs do. Everything connected with the kidneys (and the cerebrospinal fluid) is a kind of physical shadow of that process which now takes up the living substance and permeates it with the forces of nitrogen, making it into sensitive substance. Then another set of processes, which are represented physically by the liver, the gall, and the spleen, raise it still further, so that, with the help of hydrogen, it becomes a substance which can carry an Ego.

In this way, dear friends, we can see how food is taken in from above and directed from the site of our mouth downwards, where it is digested and broken down into physical matter. Then the lymph and veinous blood take it again upwards. This is the second direction. Where the kidneys and cerebrospinal fluid work, a third direction comes in: this stream of substance is permeated by the forces of nitrogen from opposite sides. Lastly, the forces of the liver, spleen, and gall-bladder surround the food and with the forces of hydrogen, which work like a sheath of warmth and fire, transform it into a still higher state.

Now it is important to realize that, in a process of fire and warmth, ash falls down and light rises up. The ash of the

process described above is taken up and introduced into the brain; it is this substance which nourishes and builds up the brain. There, within our brain, we have an organ called the epiphysis or pineal gland. This minute, interesting and mysterious organ was in fact once upon a time an eye, which looked out into the world. It was the third eye of Polyphemos, of which mythology speaks. This organ receives the ash which rises upward from our nutrition stream and distributes it to the different parts of the brain. This is one process.

But there is also another process. Earlier on, I tried to show you how, wherever sensory epithelium is found, in the nose, eyes, tongue, ears, and over almost all the skin, cosmic nutrition streams in, and then follows the path of the sensory nerves. All our sensory nerves are intimately connected with the brain. In exactly the same way that the chyme goes into the large intestine to become excretion, so also excretion takes place, as I have already described, in the occipital part of the brain in the case of the optic tract; in another part, the same holds good for the acoustic tracts, and so on. But before this takes place, there is in the region of the mid-brain, in the thalamic region, a collection center for the cosmic nutrition stream; this is the pituitary gland, the hypophysis.

If we study the development of the pituitary gland, we find something which shows how justified it is to speak of a dividing line in the head, separating the upper from the lower part. For the pituitary gland is an organ which is derived from parts of the pharynx, and from parts of the brain. These two parts join together. Why? Because a center is created there, from which the collected cosmic nutrition stream from the brain finds its way down to the organs below. This is an extremely fine and subtle process. But during the last fifty years, and especially quite recently, the pituitary gland has been found to be of the utmost importance for the working of our entire organization. It has even been called the leader, the conductor, of the orchestra of our endocrine glands.

The pituitary gland is intimately connected with the metabolism of carbohydrates, with the function of our gall,

with the production of milk, with the ovarian cycle in women, and with other processes involving almost the entire metabolism of our body. That certain hormones are excreted by the pituitary gland is only one side of the picture. The other side is that it is the place where the forces of the cosmic nutrition stream are collected. And if I were now to trace down the different endocrine glands via the thyroid and parathyroid, right down to the adrenal glands, you would see that here are the steps whereby the cosmic nutrition stream is gradually brought down into the lower parts of our organization. Eventually it enters the sea of lymph and the sea of the venous blood. Rudolf Steiner described, in the eighth lecture of the agriculture course, how the hoof and the nails, which are of the same substance (as are, in fact, all the extreme tips of the body), are filled with substance which we derive from the cosmic nutrition stream. Fig. 58.

At first our food substances are part and parcel of the same world of which we are aware through our senses; they are outside ourselves; they are part of the outer world. Then they are taken in and gradually broken down, inside our intestines. But it is important to realize that here they are still part of the outside world. The inside of the intestines is still part of the external world. Only when you pierce through the wall of intestine are you really inside the body—in the internal world. Then the chyme becomes surrounded by our different organs, liver, spleen, kidneys, etc. Then it is lifted up, transformed, and introduced into our brain. This brain is an organization which, so to speak, sticks out into the external world. It is both within and without, to the same extent that the chyme is within and without.

The chyme is lifted up from the physical state and becomes progressively living and sensitive substance. Through the forces of oxygen, then nitrogen, and finally hydrogen, it ascends and, as it were, fills and nourishes the brain. Thus the whole external world streams up from below; another stream

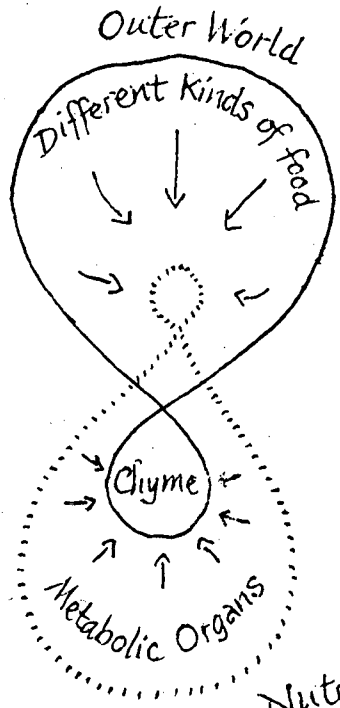

Fig. 58

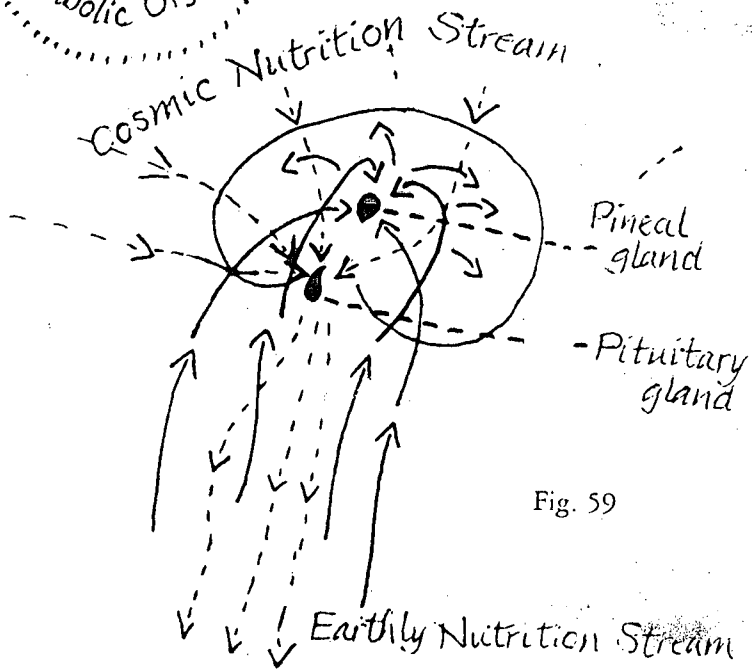

Fig. 59

comes through our sensory organs; it travels down in the same way that the other travels up. The existence of the cosmic and the earthly nutrition streams lies revealed in the organization of our pineal and pituitary glands. The pineal gland receives the earthly nutrition stream from above, and leads it down. There, in this very special region, the upper and the lower meet and find each other; but they must also remain continually apart from one another, otherwise disease and destruction result. Fig. 59.

The chyme has to be lifted up through different stages, and it is this activity which creates the blood. It is not that the chyme changes, as one usually thinks, into blood substance; for the blood itself, of course, is cosmic substance. But it is the activity of overcoming the material chyme, the physical chyme fluid, that keeps the blood going. [This last remark was made in answer to a question about the origin of the blood.]

[With reference to some remarks about the difference of man and animal, Dr. Koenig continued]. I believe it might be possible to find a way to prepare human faeces so that we can use them as manure, and need not reject them. Usually one says that they are quite impossible to use, but I am not so sure. Why should it not be possible to lift this material up from its dead condition, and make it alive? Why should we not, for instance, use skimmed milk to enliven it? One would have to investigate this, to give it a good deal of thought and trial. If so many plastic materials can be made out of milk, why should one not use a bit of it to enliven human compost? I can well imagine it might be possible.

Question: What is lymph?

Dr. Koenig: It is blood without the red blood corpuscles. The lymph is entirely separate from the blood. The lymph is produced more or less through the work of the spleen, the lymph glands, the thymus gland, etc., whereas the blood corpuscles have an entirely different source. Nevertheless, the progres-

sion—from chyme to lymph to the venous blood up to the arterial blood—is quite correct.

Question: Did you mean that there is a separation in the chyme between the spiritual and the physical? You spoke about it almost as if there was some ash rising. Where is the spiritual?

Dr. Koenig: The ash rises after all this has been accomplished. But the chyme, before it has risen up and become sensitive substance and Ego-carrying substance, is purely physical. Out of this process, as it is a rising process, ash must fall down. And this happens.

Comment by a Member: To make this quite understandable, perhaps it is necessary to imagine the chyme being lifted progressively from the physical to the etheric, the astral, and the Ego realms, when it dematerializes. When it becomes etheric it becomes like a plant juice, when it becomes astral, it becomes something like muscle tissue. If you take a piece of wood, and burn it, you get warmth and flame, which you cannot confine like material substance, and you are left with the ash. So in this process, where chyme is lifted up into higher realms, it eventually dematerializes, but some material or ash remains, and that is what goes to the brain.

Dr. Koenig: If you really follow the chyme being lifted up to living, sensitive, and then Ego-bearing substances, you will see it is a process which occurs in a rhythmic sequence. It is like the building up of the layers of the onion, only becoming finer and finer, instead of coarser and coarser.

Lecture III

In the last two morning lectures I have been trying to explain the cosmic and earthly nutrition streams from a special point of view, in order to be now able to lead into a discussion of the working of calcium and silica, in man, animal, plant, and in the whole world. Let me remind you of the diagram of two intersecting lemniscates that I drew last time, indicating the cosmic and the earthly nutrition streams. (Fig. 6)

The lower part of the upper lemniscate is where chyme is formed from the substances of the outer world—which is then carried up, so to speak, into the upper part of the second, the lower, lemniscate, to the head organization and the brain. The lower part of this second lemniscate is where our differentiated organs work together with the generalized chyme, and where the whole metabolism takes place.

This picture of the two intersecting lemniscates, if we take it seriously, can become a key with which to unlock many of the doors which hide the wonders and riddles of existence. For no life existing here on earth can be understood without considering these upper and lower streams, and how the upper one interlocks with the lower one, and how the lower one builds up the upper one. It is a picture of the way man and the world are joined together. If you see this in conjunction with what I tried to indicate with the words antipathy and sympathy, then you will gradually learn to understand what nature shows to us. What is important is to see how, everywhere, that which is above creates what is below, and that which is below becomes transformed into what is above; this is the basis of earth existence.

If I had been talking to you about these things during the Old Moon stage of earth's evolution, for instance, it would

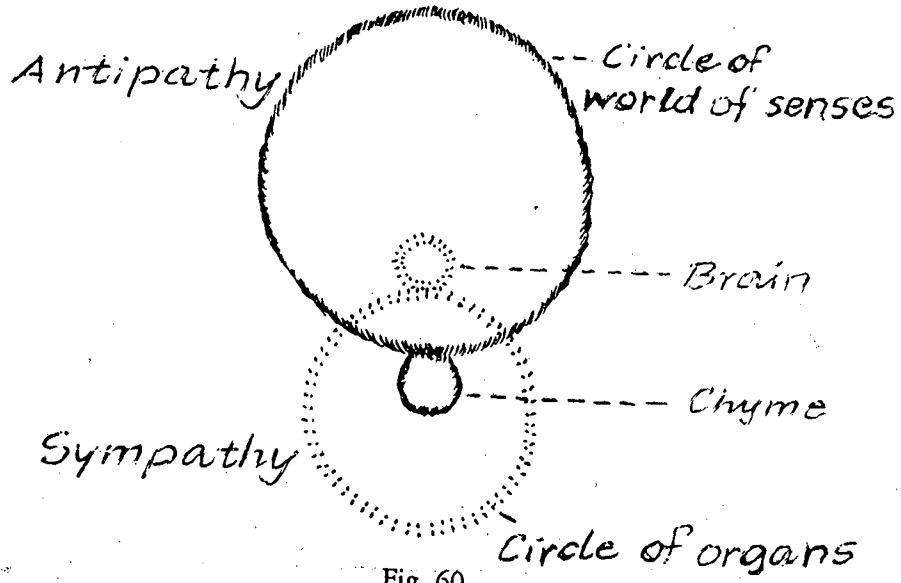

Fig. 60.

have been an entirely different matter. Such images and pictures could not have been used; they would have been different. On the Old Moon we would have had to speak, for instance, about spiral figures. On the Old Sun, again, the teaching would have been different. But here on Earth, the lemniscate is the basic figure. It is a figure which can be used in all sorts of variations, and if you can learn to transform your thinking into such forms, then you have won the battle of thinking here on Earth. You will have found out how to think in realities here on Earth.

I have often been told that it is shattering to learn that our eyes should be regarded as digestive organs. Why is this? Because if we take the image of the lemniscate seriously, we realize that in order to provide us with sense impressions, our sense organs must be digestive organs; and in order to digest our food, our liver, spleen, kidneys, and our intestines have to be sensory organs. There is no other possibility. How can they digest, if they cannot sense what they are digesting?

Dear friends, one of the great riddles of science today is this: when you place a substance on your tongue, how do the salivary glands "know" exactly what kind of substance it is? The fluid they excrete changes, according to the substance. Put a stone on the tongue, and nothing will flow; put meat on it, and a certain saliva will be produced; for cabbage, another kind of saliva will be produced. But the riddle is solved if one knows the salivary glands are not simply machines which secrete a certain amount of fluid. They secrete a particular sort of saliva because, in fact, they have tasted the nature of the substance on the tongue. In exactly the same way, our eye "tastes" the nature and the variety of colors; and in tasting, it immediately responds by secreting, for instance, a certain amount of phodopsin, with which it "digests" the color which it has tasted. We see, but our eyes taste. We must learn to think of our sense impressions as digestive processes, and of our nutritive and digestive processes in terms of sense impressions.

To substitute nerve-activities for sense impressions, as is often done today, is of course nonsense. The nerves sense as little as bones do. The liver, dear friends, the spleen, the gall, or the kidneys can sense much more than your face can. Rudolf Steiner described, in one of the lectures he gave to Waldorf Teachers in 1919,* how the nerves exist simply to provide hollow spaces, and within these hollow spaces, a meeting beteen the self and the Maya world of the sense can take place. Nerves are a negative element in the world order, not a positive one. The nerve destroys, takes away, recedes.

If we understand this interplay between sense perception, digestion, and nutrition, between antipathy and sympathy, between above and below, we can go one step further. We can understand how an embryo develops in the mother's womb only if we know that something descending from above joins something coming from below. It is only when the hereditary stream meets with the being, the soul-spirit, who is descending onto the earth, only at the meeting place of these

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two streams, that the embryo, within the sheaths of the motherly womb, is created. In the plant it is the same. These two streams have their carriers, their bearers; the upper stream has a chariot in which to descend, and the lower stream has, as it were, an escalator (and I use these two words quite consciously) on which to ascend. (I know that an escalator may also go downwards.) There does exist, however, a chariot and an escalator which have to meet; they are silica and calcium.

We shall not go into the substance itself too much, because every attempt we make to understand calcium or silica, from the point of view of substance, will in itself fail. To explain why, I must again make one of my great demands on your "common-uncommon-sense." Not your common-sense. Calcium and silica must not be considered as substances, because they have no value as substance. If calcium and silica are considered in exactly the same way as nitrogen, hydrogen, carbon, sulphur, and phosphorus, and so on, it is, as far as I can see, a big mistake. Neither calcium nor silica nourish living organisms. They feed neither plants nor animals nor men. Nevertheless, they are necessary for the whole world. We have to thank Rudolf Steiner for so many special discoveries, but I believe that if he had pointed out to us only one thing, how silica and calcium work in a polar opposite way, in all organic as well as inorganic life, it would have immortalized his name here on earth and he would have been remembered with gratitude by millions of people.

If calcium and silica are not nourishment, what are they? It is very difficult to describe what they are, but perhaps you will understand what I mean when I say that they are catalysts. They do not change themselves, but they must be present, and in their presence all other, or many other, substances start to order and arrange themselves in their proper way. We need nitrogen and oxygen as nourishment in building up substance. Now don't say: "But the skeleton is 90% calcium." Yes, it is—but as calcium, it has fallen out of the living stream of existence and has constantly to be held within this living stream. You can't take your bones and eat them—it is quite

impossible. Nevertheless, they must be there; the shell of our skulls must be there, as must silica, in whatever form. It may be present more in the form of substance, or more in the form of an etheric force, as process. In the first lecture of the agriculture course, Rudolf Steiner says that if only half the calcium or half the silica of the plant were there, then the plant would look like such-and-such. Please understand what he means. He does not say that "silica does this or that," or "lime does this or that," as he does when speaking about nitrogen or oxygen. He says, "if they were not there."

In another lecture of the agriculture course, he points to something which everyone knows who has taught imaginatively about lime: he describes lime as being greedy. It sucks, it takes, it can't leave anything alone. The catalyzing process of lime continues until the lime is satisfied. The more you learn to understand lime, the more you will call it HE. I do not say that lime is masculine; that would give a wrong impression. But nevertheless you can call lime HE.

In exactly the same way, if you study silica imaginatively, you gradually come to call it SHE, as you call a car or a ship SHE. You will do this because a certain affection for silica will gradually be instilled in your soul, and you will learn to understand that silica is not greedy at all. She is also, as it were, never satisfied, does not wish to be satisfied. She is like a highly educated person, who would never stand in the way of anything, a being who has become so wise and so great that she has turned into nothing else but a mirror for others. So there you have SHE, but this does not mean that "She" is a lady; and there you have HE, but not necessarily a man. This HE and SHE are something much higher in creation than what is represented as male or female here on earth. It is the eternal HE and the eternal SHE which meet us in these substances, and this division is a real necessity here. But just as here on earth the HE is often unable to live without the SHE, and vice versa, the silica can only be understood when it works together with the lime, and the lime can only be understood

when it works together with silica. The crust of the earth, Rudolf Steiner told us, consists of about 50% silica and about 30% lime. Imagine what this means. Imagine that wherever we tread, the HE and the SHE have given us the ground on which we walk; HE because he gradually became satisfied, SHE because she gave herself up to make it possible for other substances, powers, forces, beings, to work through and with her.

Now, dear friends, let us consider the human embryo. (Fig. 61.)

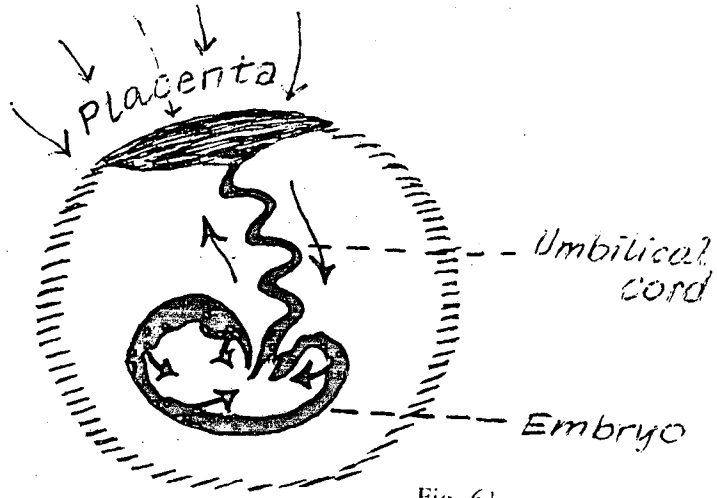

Fig. 61.

Within the motherly womb is the placenta, and from the placenta the umbilical cord leads into the developing embryo. The umbilical cord is one of the organs which contains the greatest percentage of silica. Why? We can ask ourselves, why has SHE settled down, as it were, in the navel cord? What does the umbilical cord do? The embryo is built up by cosmic forces on the one hand, and by the forces of heredity and earthly substance on the other. These two meet by means of the umbilical cord; from the placenta, the cosmic forces stream inwards,

and from the embryo, the hereditary forces work outwards, and they have their meeting place in the umbilical cord; they meet in the colloid of the silica sheath of this very strange and wonderful structure. In fact, this cord is an eye, which looks into the cosmos on the one side, and an ear, which listens to the hereditary substance on the other, to find out how much of each should meet there. What streams down from the cosmos forms itself in accordance with all that streams out of the hereditary forces.

The proportion of silica in the embryo is much higher than in the child; in the child it is higher than in the adult; and in the adult it is higher than in the aged. The silica content gradually sinks from birth to death, whereas the calcium content of the body gradually rises from birth to death, in normal people. More and more of the silica forces from above find their way into the earthly structure, increasingly overcoming and satisfying HIM, and precipitating HIM into the body. (Fig. 62.)

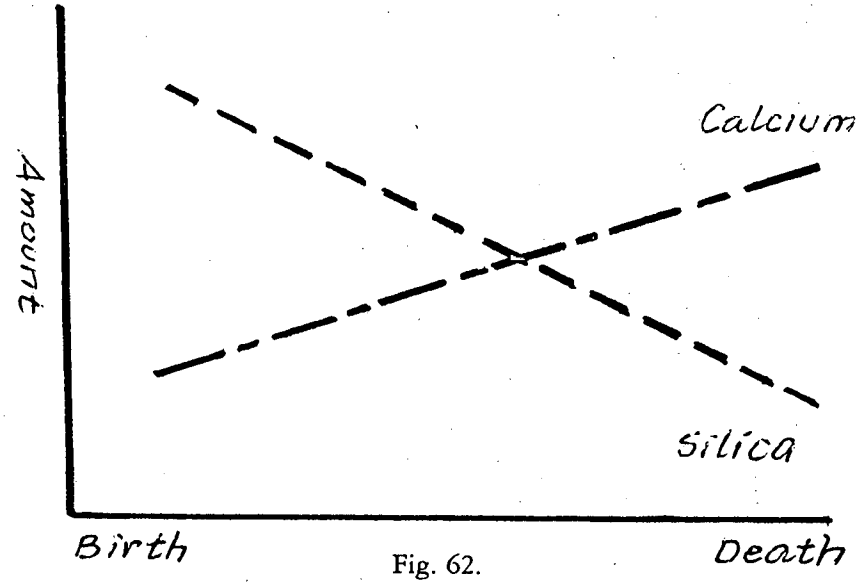

Fig. 62.

We can, from a superficial point of view, speak about silica as etheric, and lime as astral. But in fact both lime and silica in man have to subject themselves to the Ego organization. Within the animal, they are subject to the astral organization; in the plant they are subject to the etheric organization. Therefore there is physical calcium, and physical silica; plant calcium and plant silica. In the homeopathic *Materia Medica,* the condition in need of calcium carbonate is described as a child whose head is a little bit too big, almost on the way to hydrocephalus; the face is puffed up; the eyes are shy of light; and everything "runs." You know these people whose nose runs continually, whose saliva runs, their ears discharge; everything is puffy; nothing is properly formed and hardened. This, in a homeopathic text book, is the picture of a person who is in need of *Calcarea Carbonica.* In such cases, the lime has not yet come under the forces of the Ego; what you see is a person suffering from too much astral lime. The astral organizaton has taken up the lime, but the Ego has not yet inserted itself into it. There is another condition, where we suffer from plant lime within us. In animals, the opposite can happen—their lime may be suddenly taken up by the forces of the Ego. Thus, as Dr. Steiner once said to Dr. Kolisko, when man becomes ill, it is a tendency towards the animal condition; when the animal becomes ill, it is a tendency toward the human condition. These things must be understood; only then can one gradually learn to comprehend the HE and the SHE in the world and in man.

Now consider your inner ear. It is like a tiny SHE, inserted into the bone which lies behind our outer ear; it is entirely withdrawn from the rest of the body. The head is itself withdrawn from the body, and within the head there is still a more remote place, a place which withdraws completely. Consider this structure, and then go out into the world and observe the molluscs. If you study the formation of shells, the formation of snails, the formation of the cuttlefish, you will find in these animals exactly the same tendency which you find in the human ear—a tendency to withdraw. The shell

closes itself up; the big shells need the strongest possible instruments to open them and then they close again at once. A snail comes out of its house—and at once draws back again, away from the world. The cuttlefish, instead of withdrawing into a shell, surrounds itself with dark ink and swims backwards. They all, as it were, move backwards. The same tendency is in our inner ear. All the molluscs build a shell of calcium around their body, but only because they are too sensitive; they are so much SHE that they can't do otherwise than make HE, HIM, very strong. You will time and again find calcium and silica working together in this way.

Don't think that the mussel or the snail are in any way typical "HE" images of nature. Just the opposite. This withdrawal, this "Don't touch me," is a picture of silica. This is SHE, this is the virgin on the crystal mountain. But if SHE has to enter into life, what does she do? She takes a hard coat of HIM, of lime, and puts it round her. Otherwise the equilibrium would be disturbed. You find even in the plant world that the most tender ones have the hardest bark. Don't think that the oak is as unbending as the Teutonic people would like it to be; not in the least. The oak is an immensely tender being. You can see Rudolf Steiner's wonderful understanding of substance when you remember that he advised us to take the oak bark and put it into the skull of an animal, where the brain would normally be*. It belongs there because the strong power of HIM, which is expressed in the skull bones, gives comfort and shelter to the tender existence of the oak. Is it now surprising that all our sense organs have, as it were, crept into our skull, and that now they sit there and just look out—the nose, the eyes, and so on? But wherever they look out, a silica sheath covers them; this is in order that the outer world can stream in. The sense organs are SHE who have looked for refuge to the place of HIM, the place of the skull.

Rudolf Steiner, in his lectures on the Archangels** (October 1923), says that lime is not simply lime; winter cal-

*Prep. 505.
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cium is different from spring calcium. In the spring, calcium starts to wake up and becomes something quite different. You see, when the plants grow in spring, their lime content is reduced, because they reach out to meet the sun of silica. And in the autumn, the lime content of the plants increases again, because the plant is withdrawing down into the earth, into the hereditary stream, into digestion, into greediness. Lime works between spring and autumn, but silica works between summer and winter. (This point has been elaborated further in the discussions following.) (Fig. 63.)

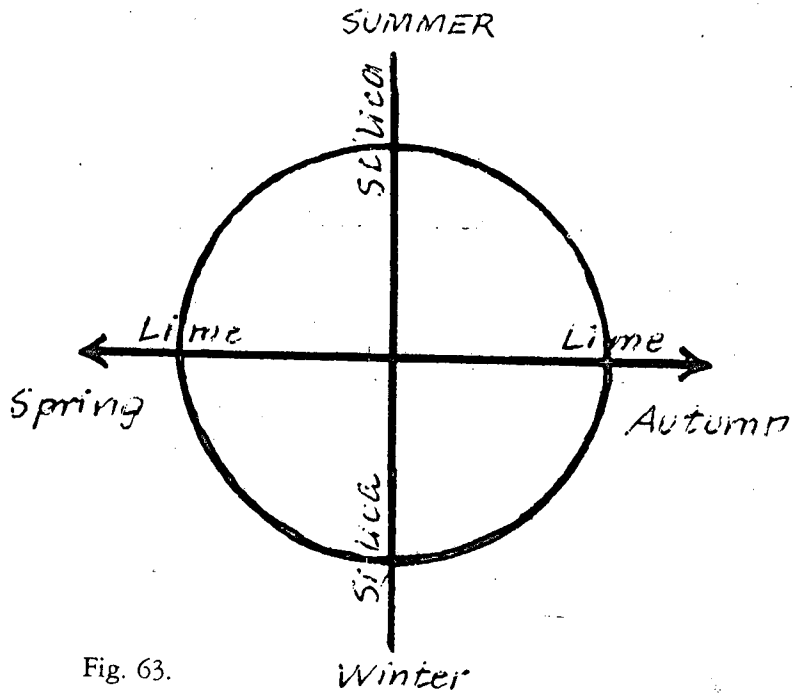


Fig. 63.

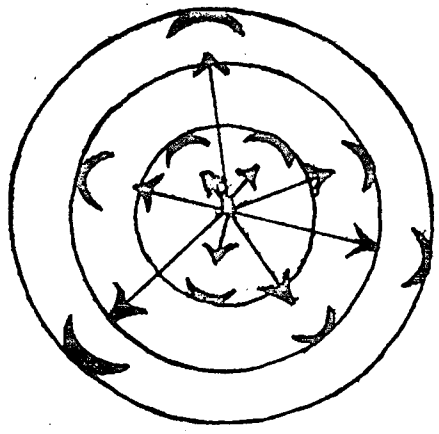
Although a tremendous amount of lime is precipitated in our skeleton, the form into which it is precipitated is silica. For all those beautiful, ingeniously arranged fibers in our bones, like an engineer's arrangement of girders in a bridge,

are built by silica. When they have formed, they become filled with calcium, and the silica disappears. It recedes, and the lime takes hold, becomes satisfied, and the bone is built. What we take as substance for the world of silica is borne on the stream of silica, and becomes chyme, which is lime. The formation of our skull is a silica process, but its form becomes that of lime and calcium. Of course we cannot chemically change silica into lime, or lime into silica. We can change lime into nitrogen, and we can change silica into an unknown substance, as Rudolf Steiner indicates in the agriculture course. (See the Discussion following.) But the HE and the SHE must always work together; the silica from without, inwards, gently, layer after layer; the lime from within outwards, greedily demanding, radiating and thus filling the silica layers with lime substance and forming shell after shell.

You should never try to estimate the forces of HIM by measuring the percentage of lime within a given organ; you might measure HER when you find HIM as substance; because SHE uses HIM and HE uses HER and both belong to each other.

One thing can be a guiding principle if you try to follow the workings of lime and silica. You will find that wherever lime is, there is movement, that calcium and mobility are connected with one another. Further, you will find that both calcium and this mobility are subject to a higher power, sound. **Where there is sound and music, there is lime and movement.** For this reason, the organ of Corti is built of lime and calcium. It could not be different in an organ which is connected with hearing. On the other hand, wherever there is silica, there is **light** and **color.** Color and light are connected with silica. There two worlds meet one another in every substance; sound and movement and color and light meet, and in them the soul's and spirit's existence, whether in plant or animal or man, is centered here on earth. Lime and silica have enormous catalyzing powers here on earth. (Fig. 64.)

Dear friends, I have again and again tried to make the working of these two substances understandable to our 20th



Calcium
Sound and Movement

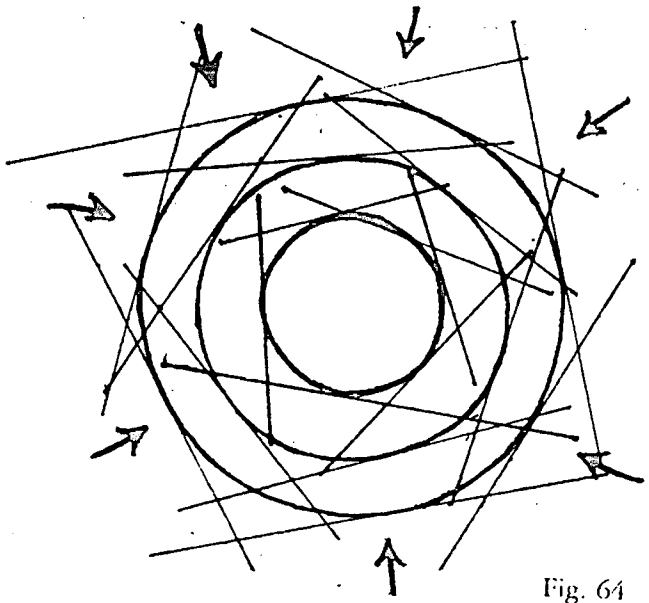


Fig. 64

Silica
Light and Colour

century way of thinking. One day I was permitted to discover, as it were, the archetypal picture of lime and silica; living with this image for years has helped me to understand the mysteries of these two substances.

In the Gospels there is recorded a very remarkable incident, where Christ is called to raise the little daughter of Jairus. On his way to the child he suddenly stops among the crowd, turns around, and says: "Who touched my clothes?" No one will confess. Then he says: "Somebody hath touched me, for I perceive that virtue is gone out of me." Then the woman who had suffered for twelve years from an issue of blood says, "I did it." While this is happening, through the delay, the little girl dies and the Christ then goes to raise her. Rudolf Steiner described on several occasions how the woman and the child had in fact an intimate karmic relationship. But he also points to the fact that if we suffer an issue of blood, we lose calcium. Christ himself felt that forces were taken out of him; the lime of the woman with the issue of blood did this. The Christ's own power directs the calcium within the woman's body to stay and not to flow away.

This is a picture of lime; that substance cannot be held properly. Therefore, from everywhere, powers are taken until the I AM himself can take the line and hold it. ON the other hand, one can imagine how the twelve-year-old girl gradually withered away, because she was nothing else but image, wanting to give herself up, to abandon all connection with earthly existence and simply to withdraw. But again the Ego of the I AM came and raised her, and brought her into its power. You will find that this picture will help you more and more when studying these two substances.

Third Discussion

Question: Could we hear a little more about the silica working between summer and winter, and the lime between spring and autumn? This was not quite understood.

Dr. Koenig: Just about at this time of the year, thirty years ago (in October, 1923), Rudolf Steiner described the different seasons in connection with the work of the four Archangels. There he shows us an interplay between two and two. In the fifth lecture of that course he speaks about the way summer and winter, and spring and autumn, work together. Naturally, winter becomes spring, and spring becomes summer, summer becomes autumn, and autumn turns into winter. But one must imagine that a kind of cross is inserted into the cycle of the year. (Fig. 63) At the extremities of this cross, the beings of spring, summer, winter and autumn are fixed; but further inwards, their spheres are continually changing, one into the other.

Lime belongs to the spring-autumn line. Silica belongs to the summer-winter line. The silica and the lime are catalysts of these two seasonal streams. The summer-winter stream is that in which the cosmos streams into the earth and back again. If lime, as the catalyst of the spring and autumn stream, were not there, the summer-winter stream would not be able to act. It would not take hold of all the different substances and make them meet together, join and revolve, and then part again. The calcium within the spring-autumn stream takes the cosmic summer-winter stream and holds it—and lets it go again. Otherwise, this cosmic stream could not work in nature. Therefore the calcium content of the plant diminishes in spring, and rises in the autumn; it is like a barometer for the SHE-stream. The plant, as it were, offers all the other substances a meeting place; when the meeting has come about, it recedes again.

Question: Does the lime process change over to a potash and magnesium process? You say the lime diminishes in the spring. Is that because it becomes transformed into these various substances?

Dr. Koenig: I think one must look at it in the following way: calcium is especially connected with the element iron. Silica, on the other hand, is especially connected with the element magnesium. Now the chlorophyll in the plant has magnesium as its central constituent, and the haemoglobin in the blood has iron as its central constituent. In man you have the skeleton which is, from one point of view, lime; it is even a lime heap! The older we grow, the more "lime-heapy" we become! But from out of the bones, as long as we are alive, the blood springs. The bone marrow is the birthplace of our blood substance. Within the bone marrow the cradle of the blood is built, and it is the power of iron which builds it. Wherever there is calcium, iron comes in too. If calcium did not have iron, the calcium would not be healed, so to speak. It is a continual healing process. In the Archangel Lectures, Rudolf Steiner speaks of the healing influence of meteoric iron on our blood. Our blood is so much of a lime carrier, we have such a quantity of lime in our blood, that it must continually be tamed, so that the greed, the growth, the overwhelming flow are not too strong.

Silica, on the other hand, is in need of a consort who is similar to her. Magnesium is this substance. Wherever magnesium appears, it creates fibers. This can be seen even in minerals. But the fiber of magnesium is not like the fiber of silica, which is transparent. In its fibrous structure, magnesium stores, so to speak, light and warmth; and then it explodes. But with the help of these powers, the silica is compelled to work; here is not a healing process. HE must continually be tamed down, SHE must continually be tempted to be active. Alkalis are connected with calcium; and barium, lithium and so on are connected with magnesium. It is very interesting to study geology with this in mind.

Question: Could you say something about the difference between plant silica and the silica in man?

Dr. Koenig: When you study the silica process in man you will find that it is always on the surface. It is not only on the outer surface, but also on the inner surface. Silica is distributed in the hair, and all over the body in the layers of the skin, where horny material is continually forming and being discarded. It is a layer in the eyes and in all the openings which form our senses. Now consider the skeleton. The inner and outer surfaces of the skeleton are also filled with very fine silica substance. Thus there is an outer layer of silica, and an inner layer of silica. Rudolf Steiner calls this the silica-scaffold of man. Between these two, there is a space—and it is within this space that we develop our Ego-consciousness. The silica shields us from the outer as well as from the inner world. The outer world is the world around us; the inner world is the being of the blood. As conscious human beings we may not take part in either directly, but this space in between the blood and the outer world is left open to us. And these two must continually be in equilibrium. In this way we can have our own, our "private," dream—and sub-consciousness. This is the hiding, the shielding effect of the silica.

In the plant the silica works quite differently. In a growing plant, the silica forms a continuous etheric mantle around it. (Fig. 65)

And in the same way that in man iron grows within the lime, so in the plant magnesium grows within the silica. Now consider a plant like equisetum, for instance. What has this plant done? It has forcefully clad itself in a mantle of silica. It has made physical what otherwise is a kind of etheric mantle. The different extent to which a plant brings silica into physical substance is an indication of its calcium power. Equisetum has a tremendous calcium power, which can be checked only by the armor of silica which it carries around it. Now you can understand why equisetum plants were so huge during the time of

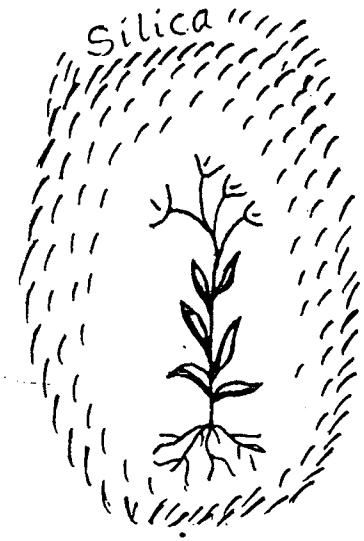


Fig. 65.

Lemuria. Lemuria was, so to speak, a forceful attack of the HE, of lime, on earth. At this period the huge animals developed; Rudolf Steiner once said that the behind of one of them was bigger than Switzerland is today, so huge were they. They swam in the soupy atmosphere of Lemuria; and there, also, the silica plants, equisetum plants, grew. I do not know how high they were, but I can imagine they could have been 200, 300, or 400 feet high. A tremendous greed for power was there in the early Lemurian epoch, and it had to be controlled by mantles of physical silica.

Mr. te Nuyl: It is of the greatest importance that anthroposophists should develop insight into spiritual forces in matter to the same extent that science is developing insight into material forces in matter. I would like to say a few words about what science is doing with silica. Silica is used as the catalyst in the production of hydrocarbons, often together with aluminum, the clay element. Silica is used in the form of colloidal powder which provides a total inner surface of about 300 square meters per gram, or more. Now compare this with the

silica preparation we use. In industry we use silica with an inner surface. And Dr. Mier said yesterday that colloidal silica would be no good for our Preparation 501. At the same time we use the alkaline materials, calcium and postassium; sometimes iron will work as a catalyst in the production of hydrocarbons, only in an alkaline atmosphere. In catalysis we work with the same forces Dr. Koenig is speaking about.

Dr. Koenig: This is most interesting. Colloidal silica is contained in the umbilical cord, and to a great extent in the lens of the eye. It leads through; it does not reflect. . . .

For years I have been struggling to understand what silica really does. In the fifth lecture of the agriculture course, Rudolf Steiner says that silica is changed within the organism into a substance which is of the greatest importance, but which, at the moment, is not numbered among the elements at all. Silica is transformed into this substance. Do you remember this? What does it mean?

Question: There is an old book* which mentions an analysis where a certain amount of aluminum was found in dandelions. Later researchers say it can't be found. It struck me at the time, is it possible that this transmuted silica would be a substance which could be mistaken for aluminum, and which might possibly have something of the nature of clay?

Dr. Koenig: You know, I could well understand this from geology and mineralogy. Aluminum and silica are often intimately united, and one never knows exactly how they keep together. There is perhaps something between the two which so far has evaded chemical analysis. I always have the impression it must be something which is almost, but not quite, a metal, like aluminum, which is just not quite a metal.

Referring to potash and dandelion: Through the influence of lime and hydrogen, potash can be created anywhere in

*E. Wolf, *Aschen-Analysen von land-und forstwirtschaftlichen Produkten*. (Berlin, 1871, 1880).

the plant. I call this cosmic potash because it has not come via the root, but directly through the creative forces. (Here Dr. Koenig refers to a statement he made in an ealier lecture course.)

Question: Silicones have been used in veterinary work for the curing of bloating. I am wondering, in the light of what has been said about silica, if instead of curing the animal after it has been attacked, one might feed silicones when there is a danger of this happening. Do you think it might be possible to develop a silica preparation for this purpose?

Dr. Koenig: I am quite certain that if we could develop a silica preparation it would work much better than the silicone. Because in the silicone you have simply turned SHE into a corpse. SHE has died, and acts only as a substance, which for silica is altogether wrong. One should not do it. One should always give silica the chance to withdraw as substance, and not to be imprisoned by it. I think that it would be much better to develop a homeopathic preparation of calcium against bloating. Then you would do justice to the cattle.*

*
Note: It has been found that the use of preparation "500" as a field spray on pastures greatly reduces bloating.

Lecture IV

Just when we have reached the point where we could really begin to deepen our understanding of substance, we have to end this course. But life is often like this, so we need not be sorry or sentimental about it.

Today we must consider, from various points of view, what Rudolf Steiner describes so beautifully in the third lecture of the agriculture course. There he speaks about five principles: sulphur, and behind sulphur like an unseen twin, working closely with it, phosphorus; and then carbon, hydrogen, nitrogen, and oxygen. The more you read this lecture (and probably every one of you has read this lecture many times), the more you can imagine how these five beings actually move in a most beautiful rhythm throughout the existence of man and nature. They are mighty beings, performing a dance of creation and recreation, precipitating and dissolving substance; thanks to them each one of us, each group soul of the animals, each group soul of the plants, is able to tread the ground of this earth; thanks to them, we can work out our destinies with the group souls of the plants, the group souls of the animals, and with the earth underfoot, the throne of the world, which once was created and will last for a time. These five substances play together, perform together, on the background of silica and lime, the SHE and the HE of the world. They are the great catalysts which make it possible for these five beings, oxygen, nitrogen, hydrogen, carbon, sulphur, and phosphorus, to play and work together.

In 1922, Rudolf Steiner gave a series of lectures to a group of young people. He was speaking of nature, and of the laws of nature which had been discovered during the 19th and 20th centuries. And then he suddenly asked: "Suppose nature were not, in fact, a scientist at all, but an artist?" And in point of fact, Rudolf Steiner said that nature is an artist.* He told these

*GA 217. Oct, 3, 1922. Lecture I, in *The Younger Generation.*

young people that only by trying to live as artistically and creatively as nature herself is it possible to discover how she works. Every human being should try to do this. Rudolf Steiner quite purposely omits a definition of carbon, hydrogen, or oxygen. He does not sharply define; he does not take them and break them; he describes and paints their deeds. Oxygen, he says, is intimately connected with all that is alive; where nitrogen is, you will always find astral forces, but what nitrogen actually does is to lead oxygen down into the realm of carbon where they can unite. And when you listen to such descriptions, dear friends, and you do not use the intellect only, you will gradually become aware that behind Rudolf Steiner's descriptions there is an image, a real picture. The picture of nitrogen is like a being with wings, and on the wings it leads oxygen down into the physical structure of carbon. And how does Rudolf Steiner describe carbon? He calls it a "Schwarzen Kerl," a dark, black boy. At the same time, he says that, although it is omnipresent, it has a hidden quality. In the Middle Ages it was called the Philosophers' Stone.

The more you study this third lecture, the more you also will find that each one of these substances expresses itself in a special geometrical shape. The more you penetrate into the nature of carbon, the more you begin to realize that its forces, the way it works, its "personality," express themselves quite objectively as a square. And you will discover that nitrogen, which descends and connects oxygen with matter, expresses itself as a triangle. I only mention this in order to show you how Rudolf Steiner taught. By re-reading and plunging into this lecture, by swimming in the words, you will begin, as it were, to become this substance. The weight and quantity of these substances then become irrelevant, because they are omnipresent. No one can say where oxygen, for instance, appears in the body, for it appears everywhere, in the protein, the fats, and the carbohydrates. The same applies to hydrogen. Hydrogen works in such a way that everything that has been built up is reunited again with the cosmos. Carbon is omnipresent, and so is nitrogen.

Carbon is the hidden formative power to which all other substances tend to grow. Oxygen lifts mineralized substance up into the sphere of life, and nitrogen then raises it up into the realm of warmth and fire, and phosphorus carries it into the realm of light; from there, hydrogen leads it into the spirit realm.

If we understand the coming and departing of these substances, then we will understand, dear friends, what really takes place when chyme is formed within our intestines. It is lifted up through the power of these substances, step by step, into living, sensitive, and spiritual substance, by way of the organs which I described to you earlier on. The rhythmic organization, with the help of oxygen, lifts up the chyme into living substance; the kidneys, and all that is connected with them and with the nervous system, bring about the sensitive substance; then the liver, the spleen, and the gall, with the forces of hydrogen, lift up what was formed in us into spiritual substance and lead it out, back into the cosmos. Imagine in this way the earthly nutrition stream which is given up to the burning and flaming powers of the world of substance. In this burning process, ash falls out (we must imagine that it actually rises upwards), gradually reaching the brain, where it settles down; this is the bread which nourishes the brain.

On the other hand, let us consider the description of the nerve which Rudolf Steiner gave in his lectures to doctors and priests;* there he describes the nerve as a digestive organization. The ether, streaming in through our senses, carries light, sound, and life. It travels down by way of our nerves into our entire organization. Now we must imagine: one stream goes out into the world, and its ash nourishes the brain; the other stream goes down into the body, furnishing us with ether substance. Rudolf Steiner describes how in the sphere of our senses we actually inhale warmth; and in this inhaled warmth, light, sound, and life are contained. We also exhale this warmth, but we do not exhale it into the outer world. The exhaled warmth flows into our body. In our chest-organization, we inhale air, and exhale warmth, but the exhalation goes out not into the world, but down into our body. These two streams, the exhaled warmth which carries light, sound, and life, and the inhaled air, meet and finally settle in what science describes as lymph. This cosmic stream carries light, sound, and life as it descends, and in descending it leaves the light behind in our head where it becomes our inner light. The sound is left behind to change into the inner activity of our rhythmic system. The life goes right down into physical substance, and this is what really fills and nourishes us. This life ether takes hold of carbon, the sound unites with oxygen and nitrogen, and light works together with sulphur and phosphorus. (Fig. 66.)

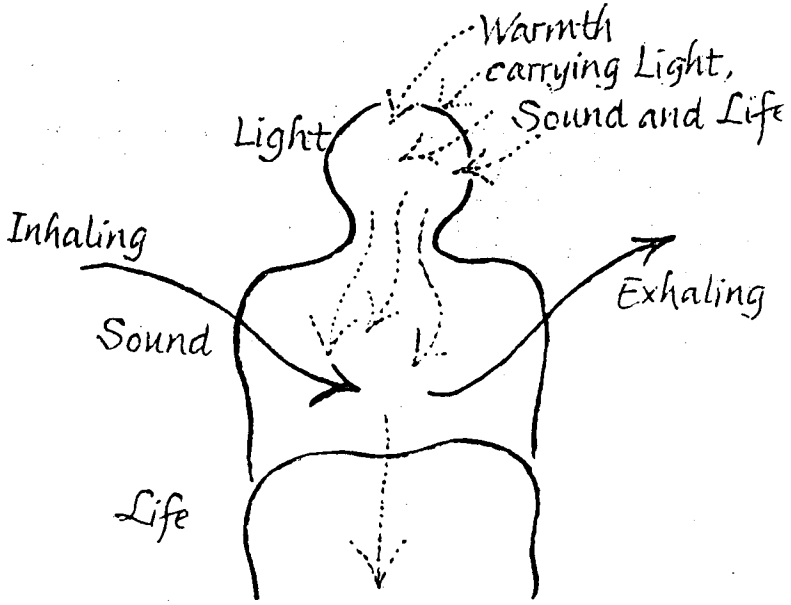


Fig. 66.

Now, dear friends, we may ask a question: where in our body do all these processes take place? As far as I can see, the keys to understanding the deeds of substance, the flow of the cosmic nutrition stream, and the rising up of the earthly nutri-

*GA 318

tion stream, are a series of organs which were largely neglected until about sixty years ago. These organs are the so-called endrocrine glands. The hormones which they produce are important elements in the household of the human organization. Today, such a great amount is known about these organs that, so to speak, nothing is known about them any more. No one knows the beginning, the end, the center, the top or the bottom of the subject. Nevertheless, certain facts are known about these organs, and some of them I would now like to describe to you. (Fig. 67.)

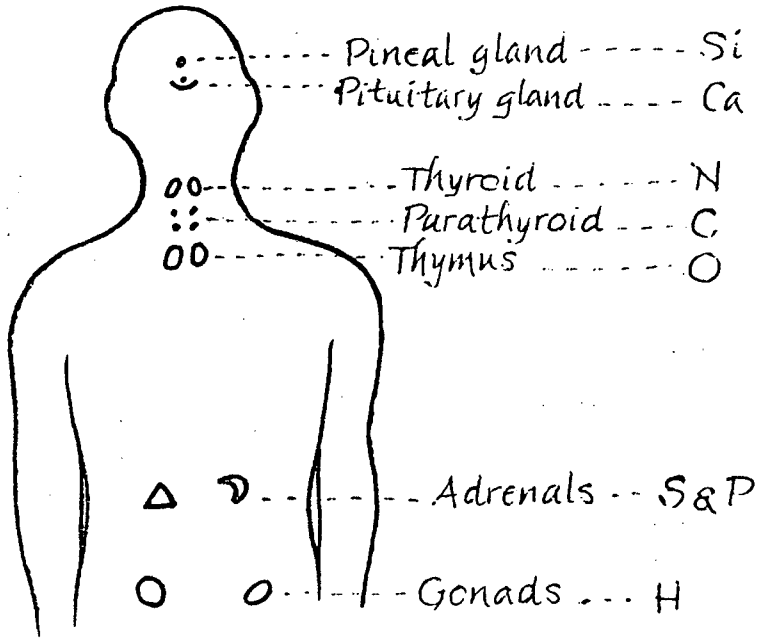


Fig. 67

You remember how the day before yesterday I spoke about the pineal gland. This is the gland which receives the ash of the earthly nutrition stream from below. On the other hand, the pituitary gland receives the cosmic nutrition stream,

and takes it down into our organization. This process of exhaling warmth down into the organism is centered in this gland. If we picture how the cosmic and earthly nutrition streams work in the pituitary and pineal glands in connection with silica and calcium, we can understand that it is the pineal gland which orders the silica structure within our organization; and it is the pituitary gland which leads the calcium in and out of the body—but not in the form of earthly matter. We should not imagine that the pineal gland keeps a certain amount of silica and then spits it everywhere it is needed, or that the pituitary gland does the same with calcium.

The pineal gland is a very strange organ; in fact, it seems to indicate just the opposite of what I am saying. In the pineal gland you will find a most beautifully shaped crystalline calcium carbonate structure. Individuals whose calcium carbonate crystals are missing from the pineal gland are what we, with our intellectural pride, call idiots, imbeciles. Without these crystals, they cannot insert their lower Ego properly into the work of their head organization. The structure of all the silica in our organization is held in place by this organ, in which lime is deposited. It is the silica, the SHE, which maintains the outer and the inner sheath, as I described yesterday, whereby a space for our consciousness is formed. This is achieved with the help of the pineal gland. If the pineal gland is damaged by disease or accident, what happens? Childhood is destroyed. A three-or four-year-old child whose pineal gland is damaged changes, within a few months, into a somewhat adult person, both physically and mentally. Such a child falls down into matter, because silica can no longer keep his soul-spirit in a state of detachment from matter. The opposite also occurs. Where the pineal gland is too strongly at work, mongol children arise—there are many of them today. Wherever you meet a mongol child, you know there is something about him which is not individual, but general. Therefore they look very much like one another, as if they all were brothers and sisters. They go through life untouched by earthly experience; they do not dive into sexuality at all and therefore they are also

unable to think in a "down-to-earth" way. Their silica forces are so strong that the lime and calcium of the earth make hardly any impression on them. Of course they have a certain amount of lime in their bodies, but their skeleton is not well formed; it is a rather soft, thin skeleton.

If you examine the invertebrate animals, you find that they are quite unable to form an inner skeleton. They form, as it were, an outer skeleton, a silica skeleton (which in some of them, of course, becomes impregnated with lime). Nevertheless, it is a silica skeleton. In us, this aspect of the outer skeleton is centered around the pineal gland. But the pituitary gland governs the formation of the inner skeleton. It grows out from a center, as it were, along five radii, brought down by the silica. From outside, the silica/pineal complex works; from within, the calcium/pituitary complex works. When we know this, it is no longer surprising that in diseases of the pituitary gland the bones of the nose, the fingers, and the toes suddenly start to grow. Such people develop very big hands and feet; this is the so-called acromegalic condition. We can see how growth is specially connected with the pituitary gland; a disorder of this gland makes either giants or dwarfs develop. Severe dystrophic diseases of the whole skeleton, like chondrodystrophia, can come about if the pituitary gland does not function. Behind this gland there stands calcium. Not the earthly substance of calcium, but the inner quality of calcium, which has its seat in the pituitary gland. The being of silica, on the other hand, has its seat in the pineal gland. And between the two, the structure of our organization is kept in form and shape. The pineal is in charge of the outer form, the pituitary of the inner form: calcium and silica: without and within, the macrocosm and the microcosm, the SHE and HE. Now we come to consider the thyroid gland. It lies just in front of the larnyx. The thyroid gland contains a very special substance, iodine. Little vesicles in it, the thyroid vesicles, are filled with iodine bound to a special protein substance. And what does it do in us? I will describe it very superficially, to begin with. If it works too strongly, it brings about a disease

which you probably know, toxic goiter; gradually or suddenly, the eyes of the sufferer protrude, the fingers start to tremble; the patient becomes sleepless, exceedingly restless, driven by fear and anxiety. What is behind all this? The iodine is the servant, the dark servant of nitrogen. The thyroid gland, in point of fact, is the nitrogen center in us; but nitrogen acts in using the dark forces of iodine. It is nitrogen which astralizes the whole organization. It can do this to such an extent that people who are suffering from toxic goiter may lose twenty to thirty pounds in no time. On the other hand, if the thyroid gland does not function strongly enough and the amount of iodine diminishes, a condition called myxoedema arises. The face of the patient becomes puffy, the skin looks as if it were blown up, and a person who was active and lively only three or four months before becomes heavy, slow, and stares aimlessly into the world; the hair falls out, and the person is sleepy and drowsy all day; every activity is slowed down. Why? For the simple reason that nitrogen has lost its ability to carry oxygen down into carbon. Therefore no enlivening process is possible any longer.

The next gland is the parathyroid, four tiny little glands hidden within and behind the thyroid. These glands control the whole carbon process within our body. Only if this parathyroid is working properly does the interaction of silica and calcium in blood and bone function properly. Only then can we build a skeleton, can our blood flow. If the parathyroid is destroyed, what happens? A terrible disease, tetany, results; the sufferer is seized with cramps because carbon asserts its formative forces too strongly, making the patient rigid until he dies. If he were to run or exert himself physically or mentally, he would not be able to stand it. Such children may suddenly, at school or during a game, collapse and die instantly. They have not been able to take charge of their own oxygen. If the thymus dominates in later life, you find another very strange condition. Gradually the whole power of muscular strength fades away. The muscles, as substance, remain; they are not wasted; but the patient can no longer speak or lift his

hand or head. Special remedies are needed to revive his muscle actions for a few hours? Why? Oxygen has remained outside him, and it is quite impossible to bring the etheric body into the activity of the muscles. I tell you these things not to shock you, but to help you understand the profound individuality of different substances.

Now we come to the adrenal glands. There are two of them, and they are different. The left one is shaped like a crescent moon, and the right one like a pyramid. Two substances have their seat within these glands: sulphur and phosphorus. If these glands do not function, the body more or less withers away. In the last three years, "miracle drugs" have been discovered which in a few hours have "healed" rheumatoid arthritis. People crippled for years received an injection, and within a few hours stood up, and in the evening could attend a dance. Two days later, they were back in bed, and stiffened up again. What happens here? A very special substance was found in the cortex of these adrenal glands, which are situated on the top of our kidneys, and are comparatively small glands. The substance which was discovered has the effect of suddenly whipping sulphur and phosphorus into action. All the sulphur and phosphorus resources in the organism are summoned up, and the human spirit can again properly take hold of his organization. For a time, the spirit can work; it can warm and enlighten the body—but then it withdraws again. Much more could be said about these glands.

Lastly we come down to the gonads, which are the seat of hydrogen. This is the substance which connects us with the spirit. Gathered into our body, it is the substance which leads through the generations. When the forces of hydrogen meet with the forces of sulphur (but don't take this as a chemical formula, that would be entirely wrong) the male being arises —no longer the HE, but the male, descended onto earth. And when the forces of hydrogen meet with the forces of phosphorus, the female being arises. When these two meet, a child can enter the physical world again.

In this way, the pictures of the substances which Rudolf Steiner so beautifully describes in the third lecture can become more and more understandable. From the dreamland of imagination, as it were, we can move at their hands into the realm where men suffer and have their destiny. We have followed nitrogen, carbon, oxygen, sulphur, phosphorus, and hydrogen so far down that we have entered right into the hereditary stream. It is a ladder, not simply a ladder of organs, but a ladder of organs acting as the seat of the forces of these substances. A few years ago, I wrote in the *Golden Blade* (1952) an essay called "Meditations on the Endocrine Gland." If you compare what I wrote then with what I have been trying to say now (for instance about the diseases of the thyroid and the parathyroid glands) and if you can see how nitrogen and carbon work behind the glands, you will find your way more and more into an understanding of substance.

The earthly nutrition stream rises up and outwards. The cosmic nutrition stream flows down the ladder of the endocrine glands, passing successively through the seats of substances, of elements in which mighty beings weave and work within us. With this way of studying substance, we will be able to leave its purely quantitative aspect, and begin to approach the qualities of substance. Qualities can only be described in terms of real images; thus we have to describe the quality of carbon as a "black boy," but we can transform this black boy into the square form or gesture of carbon. We can study how the bones bend when this black boy is unable to exert his proper strength, or what appears if he works too strongly.

What I have been trying to explain to you in these lectures is really but a first attempt. As I said at the beginning of this lecture, this is the stage at which we really should start. This has been an opening lecture for an understanding of these substances. I am deeply grateful that you have permitted me to say so many things which I have not been able to express before.

Fourth Discussion

Question: Does the crystal structure in the pineal gland alter during our life? If so, can it be harmed by the nutrition stream?

Dr. Koenig: I think this is a very important question. The pineal gland is more or less heart-shaped. The calcium carbonate crystals in it are formed like tiny little white roses; but please do not take this sentimentally in any way; it is simply a fact. In a newborn child, these crystals are not present. They gradually form out during the first years of childhood. They are formed by what I called the ash of the earthly nutrition stream. In later life, the whole of the pineal gland is dotted with these crystal structures, and in fact, our self-consciousness is intimately connected with them. The more self-conscious (and this does not mean egotistical) we become, the more hardened these structures become. Although modern science knows that the pineal gland is one of the endocrine glands, so far it has been unable to determine its function.

Now it can happen in childhood, in early youth, or even, though rarely, in later life, that a malignant growth, a carcinoma, develops in this gland. In the adult, this causes change of consciousness. In the child, you find what I described earlier, a condition called Macrogenitosomia praecox. I once saw a four-year-old girl who, through a very unfortunate accident, ran a splinter through her eye into her skull, right into the pineal gland, which was destroyed. It was a few months after this accident that I saw her; she was four-and-a-half years old. Her breasts were already developed, she had started to menstruate, and she had grasped all sorts of mathematical and arithmetical operations in a few weeks. Her intellectual thinking has suddenly awakened. The mongol* child, as I have described, has great difficulties learning to realize what one and

Footnote: Down's Syndrome is the term used today to describe this illness.

one is. You can say "one and one is two," and the child can learn to say "one, two, three, four, five," but it does not mean anything more to him than if you said "ba, ba, ba, ba, ba."

When you study the psychology of mongol children, it is most striking to see that not only have they no connection with sexuality, but they have no connection with death. The problem of death, which is so clearly present for every normal child, however small he is, does not exist for the mongol. Even when the mongol grows up, becomes eleven, twelve, thirteen, he remains utterly indifferent to death. It is also one of the most difficult educational tasks to make them aware of religious experience. They are, however, very good mixers. If a mongol child is among other children, everything is happy and gay. They are the SHE, which does not touch, but arranges everything. Therefore they can also imitate much better than anybody else. Their skin is hard, much harder than any other skin; they develop a kind of outer skeleton, because their inner skeleton is so feeble.

Question: Can you link artificially fertilized food (not synthetic food) to the question of consciousness, and also the question of morality?

Dr. Koenig: I am very glad you have brought up this question. I believe we must become much clearer about the implications of food which has been grown with chemical fertilizers. What I have to say now is a purely personal idea: I have, as yet, no proof of it, but somehow it is a personal conviction. As far as I can see, when we eat chemically fertilized food, it does not nourish us, because the processes described as the earthly nutrition stream entirely dissolve it and leave no ash behind to feed the brain. We dissolve it back into the spirit, so that it can be taken up and "rebuilt." Do you understand what I mean? Properly grown food is more earthly. Artificial food is not more earthly, it is more spiritual, but in the wrong way. And as a result, is does not leave any ash behind. Organic food, and bio-dynamic food, leave enough ash to keep our Ego-

consciousness awake and in existence. With artificial food, man becomes too spiritual, but in the wrong sense. I am convinced that if we go on eating only this food we will revert to a condition of dreams. We will fall asleep, we will not be able to keep awake; we may even return to previous conditions of consciousness, possibly even imagining things of wondrous beauty, but our self-consciousness, which we connect with the being of Michael, will not be able to establish itself. This is how I see it. Artificial methods affect our mental condition much more than our physical condition. The body can be fed easily, because it is built up by the cosmic nutrition stream. But feeding the brain, this is our responsibility.

Question: Has what you have just been saying something to do with the statement of Dr. Steiner, I think in 1905 or 1906, that in the future our food will become more and more mineral?

Dr. Koenig: Quite so. We shall take in food which does not feed anything else but the brain. Rudolf Steiner speaks about this as a future form of proper nutrition. But by the "future," he meant many, many hundreds of years hence.

Question: At present, salt is the only mineral we eat. Is that, so to speak, the first seed? When one follows up historically how people have seasoned their food, one finds that they used comparatively little salt.

Dr. Koenig: In bread you take in a great amount of minerals. Not only as actual salt. Actually, it is bread which must gradually become the mineralized food. The bread will have to turn into salt.

Question: It is not that we shall have to live on the minerals as we find them, but that we ourselves shall have to produce them?

Dr. Koenig: On the other hand, through our cosmic nutrition stream, many minerals come in—especially metals. Rudolf Steiner once described how, for instance, copper is taken in through the ears, tin is taken in through the eyes, and so on. These are all minerals.

Comment: I think it is quite an important point that the bio-dynamic method is not a more ethereal, but a more physical one. Rudolf Steiner said that through the chemical fertilizers the plant lives practically only in the realm of water, and withdraws from the realm of the earth, from the solid. One of the main functions of the bio-dynamic method is to bring the plant into more profound contact with the mineral forces of the earth. I see the Koberwitz Course as the first step on the road to the right mineralization of food. I do not think Dr. Steiner meant that in the future we should grind up granite and make food out of it, but that we should strengthen the natural mineralizing processes.

Question: Would you say something about the Lime-Food-Preparation of Weleda?

Dr. Koenig: The Lime-Food-Preparation was indicated by Dr. Steiner after the First World War, for undernourished children in Germany and other parts of Middle Europe. What is undernourishment? It occurs when the spirit cannot take hold of the body, when the pituitary gland has lost its power to connect the upper stream, the cosmic nutrition stream, with the body. To force the cosmic nutrition stream into the body, carbonate and phosphate of lime are given in the form of calcium carbonate and apatite.

Question: How could one look upon the nourishment of animals with artifically grown food, as it is used now? The picture would look different, would it not?

Dr. Koenig: I do not think it is so very different, if you put

dream-consciousness in the place of Ego-consciousness. Rudolf Steiner again and again emphasized that cattle must be allowed to go out and use their sense of smell. What in us is thinking, in animals is smell. And this artificial food reduces the "smelliness" of the food, so that the cattle no longer know what to eat when they are let out.

Question: If the bio-dynamic method is the more physical one, could you explain why Rudolf Steiner says that if you use chemical fertilizers they should first be put through the compost heap?

Dr. Koenig: Quite so. In the compost heap they receive something. They are not lifted up, but pulled down, connected with the earth. You see, dear friends, what I have described as the cosmic and the earthly nutrition streams are really a kind of curtain which covers something behind. If you pull back this curtain, you come to the secret, to the inner cell, so to speak. You come, on the one hand, to the brain, and on the other hand, to the lymph. In the brain, behind the curtain of the cosmic and the earthly nutrition streams, there rests our past karma. In the lymph, there rests our future karma. If we do not properly unite ourselves with these two karmic centers, then we have no proper connection with either our past or our future. Behind all that I have described stands this: physically, we bring our heredity with us. Spiritually, we bring our past karma with us. It streams down into our limbs, and makes us do what we have to do, makes us go to the places where we have to go, and meet the people we have to meet. But at the same time, our future karma is already beginning within us. Wherever our lymph flows, it is leading us on into our next life. We live between our future and our past karma. There are very severe diseases of the lymph. Suddenly the white lymph starts to grow; this appears again and again in human beings who are unable to put themselves into a relationship with

their present karma. Then their future karma starts to rise up, and what would be right in the next life turns into disease in this life. It is not surprising, for instance, that the great Rilke, who never got down to earth properly, died of such a disease. This becomes more and more common in our time.

Question: If the pineal gland is the seat of self-consciousness, why, when it is destroyed, does consciousness apparently become so bright?

Dr. Koenig: The intellect, not consciousness. It is the intellect which becomes so much clearer.

Comment: The pineal gland in reptiles is very well developed.

Dr. Koenig: Very well developed. It is a beautiful organ in some of them, in the lacerta, for instance. There it is still a functional eye. If you follow the development of the pineal gland, it starts as a kind of eye, sticking out like a lamp. But it is an eye which does not see light, but senses warmth. It is an organ of warmth. Now what happens? In the course of evolution, it has become smaller and smaller; now it is a minute structure. Through the warmth which it received, the great imaginations, or mythological pictures, streamed in. This died out. The head closed; the skull, with the cortex, shut down the clairvoyant powers which the pineal gland gave us. So we became thinkers instead of clairvoyants. This is inscribed in our bodies, and our body is the script of the evolution of the world. You can read this script if you know how to spell its letters. There is a most interesting text book* where all the different pineal glands of all the species of animals are described. It is most interesting. There, the different pineal formations in the different human races are described too.

*R.I. Gladstone and C.P.G. Wakely, *The Pineal Organ* (London, 1940).

On the Active Relation of Intestine and Brain

For the Agriculture Group, Oct. 9, 1964

In the fourth lecture of the first "Course for Doctors," Rudolf Steiner points to an important correspondence. He says the following:

> One does not usually notice that a human being is actually a duality: that what appears in the lower part of his organism always corresponds to something that appears in the upper part of his organism; that certain organs could not come into being in the upper part unless parallel organs—in a certain sense, opposing organs—were able to have a place in the lower part as the opposite pole. The more the forebrain in the animal kingdom attains to the form which it then finally develops in man, the more the intestine develops in the direction of depositing food residues. There is an inner relation between the form of the intestine and the form of the brain. If colon and caecum had not appeared in the course of the animal evolution, a thinking human being could not finally have appeared in physical nature—because man's possession of a brain, of an organ of thought, is contingent, absolutely contingent, upon his intestinal organs. The intestinal organs are truly the reverse side of the brain. For you to be relieved of physical activity so that you can think, you are obliged to provide your organism on the other side with a highly developed colon and a highly developed bladder. Thus the highest activities of soul and spirit that a human being manifests in the physical world, in so far as they are dependent upon a complete brain formation, are also dependent upon a complete intestinal structure. This extraordinarily important connection throws a strong light upon the whole working of nature.*

*GA 312, March/April, 1920.

From this description it is clear that the development of the form of the brain and of the form of the intestine must be regarded as closely connected. What Rudolf Steiner calls here "forebrain" can only be considered as partly the same as the whole **pallium.** It seems more likely that the small intestine and large intestine together have convolutions similar to those of the **cerebrum,** corresponding to the whole **neopallium.**

The duodenum with liver and pancreas are a parallel formation to the subcortical (cover) and thalamus. The **hypophysis** is parallel to the gall bladder. The stomach is the midbrain with the attached fourth ventricles and the medulla

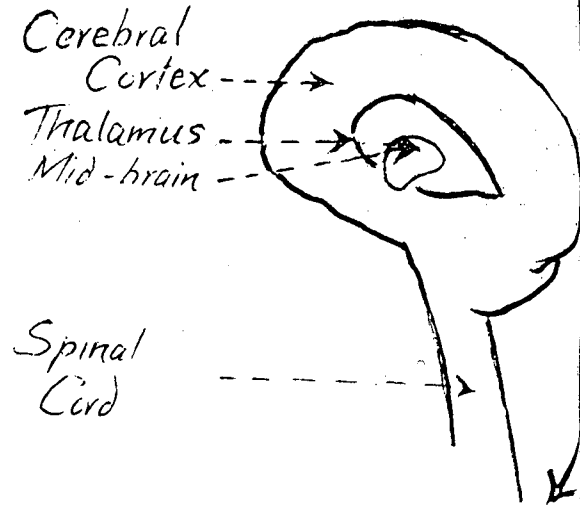


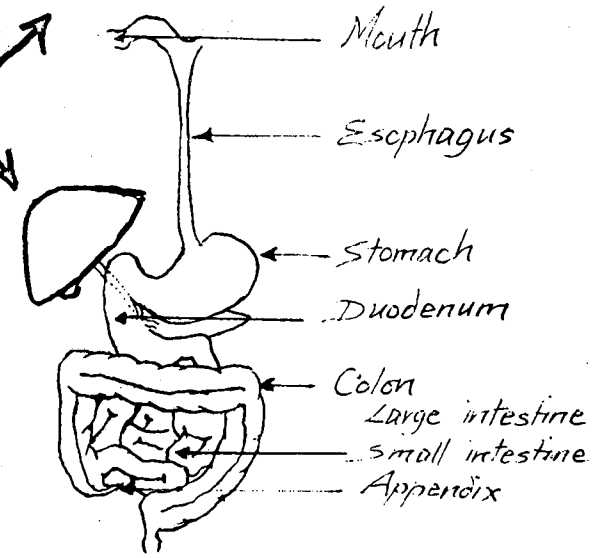
Fig. 68

oblongata. The esophagus with pharynx and mouth are the spinal cord with the spinal ganglion and nerves belonging to it.

So that we have approximately the following double figure:

Here we are first of all concerned with form: with the form of the two polar systems, the intestinal duct and the central nervous system. However, in the agriculture course and in other places, Steiner speaks of "forces", rather than of form. For instance, in the eighth agriculture lecture (June 16, 1924): "In the head, where the senses are chiefly located and where the senses perceive out of the cosmos, we have to do with cosmic forces. In the metabolic-limb system, we have to do with earthly forces—cosmic substances and earthly forces. Only think how we walk: we are continually connecting ourselves with earthly gravity. Similarly, everything we do with our limbs is bound up with the earthly."

But the "substances" of the lower organism, which are described here as cosmic, must **not** be equated with dung. These are substances that are taken up by the formative forces and used to form organs such as liver and spleen, also bones and muscle tissue.



Dung, on the other hand, is digested and processed nourishment. We are further told:

> What appears in the brain as earthly matter has simply been excreted; it is excretion—excretion from the organic process. Earthly matter has been excreted to serve as a basis for the ego. On the basis of this process in the metabolic-limb system—beginning with the consumption of food and going on through the entire distributive activity of the digestion—a certain amount of earthly matter, of earthly nourishment, can be led into the head and brain. A certain amount of earthly substance goes along the whole path, and is at last literally deposited—excreted—in the brain. But it is not only in the brain that the substance of the foodstuffs is deposited. Whatever is no longer capable of assimilation is deposited, along the way, in the intestines.

What is this brain/mass? It is simply an intestinal mass carried to the very end. If I speak grotesquely, I would say: What spreads itself out in the brain is a highly advanced heap of manure. It is dung that is transformed by its own organic process into the noble matter of the brain, there to become the basis for ego-development.

We have, therefore:
above, in nerve-sense system, COSMIC form and EARTHLY substance:
below, in metabolic-limb system, EARTHLY form and COSMIC substance.

In this lower cosmic substance, however, an earthly substratum, manure, is prepared as a preliminary stage of the brain substance. This, so to say, not quite earthly manure is polarized by another process no longer quite cosmic, in the upper organism: thinking, as man has developed it. Just this correlation alone provides a first insight into the connections prevailing here.

By way of a brain built of physical substance, a thinking can develop that inclines toward earthly sense experiences. This actually takes place within the cosmic sense processes that relate to the cosmic nutritional stream.

By way of an intestinal tract built of cosmic substances, dung is formed through constant excretion. It becomes the

material counterform to thinking. It is the first step in the physical development of brain substance, a development that is then carried much further.

ABOVE	BELOW
Sensory processes	Dung
Concepts	Chymus
Thinking	Chylus

This is the first chapter toward an understanding of the processes pictured above.

About Horn and Antler Formations

Goethe coined the phrase: "There is nothing in the skin that isn't in the bone." In this way he pointed to the identity of these two organs, an identity which also manifests a polarity. Outwardly, the skin covers the body of animals, while inwardly, the skeleton supports the body of all vertebrate animals. While the invertebrates develop only an outer skeletal armour which forms itself in connection with the skin, the vertebrate animals form an inner skeleton which alone belongs to them.

The skeleton of the invertebrate is formed of chitin. This is a substance similar to cellulose polysaccaride, containing nitrogen. It has more of a plant-like character. In the skeleton of the vertebrate, however, we find deposits that consist of calcium and carbon, $CaCO^3$, and also $MgCO^3$ (carbonate of calcium and magnesium). These are mineral salts which are taken up into the household of the organism. Thus we can say: In the outer skeleton of the invertebrate, a form tendency predominates which can be seen as a continuation of the plant-like bark and support formation.

In the inner skeleton of the vertebrate animals, we find a further step. These animals "embody" the solid of the mineral kingdom. At the same time a new substance comes into existence in the skin which lends hardness and firmness. It is horn or keratin. This substance consists of a great number of different amino acids, especially cystein, and contains much

sulphur. So here we find ourselves confronted with the substance principle of the animalic. Scales, feathers, hair, nails, claws, hoofs, are formed of this. The vertebrate animals can also be characterized by the fact that they deposit mineral substantiality in their bones, but secrete animal substantiality in their skin. The latter process is one of warding off toward the outside; the former is one of renewing within.

What does this mean? All disintegrating forces that are active in the body have a centrifugal character. They work from the center toward the periphery. Through these forces, substance is pushed off, chiefly through the sensory processes. For the senses enable one to experience the gradual awakening toward day-consciousness. And it is this which engenders all disintegrating processes within the body. Colon, kidney and skin are mainly the active organs of secretion.

The sense organs, however, live in a sphere of silicic acid and are, therefore, permeated by the silicon process. This process pervades and irradiates the organism with light. However, where there is much light, much shadow is created. And the shadow of the silicic acid is substances related to horn and keratin. Out of the light of day consciousness, the shadow of the reduction processes is formed, which appears in the horn and keratin related substances.

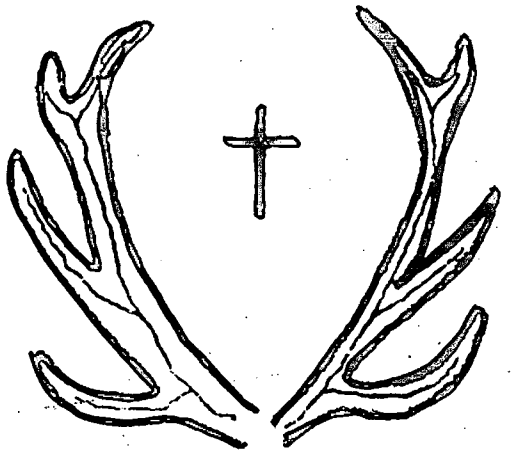
In contrast to this, we find the inner skeleton of the vertebrate animals which consists of lime substances. It thereby is placed in polar opposition to the sense-skin silicic acid processes of activity. We may say that in the bone, darkness is spread out. Darkness, however, is also identical with gravity. Thereby also a field of gravity is woven into our bodily organization and that of the vertebrate animals. (The invertebrates are not subject to gravity, only to darkness). In the skeleton, man and vertebrate animal have to come to terms with gravity. Out of this process arises the formation of the red blood. For the domain of bone and gravity is irradiated by the individual ego, as much as by the ego of the species. Out of this process, the formation of the blood is engendered. Thus, within the darkness of the bone, a formation of light is effected.

Just like a spring that wells up out of the rock, the red blood forms itself within the bone. Its substance consists of haemoglobin. This, however, is related to chlorophyll and thereby proves its plant character. Only that in haemoglobin, the iron replaces the magnesium, present in the chlorophyll. Iron is a lustre of colour; magnesium, however, is white light.

Thus two domains come into existence. One is the province of the skin. The other is that of the bone. The sphere of the skin has to do with light, the brightening of consciousness, and with the darkness of secretion. This sphere becomes the basis of day-consciousness. The sphere of the bone, however, reaches into the domain of gravity and in it lets arise, in the blood, the becoming light of the ego. This leads to the acquisition of the Ego-consciousness.

If we would wish to sketch the two spheres pictorially, then the following schemata would result:

From these two sketches, the etheric structure of horn and antler can clearly be recognized: the horn is skin, the antler is bone.



(horn) The horns incline toward the sun's orbit.

Fig. 69

Sensory processes

Fig. 70

Degenerating forces

Fig. 71

Regenerating forces
(not on original sketch)

Fig. 72

The destructive forces are stimulated and pushed down into the organism. Here the darkness displaces and obscures the light. That is horn.

(horn)

Fig. 73

(antler) Here light overcomes darkness and gravity.

Fig. 74

(antler) The antlers incline toward the Cross

In Rudolf Steiner's agriculture course, we find the following: "What happens at the places where hoof and horn grow? That is where an especially strong stream is being directed inward." It means, then, that there the destructive forces, forces leading to form, are most strongly accumulated. "There the gates for what streams outward are tightly closed. Therefore horn structure is related to animal form."*

On the Sheaths of the Preparations

Horns and Antlers

It is not very easy for me to speak about the agricultural preparations, and especially about the sheaths used, because I have seldom made them myself. On the other hand I have given much thought to what Rudolf Steiner gave to the world when he gave us the knowledge of these preparations. He has shown us the way to make the soil healthy, and thereby to improve the health of animals and men.

These preparations bring about balance in the life of the earth. Therefore it would be impossible to take too earnestly what the spiritual leader of our epoch has given us. The balancing forces for the whole life of all the kingdoms of nature have been handed over again to mankind. This is an event corresponding to what happened in the Persian Epoch, when grain was developed out of grass. I am convinced that what we received at Koberwitz is of the same importance. We must use the methods Rudolf Steiner indicated with great exactitude and with an ever-increasing attention to the details. Without this, the balance of the whole household of nature would soon come to an end. A spiritual issue stands behind the content of the Koberwitz Course.* An image will arise

* G.A. 327

in us when we try to understand this spiritual issue. How is it possible that these simple preparations can bring about changes in nature? What impulse stands behind this?

We are dealing with alchemical processes. Such processes must appear as a secret to those who cannot understand them, and their meaning will remain secret even after all technical details have been published.

What can be said in these four mornings will be just the first steps towards an understanding. We must bear this in mind. We do not merely take substances, but apply to them certain alchemical methods. The substance itself is surrounded by another substance which is not used as a substance but acts as a sheath. It is the **form** of the bladder, the intestines, the skull, and so on which acts, not the **substance** of these organs.

The substance of the preparations is taken from the mineral and the plant kingdom; the sheaths are taken from the animal kingdom.

In making the preparations we put together what is otherwise separated, except in the process of digestion. That is, as I said, an alchemical process, because when substance and sheath have been brought together, they are exposed to processes of earth and cosmos, by being buried in the ground or hung up in the air. The preparation is ready for use only at the end of a definite period.

The substance of the preparation is taken from one kingdom of nature, the sheath from another. But together they are put into the soil or exposed to the sun. This is a process of fertilization, of growth, culminating in the end in the formation of an embryo. The dandelion, for instance, is fructified first (by our preparing it) and then placed into the sheath of a mesentery. The egg of an animal is laid on the ground, or in leaves, and is then exposed to the cosmos. After months the new organization is ready; that is the process which lies behind all embryological development.

A whole organic being is prepared through the sequence of these preparations. For preparation 504 (the stinging nettle), for instance, the soil is the sheath, and it will later be

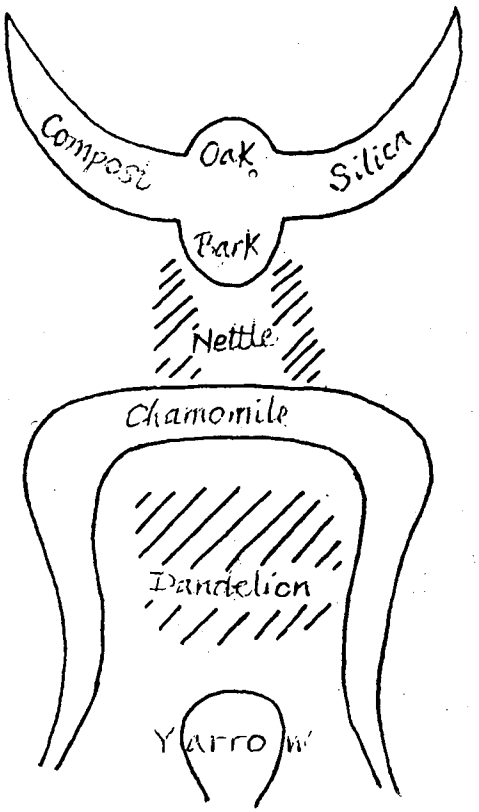


Fig. 75

shown how the soil can be understood as the lungs. All three systems are used; skull, intestines, horn, mesentery, all these formations are also used as sheaths. (Fig. 75)

Why have I chosen "Antlers and Horn" as title of this lecture, if we do not use the antlers as a sheath? Because we can understand the horn only by looking at the antlers, the antlers by looking at the horn.

A fundamental fact we must realize is that horns and antlers are polar opposites, as far as their substance is concerned.

The horn grows out of the skin, is a remnant of the skin, as the nails are. The antlers, on the other hand, are just bone substance. Both grow in the region of the frontal bone; the horn out of the skin, the antlers out of the bone. The bone is the most highly developed organ in the animal kingdom. All animals have a skin, but only from the fish onwards do animals have bones.

The horns grow gradually over a period of years. Layer after layer is steadily added from outside. The antlers behave quite differently. They grow up in spring and are shed in the autumn. This process is repeated again in the next year: formation in spring, shedding in autumn, and so it goes on.

The antlers grow richer in form with each successive year. They become more beautiful and ramified. Goethe speaks of the spiral and the vertical tendency in the plant. The horn represents the spiral tendency, the antlers the vertical. Both together might create the plant.

What lies behind this difference? Where are our horns and antlers? The horn grows in one direction towards the center. The horn seeks a central point, coming from the periphery, but it never reaches this central point. The antlers grow outwards; they seek the periphery. What does the horn seek in growing towards the center? What do the antlers seek in growing towards the sphere?

The stag is a very peculiar animal. During the last fifteen or twenty years, much study has been devoted to a great riddle which has been puzzling foresters and similar experts. When does are killed in October or November, no embryos are found in their uterus, although mating takes place in August or at the beginning of September. Why can no embryo be found in October or November? The fructification, ie., the coming together of egg and sperm, takes place; but it has been discovered that the embryo does not begin to develop until about the 24th or 25th of December. (This is not a statement made by anthroposophists, but by expert foresters who have nothing to do with Spiritual Science.) The development after this date is quick, right up to the time of birth. For orthodox science, of course, no explanation of this phenomenon is possible. The antlers are also a "thorn in the flesh" of science. They are regarded as a weapon or as a wedding garment, but why should they be shed during the hardest season, in winter? Science can give no answer.

This answer can only be found if the male and female deer are seen together as a unit. From Christmas onwards,

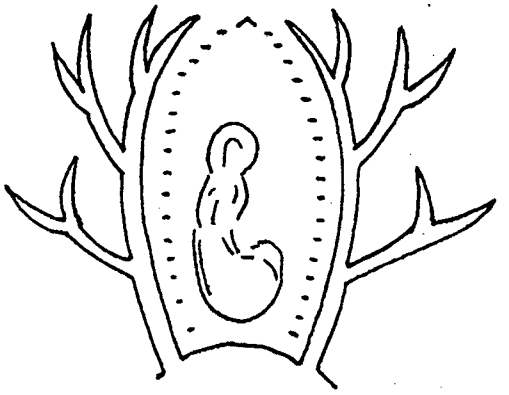


Fig. 76

when the embryo develops within the female organism, then the antlers are shed. After the young one has been born and while the female deer is barren, the male deer, the stag, grows the antlers. During the entire year the creative process goes on in the whole realm of the deer: during the winter in the female, during the summer in the male. The antlers surround something like an embryo. In the female uterus there is a physical embryo; the antlers surround an etheric embryo. (Fig. 76)

The anatomist, Soemering, writing in 1850 about the antlers, and describing their growth in spring, said something to this effect: "the rush of blood towards the frontal bones reminds me of the rush of blood towards a gravid uterus." The antlers are the remnants of this blood rush.

The whole "deer-hood" is built into the cosmic forces; it has little to do with the earth. The cow and the horn are just the opposite. What expands in the deer, is kept back in the cow. The cosmic process takes place within the cow. In the horn you have preserving (*bewahrende*) forces. What forces are these? The horn is what we carry as the cochlea in the inner ear. This is the organ through which we can hear sounds. A cow hears by means of the horn the sounds of the chemical ether in the digestion. In this process of hearing, a measure and number of alchemical processes are introduced (*eingebaut*). The horn becomes the ear of the whole metabolism of the cow.

We use as sheaths what has to do with listening. The antlers are the speaking powers in us; the horns are the listening powers in us. If the larynx could develop at its pleasure, so to speak, it would grow into antlers. By pressing together the inner ear, we develop our horn. The same processes underlie speaking and the growth of the embryo, but in different regions. In speaking we create, only not (as in the embryo) a whole human being.

The Bladder and Kidney Process

This morning we will try to understand why yarrow is to be enclosed in the sheath of a deer's bladder, and why this preparation should be hung up for the whole or most of the summer, so that the entire thing is ready to be used only after a full year's cycle.

Yarrow is the first herb-preparation with which Rudolf Steiner deals, and if you read what he has to say in the very important fifth lecture of the agriculture course, you will begin to realize more and more how full of secrets this whole preparation is, and how Rudolf Steiner speaks about the yarrow in a way which gives indications, no more. He deals also with the bladder itself in a way which gives certain indications but leaves it to the pupils of Spiritual Science to grow more and more aware of the importance and meaning of such an organ.

All organs are a kind of scripture, and to understand the kidney, liver, heart, or lung, one has to learn to read these letters which are written by the formative forces in nature. We have to study the pure facts, and then see if these pure facts assemble themselves under certain headings so that at length we may be able to decipher the first word, and can listen to it.

What we shall try to work out this morning I consider as only a very first step. I shall have to approach it from various directions which may seem to be independent of one another to begin with, but perhaps in the end you will have a

certain impression of what it means to put a stag's bladder around a plant like yarrow.

I should like to start with a few observations which I have made during my many years as a doctor, especially during the years when I was dealing with many more patients than I have now. If I had a difficult case, I used to watch the urine. If one takes the urine of a human being and leaves it standing very quietly, not touching it or moving it at all, for twenty-four or even forty-eight hours, so that it is able to develop all that is in it, it opens up, certain substances fall out, certain clouds arise. You realize more and more that what works in the urine is actually the inner weather of your patient. It shows you what "weather" he had in himself—a rainy day, a cloudy day, sunshine, or a thunderstorm—just before he passed the urine. But you also see that urine has certain connections with the atmosphere around, so that a cloudy day outside reveals much more quickly a cloudy day within, and a sunny day outside reveals a sunny day within. Now this is not only a picture, but something one can watch. One can see that one's own weather is as changeable, as unforeseen, as quick in motion as the weather outside, and our urine is a perfect mirror of this "inner weather."

The urine is gathered together in the bladder, and passed out of the body into the surroundings. What kind of organ is this bladder? I will try to go a few steps into embryology, and I am sorry that I have to go so far away from what you think is agriculture. When you follow up the development of the bladder in the course of human embryology, you find something which corresponds exactly to the development of the bladder throughout the whole animal kingdom. If you study the primitive intestines, you find that in all lower mammals, up to certain groups, there is no differentiation between the last part of the intestine and the bladder: the bladder and the rectum are one.

In the course of evolution, as well as in the course of embryological development, a septum gradually develops which brings about a division between the lowest part of the

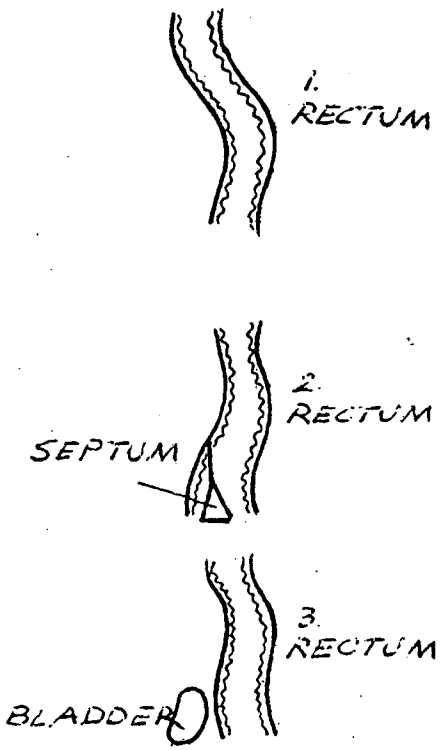


Fig. 77

intestines and the bladder, so that in the end you have the bladder as a separate organ. (Fig. 77)

If you open up the front part of the abdomen of an adult, you can see the bladder from in front, and then you will find that from it a kind of cord goes up just underneath the skin right to the point where the navel is. This cord apparently has no function, but when we were embryos the cord was a tube which issued from the navel, and, following the navel cord, ended in a tiny vesicle, the allantois. This is true of man, but if you follow up what the allantois is and what it means in lower animals, such as birds, you will find the following.

In a bird's egg, filled with the growing embryo of a bird, you will find that a great part is covered with an organ which provides for the breathing of the embryo, and this organ is again the allantois, the same organ which develops into the very small vesicle in the higher animals. (Fig. 78) In the whole of embryonic development there are sheaths surrounding the growing body of the embryo, and these are much more complicated than the sheaths used in agriculture. The allantois is one of them.

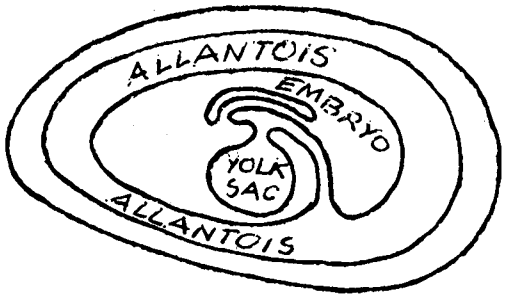


Fig. 78

As long as the human body is still unborn and has not become the house of the supernatural beings who are coming down to earth, the allantois is, so to speak, the house and dwelling place for the astral body. Our astral body is situated around this organ during the embryonic period, and you will understand, therefore, that in a bird the allantois serves the breathing process during the development of the embryo withing the egg.

Take this into consideration when trying to understand the direct connection between the allantois and the bladder during the embryonic period.

Now I approach the subject from still another direction. We have seen how in man or animal the bladder develops from the intestine; this takes place in the lower part of our body, but a similar partition also takes place in the upper part with the development of trachea and lungs, which brings about the whole foundation of the breathing-process.

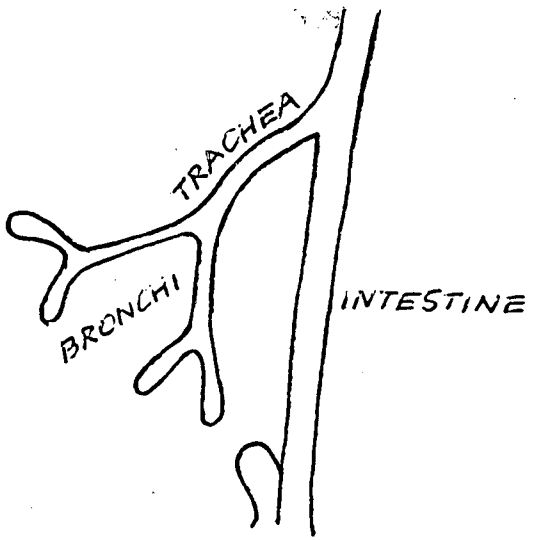


Fig. 79

This breathing is not entirely cut off from the intestines. (Fig. 79) The bladder, however, is cut off entirely from the intestines and only during the embryonic period has it still a connection with the allantois. The bladder itself starts to develop two tubes, one on each side, and these two tubes grow upwards and start to divide into several smaller tubes. These two tubes are the ureter, and they reach up into the hind parts of the abdomen and there come into connection with a certain organ called the metanephros. This is the organ which develops into the kidneys. The whole urinary system, therefore, develops out of two parts, one part being that which is cut off from the intestines and develops two branches which grow upwards and reach the kidneys. (Fig. 80)

Where do the kidneys come from? If you study the kidneys in the whole course of evolution (even if this is not so noticeable in human evolution, it is clearly marked in the animal kingdom), you find they are neighborhoring organs to the ear. Gradually they grow downwards from the ears and

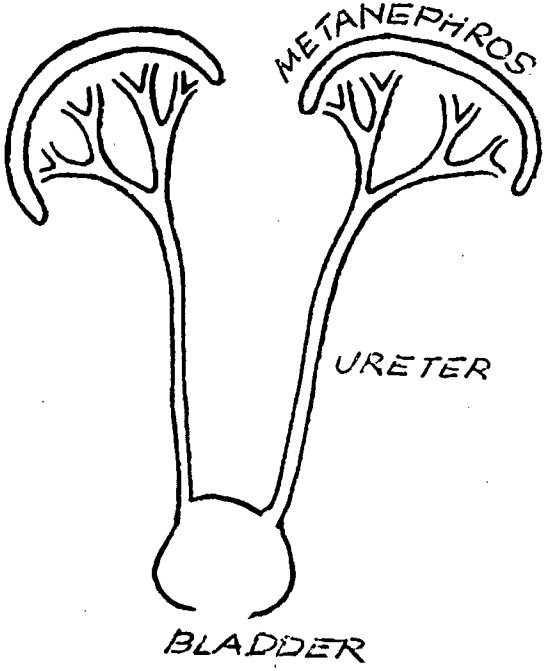


Fig. 80

are first called pronephros. Then they grow and develop into the mesonephros, and when they reach the ureter the urinary system is built up.

The urinary system is the organization within us which deals with the whole water-household in preparing urine. If I were to ask you now what urine is, you would say the urine is the mirror of the whole "weather" processes within us. Do you know any kind of excretion which can be compared with urine? The tears. If you study the excretory organization of the kidney, the bladder, and the ureter, and the excretory organization of our tears, you find two completely corresponding systems. Anatomically this is quite understandable. (Fig. 81)

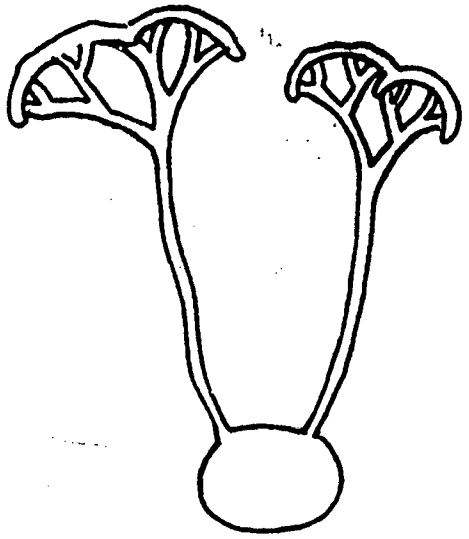


Fig. 81

This is the reason why the kidneys, starting from the regions of the ears, gradually come down to meet what has been separated from the intestines. The development of the kidneys is exactly parallel with the development of the trachea and the lungs.

When we begin to take air into our body, not as do the insects where air simply streams through, but in an active process of inhalation and exhalation permeating the whole substance of our organization, then the kidneys, which develop first in the regions of our ears, gradually descend and reach what has become the bladder. If you read these letters in the book of comparative anatomy you can see the gradual penetration of our body by the inner astrality.

Since the Fall of man, the astral body and our higher being have more and more taken root in our body, and the kidneys are the organs which pave the way for the entrance of the astrality into our organism. The kidneys pull our astrality into

our body, and the bladder opens up and takes hold of this astrality. As long as we are an embryo, the bladder, although more or less connectd with the kidney, is not connected with it functionally. During this period the bladder processes are connected with the allantois.

Imagine the egg of a bird, say a hen. Underneath the surface of the calcified shell with its hundreds of pores, there is spread out the allantois. The allantois is the organ which leads oxygen in and carbonic acid out. The allantois replaces what is afterwards the lung. It is outside the body; it is a lung which you have taken out and put, so to speak, around you. This lung which you have around you is now in direct contact with the whole astrality of the world, with the whole breathing process of the cosmos. The cosmic breathing process is more and more replaced by the astral body of man himself.

With the first breath after birth, the bladder opens up towards the kidney. The bladder is the organ in which all our astrality is gathered up. Therefore the urine is nothing else but the expression of the astrality within us, of the "weather" in us. The kidney process is the organization which leads the astrality into our whole body. Now you will understand why in the account of the Fall it is said that "their eyes were opened." Yes, their eyes were opened and their kidneys moved down.

These two organs are actually a double mirror of the same process. We open our own eyes and tears stream, because the pain of seeing the Maya around us brings about the weeping process within us. If we are completely overcome by the Maya, if we feel oppressed by all that is around us, we even start to weep so that other people know it. But our tears are constantly flowing, and so is our urine. Our tears are flowing in seeing the world around us; our urine is flowing through the astrality which continuously brings about the destructive processes within our body.

The destructive processes actually create continuously the "lower tears," those tears which have to shed nitrogen, uric acid, and all the other substances contained in the urine. This has continuously to stream out, and for this there is put

at the disposal of the inner astrality an organ which originally was united with the world astrality.

We are not forced to pass urine continuously, because something comforting is put in front of the urine, which still keeps within itself the memory of the world astrality. This is the bladder. The bladder, comforting in its cosmic roundness, keeps the urine so that we as human beings can consciously control the output of urine. The bladder is an organ which still has its cosmic memories but puts these memories at the disposal of the human consciousness. Therefore it helps to control the expressions of the inner "weather." If you deal with such children as those we deal with in Clent or Camphill, you will see how a child who is unable to control its inner "weather" is unable to control its bladder, unable to control its urine. Where the astral body is actually within us, but is continuously given up to its own "weather," the urine and even the comforting process of the bladder do not work properly.

All this one has to learn when trying to understand the bladder of a stag. We know exactly how Rudolf Steiner describes this animal; the deer is given up to the astrality of its surroundings, being itself so nervous, so sensitive, so open, that through the antlers it is open to the whole cosmos around it.

You must imagine that the tops of the antlers are continuously piercing through the Maya world, and therefore bring this animal into direct contact with the astrality around it. In such an animal the world astrality and the inner astrality come into a certain harmony. Outside weather and inside weather are harmonized with the help of the antlers. Therefore in a deer the bladder becomes the individualized expression of the world astrality. This is the way that we have to look at the bladder in order to see why it is the bladder of the deer that is used.

Why do we put yarrow into it? The yarrow has a peculiar regional distribution. It does not grow in Australia. It grows in the whole of the northern part of Europe, America, Asia,

and in Siberia, and it follows a human track beyond the Arctic Circle. Yarrow is a very tough plant, and also full of life. In Austria we say "It grows under the tooth of an animal" *(Es waechst dem Zahn der Tiere nach)*. It is so quick in growing that today it might be eaten up and tomorrow it has grown again. If we study the yarrow plant we see in its structure precisely the way in which the ureter divides into two kidneys. (Fig. 81)

What does the yarrow seek? Rudolf Steiner describes yarrow as one of the plants in which the elemental beings have, in the most wonderful way, distributed the sulphur and potash process. Yarrow grows in the north because this is the region of "Nifelheim"—the atmosphere is that in which astrality and etheric forces are still united; where water and air have not parted; where Noah could see the first rainbow. Water still penetrates the air. Urine is the water which continuously brings about the clearing of the air in us. Otherwise we should be embedded in the atmosphere of "Nifelheim."

We take yarrow, a plant which still belongs to "Nifelheim," and put it into a stag's bladder and hang it up to expose it to the sun. We take this organ back to its former place so that it can be surrounded by and embedded in the world astrality which is filled with light and warmth. We take the yarrow up to its atmosphere where it longs to be. I would even say that the whole yarrow plant has no other task in the world than to come into the stag's bladder and to be hung up during the summer in the atmosphere of light and warmth, there to take this summer astrality and bring it down into the earth again and so complete the process.

What does yarrow do when you put it into the compost heap? In the fifth lecture of the agriculture course, Rudolf Steiner says that it opens up the soil for all the cosmic penetrations and radiations, for lead and tin and so forth. Thus it can be taken up into the life of the plant. You take the bladder and all its astrality and bring it back to its place with a plant which is still connected with "Nifelheim"; and this is the right

way for all the cosmic radiations to come down into the soil and the dung heap.

Intestines, Mesentery and Digestion

This morning we shall discuss the two preparations which deal with dandelion and camomile on the one hand, and the intestines and the mesentery on the other. In doing so, I am very much aware of our lack of knowledge and understanding of everything connected with the metabolism of the human being and the higher animals. The metabolic process, the process of digestion, is still, for the scientist as well as for us who try to follow up Spiritual Science, hardly anything but a mystery and a riddle.

I remember that Rudolf Steiner once said, to certain priests who asked him to speak about it, that what goes on within the human—and he made a point of the human—digestive tract is revealed only there where, at the altar, the priests handle the Holy Host. So one can imagine that one might have an idea, a certain notion, of what takes place within as well as around the intestines; but to know—this is still not possible for us. Probably it will take hundreds of years of most earnest study before the minute etheric, astral, and spiritual processes which work there right into matter, are revealed to us.

Therefore you will understand that when we speak about these preparations which are enveloped by the intestines or the mesentery, we try to go in the right direction but are very far away from reaching the goal. All that I am going to say this morning must, therefore, be approached with great care. I do not say that it is all so; I can only say I try to understand it in this way; nothing else.

One has to ask oneself what these organs are and in what relation they stand to one another. Usually one has a general idea what the intestine is—this tube into which we stuff our food and in which, in some way or another, the food is digested. And the mesentery, even for a professor of anatomy, is simply that on which the intestines hang.

Where do the intestines lie? They do not lie in the abdomen. We can of course open the wall of the abdomen, but you will never see the intestines; you will see the outer covering of the intestines, but not the intestine itself. The mesentery lies in the abdomen, but the intestine lies within the mesentery. What is the space in which the intestines lie? It is the outer world. The intestinal tube is surrounded by muscles and by connective tissue. This connective tissue and the muscles are lined by the so-called peritoneum. (Fig. 82)

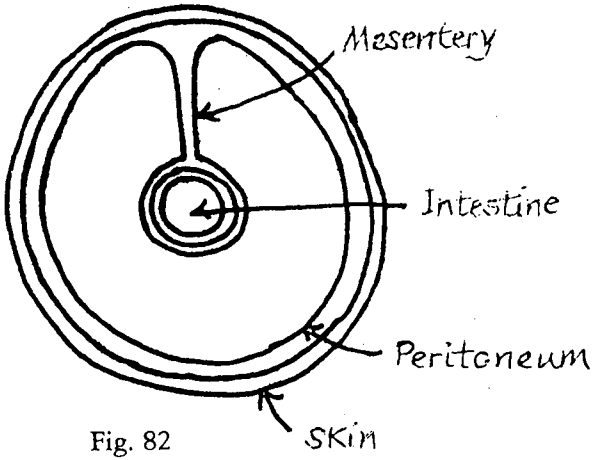


Fig. 82

Outside you have skin, and between skin and peritoneum you have muscles, and so on. The peritoneum covers every part of the intestines and the inner abdominal wall. The mesentery is all the tissue which connects the different convolutions of the intestines with the linings of the abdomen, but the can lie in any kind of direction. (The German word *Gekroese* means something "frill-like.")

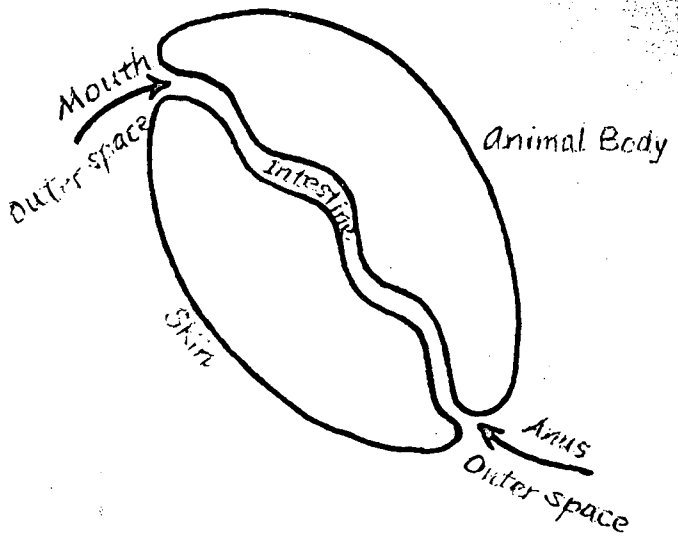


Fig. 83

In an animal, the intestine is nothing else but a part of the outer world. (Fig. 83) The peritoneal lining is something completely different. When you study the whole comparative anatomy of the peritoneum you begin to realize that in the animal and human body there exist only two parts which, as regards their space, belong to the inside of a body and are completely the animal's or the person's own. They do not belong in any way to the outer world. These two things are the inner linings and the inner holes of the heart, with the blood vessels and lymph vessels, and the peritoneum. In the higher animals and in the human being, these have no connection whatever with outer space. They are completely cut off from outer space. All the other organs take outer space into themselves.

In the development of the animal from the stage of the gastrula to that of the blastula, a kind of folding process takes place, and this folding process proceeds until we have a primitive animal which is nothing else but the outside, the com-

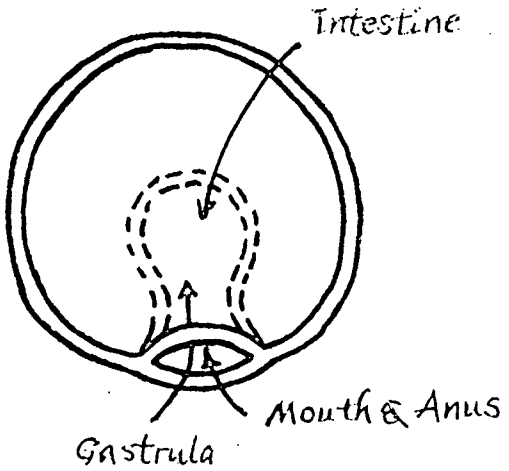


Fig. 84

bined mouth and anus, and the intestine. (Fig. 84.) The outer world is drawn into the animal body and thereby creates the intestine. From this intestinal tube there develop the liver, the bladder, the pancreas, the lungs, and so on.

When we study the formation of the nervous system, we also see the primitive outer layer of the human embryo. This is surrounded by the amnion which contains water. The nervous system develops as a result of the skin folding in, and this folding process continues until eventually a cord is formed. The skin closes, so that what was outside is now inside. (Fig. 85) Therefore even the cavities of the nervous system are outer space; they are watery space. This is very important.

The blood vessels, the heart, and the peritoneum develop in the embryonic form itself, creating space, so to speak, out of nothingness. You must imagine a convolution of cells grad-

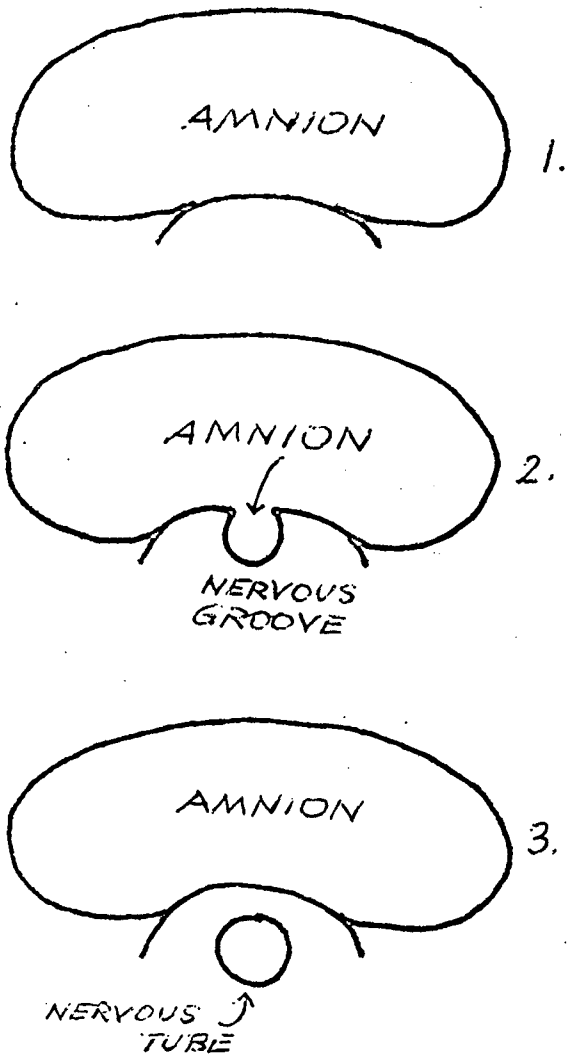


Fig. 85

ually building up a kind of hole, so that the cells are outside an an inner hole comes into existence. In this way there is created, within the animal body, a new space which has nothing to do with outer space. This is only true of the peritoneum and the blood vessels. Therefore it would not be wrong to say that the cavity of the peritoneum is of the same kind of space as that within our heart and our whole blood vessel system. That is the real inmost side of our existence, the true counterpart of the outer world. If you use intestine and mesentery to make two preparations, you use two different kinds of space qualities. We use in the intestine a part of the outer world, whereas in the mesentery we use a part of the inner world of the animal. Therefore we put camomile into the one and dandelion into the other.

If we study the comparative anatomy of the peritoneum, we can ask where, in the whole evolution of animals, the peritoneum comes into existence for the first time. The echinoderms are the first animals which have a so-called **Wassergefaess-system**, which means a system lying between the intestine (the entoderm) and the skin and nerves and senses (the ectoderm).

The starfish, the sea-urchin—all the echinoderms—have a very special form which you find nowhere else in the animal kingdom. It is a five-fold symmetry. The echinoderms have a very hard, calcified outer layer, and the intestine is in the center. (Fig. 86) Between the skin and the intestine you have the first stage of a mesentery. You have a definite impression that all these animals are built not from within towards the outside, but that their whole form derives from forces streaming from outside towards the center. Of course the echinoderm's body must be there as a certain center of activity to receive these forces, but I see these forces as coming from outside. The sea-urchin, the starfish—all the echinoderms—are actually nothing else but the most wonderful image of the etheric forces freely working round some center. It is just in these animals that for the first time a space is created within the peritoneum.

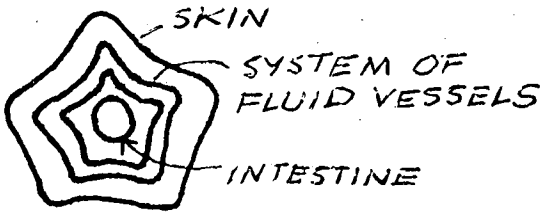


Fig. 86

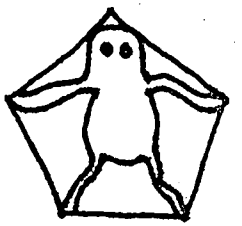


Fig. 87

All the echinoderms stand under the sign of Taurus. If you now go to the opposite side of the zodiac, you come to the sign of Scorpio, and here stand all those animals which are amphibians. In these animals there is something which again shows the fivefoldness, but in a different and not such a beautiful way.

Just imagine a frog which starts to hop. You have the fivefold form, as in the sea-urchin, but now the fivefoldness is something quite different. (Fig. 87) The amphibians are the animals which for the first time in evolution develop breathing in such a way that breathing becomes active and, through in- and exhaling, related to a lung. In connection with this they develop legs for the first time. There you have again the fivefoldness, but this time with its center inside working outwards, whereas in the echinoderms it streams from outside inwards.

In these two groups of animals is revealed the whole process of calcium and silica. Calcium is related to those animals in which there is activity from the center outwards. They

have a center, and all the unfortunate things connected to being within a body, but they are able for the first time to sound from within—even if this is nothing else but "Crak . . . Crak." That we take air into us and pour air out, that we exhale and inhale, that we are so related to our astral body that we can develop desires and wishes—these are the signs of calcium.

Although the echinoderms have a calcified skeleton, they are built up by the forces of silica. It is not the substance which gives the idea of calcium; it is the process. Silica can use calcium as carrier. We must differentiate between the direction of the forces—whether they come from within and go towards the cosmos, or whether they stream in from the cosmos towards the center.

You will remember that Rudolf Steiner relates the process of camomile to the process of calcium, and the process of dandelion to the process of silica. To enhance silica, you use dandelion, to enhance calcium, you use camomile.

When you look at this picture and add a few anatomical notes, you will see that in the intestine two processes are going on: the intestine is lined with the so-called villi. For ordinary science these are the organs which suck the food substance out into the space around the intestines. This is rather as though one were to say that a calf, when sucking at the udder, gives milk into the udder. You have the udder (because the intestinal villi are like an udder) and there around is the mouth of the calf. The food comes into the intestine, and scientists think that the villi take food substances into them, as though the udder were sucking milk from the calf. But it is just the other way around.

In the intestines a process is going on which streams in and not out. What streams in are the secretory substances, all the digestive juices and ferments which have to be mixed with the food so that the food can be continuously and completely destroyed. Nothing can go outwards through the wall of the intestine. The secretions can penetrate the wall, but what we digest as food does not penetrate physically through this wall. Behind the wall are tiny holes connected with all the lymph

vessels which line the outside of the intestines. They join together into larger lymphatic vessels and gradually they form the thoracic duct.

What is the function of the lymph vessels? I will try to give a picture: one should imagine that the lymph vessels build within our abdomen a vast sea or lake. Downwards into this lake streams what Rudolf Steiner calls "a cosmic nutrition stream." The etheric forces which feed us and which stream into us by means of our sense organs, eyes, ears, and even the skull, these forces, gradually streaming down, turn into matter; but they actually materialize only on the spot where they meet the ocean of the lymph. Imagine that a rain of manna, of etheric substances, streams through our sense organs into our body and falls lower and lower; and this rain turns into substance. When it reaches this space near the lymph vessels, it settles down, and it appears to us as if the food substances have penetrated through the intestinal wall into the lymph vessels.

Within the lymph vessels the "cosmic nutrition stream" becomes matter. From the food itself only very few substances go through the intestinal wall. If you consider the physical and cosmic nutrition streams, and see how the peritoneum is connected with the cosmic nutrition stream, and the intestines with the earthly nutrition stream, you will understand that you have two polar opposites. Thus it is when you take the intestine and stuff it with camomile, or when you take the mesentery and bring into it the dandelion plant.

These two plants are also polar opposites, yet they are closely related to one another. In trying to understand the whole setting and nature of camomile, I always think of two other compositae which are closely related to it, namely calendula and arnica.

It is very interesting that the petals of arnica are not equally developed, one or two of them being always misshapen. When you study these flowers, you find that you move out of the watery succulence of calendula into the uprightness

of arnica. Camomile is a flower which tries to fly away. It also has the strongest scent of the three, a pungent, wonderful scent which penetrates not only the flower, but right into the leaves. In camomile something tries to fly away from the earth. It is this that you catch when you take the camomile and put it into the intestine. You use these airy, flying-away forces, this scent which wants to go away from the earth, and you bring it into the most earthly, destructive surrounding, the wall of the intestines.

Then you put it into the soil where it is surrounded by the cosmic summer forces when the sun shines on the snow. In these "sausages" which you have made, the calcium processes are brought together. The exhalation process of the camomile is necessary so that the central and centralized forces of calcium (radial as in the frog) can really be brought to the compost heap and from there to the soil. You catch the "desire of the calcium" and you surround it by that which contains our earthly nutrition stream and destroys it. This you expose during winter to the cosmic summer forces under the soil.

Dandelion is different. It is a plant with hundreds of secrets. Who, as a child, did not love it, with its "clock"? You will not find anything more expressive of the workings of silica. Dandelion builds a kind of rosette on the ground. It grows up, with a very succulent stem finally unfolding its fulness of yellow petals. From somewhere quite different there comes down what I can only call the spiritual silica process which builds the "clock," so that this is created out of the whole cosmos. It would be quite wrong to use the "clock" for making the preparation. You must take that which is ready to receive the "clock," which is the flower.

We now take the flowers and put them into the mesentery, which is the carrier of the cosmic nutrition stream. Within this cosmic nutrition stream the fructification process goes on, developing the silica processes which you then give to the compost heap, and from there to the soil.

The Skull of the Vertebrates

This morning we shall have to deal with three more preparations: oak bark, nettle, and valerian. Let us begin with the oak bark preparation.

It is perhaps a most remarkable thing to take as a sheath for the oak bark the skull of a domesticated animal. Rudolf Steiner does not give any advice as to which skull should be used, and I have the impression that it does not make much difference whether you use the skull of a sheep, a cow, or even a horse. The oak bark is pressed into the skull. What does the oak bark do in the skull? What does the skull do to the oak bark?

The oak bark is put into the place where the brain usually lies; oak bark and brain change places, so to speak. There is only one great difference: everything else, apart from the skull, is no longer physically present. That means that the animal is killed, and you have just the skeleton. But in the skeleton there is something which replaces what previously was the brain. With this preparation, Rudolf Steiner says, one can actually prevent all plant diseases.

What is the brain, and what is the skull? Yesterday we spoke about two different planes, two different kinds of space, within and without the human body. In speaking about the intestine, which is without, and the peritoneum, which is actually within the human body, we found two completely different regions. These were applied to our preparations. The skull cavity is something very special. To learn to understand what it is, one must again go back over the whole of embryology, indeed the whole of comparative anatomy, because only then will one be able to see into what one enters when opening the skull.

Today, when opening the human abdomen or the skull, one completely forgets what one does. When the surgeon says that there is space in the skull, he does not realize what he is doing during an operation. I do not refer to the mood in which

the operation is performed; that is quite another matter. He does not realize into what secret cell he is actually permitted to go, when the skull is opened during an operation. The outer world goes right into the inside of our existence through the intestine, and through many other organs—the lungs, the liver, etc. The lungs are open towards the outer world. I have spoken about these completely closed up spaces like peritoneum and heart and all the blood vessels. But this holy cell of our skull derives from somewhere else. When we study embryology, it appears to derive from the spheres of the ether world. In the mammals, in earlier embryological times, you have here the amnion water, and this is the carrier of the etheric body. The uppermost layer of the skin, the ectoderm, folds in so that the amnion water is inside the tube, and then, at a later stage, the ectoderm folds together and all this is now within the body. (cf. Lecture III, Fig. 85.) In here, in the nerve tube, we now have the amnion.

Out of this very primitive spinal cord there develops the skull—not the bones of the skull, but the cave of the skull. This cave of the skull is the earlier part, and only later does the skeleton envelop it. I would not be wrong to say that the cerebrospinal fluid is the direct daughter of the mother amnion; it is not a grandchild, it is a direct child of the mother amnion. Inside the skull we are actually in a region belonging to etheric space, and within this space it is possible for the brain, as the foundation and center of our thinking power, gradually to develop throughout the whole evolution of mankind.

In the domesticated animals this evolution has come to an end; or rather, it has more or less reached a certain climax. The animals wander, so to speak, in another direction, parting from the direct way and wandering more or less downwards. So if you have this animal skull, you still have something which has not fully reached what it should reach in order to become the layer on which the human ego is able to unfold consciousness by the power of thought.

In the brain of the animals there is just the becoming of consciousness—the becoming of an ego-consciousness—but

it is not, as we know, fully established. The brain is growing and striving towards what man has achieved, but it has gone astray.

What Rudolf Steiner says about oak bark is interesting.* He says quite clearly that oak bark is a substance which has not reached something, but it is on the way to reaching it. In oak bark, he says, you have a substance which is just in between the soil and the living plant. We know from the agriculture course that the trunk of a tree is like the elevation of the whole soil, and on top of this the plant gradually develops. Imagine these huge oak trees, and how out of their whole metabolism, their whole life and existence, they build their earthly and really hard garment around their trunk. This is still just barely alive but on the way to becoming soil.

One should learn to understand that the human brain has become pure soil, nothing else, whereas the animal brain is like the bark of the tree trunk. So that as regards substance, a fully developed soil is like our human brain. If the soil is not properly developed, not properly treated, then it is like bark. It can be too much alive. We put the bark into the skull of an animal, because in the whole order of organic forces, the bark stands in the same region as the animal brain.

We should learn to see the enormous wisdom out of which Rudolf Steiner has given us these preparations. What is beyond measure, so to speak, is this balancing of world powers. We use bark and relate it to the brain of an animal by putting it into the cavity in which the brain has been.

Now we must take very seriously Rudolf Steiner's indication that this preparation can heal all plant diseases. How is this possible?

Rudolf Steiner himself lays great stress on the calcium content in the oak bark, and he says that it is also this calcium content which has so very much to do with the healing process. This of course is easy to understand if you can imagine how the calcium works upwards from the roots, ensuring, so

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to speak, both the proper sensibility of the plant and the rooting of the plant down into the soil.

But there is something else relating to the oak bark which has interested me for years: it is also a very good remedy, and therefore I have studied it. Oak bark is one of the few substances which contain, not iron (although the oak is a Mars plant), but what in chemistry we call the companions of iron —molybdenum, cobalt, zinc, etc. If you were to study the periodic table system of the elements, you would see iron surrounded by exactly those elements which we find in oak bark. If we ask ourselves where they come from, we can answer only with a picture. These elements are there as the remains of a planet which was destroyed, during an earlier stage of earth evolution, in the fight between Michael and the Adversary. There are hundreds of little planetoids in the region between Mars and Jupiter. All the iron-accompanying elements are just the remnants of that which was once a planet.

These elements have an enormous influence on the whole productivity of the soil, and it would be a useful task for our laboratories to investigate these elements not from a chemical perspective alone but from a homeopathic point of view. All elements of oak bark, in homeopathic, etheric forces, have helping powers for calcium in the prevention of disease in plants.

When we put the oak bark that was in the skull into the compost heap, we create something very special. Rudolf Steiner says that when you put nettles into the compost heap they will make the compost heap sensible, and in turn the soil also will become sensible. I must add that the oak bark preparation, placed into the compost heap, makes the compost heap not only sensible but conscious, which is much more. I cannot go into details, but one thing I can say. What makes the animal conscious, gives to man conscience and not merely consciousness. The same powers give a plant health. A healthy plant is healthy by virture of the same powers which create consciousness in an animal and build up conscience in man.

It is these powers which are applied to the compost heap

with the oak bark preparation. We give to the heap part of the same powers which light up in us as conscience, and there we create the brain. Rudolf Steiner describes the compost heap as a brain. You put into this a spark of health, for health in the plant means the proper relation to physical and etheric substances.

The nettle preparation should be prepared without a sheath. It is enveloped in peat and put into the soil, where it remains for a year. This is actually twenty-four hours for the nettle, since for plants a year is like a day. You cannot fail to notice the warm interest and joy Rudolf Steiner feels for the nettle when he speaks about it. He says that every human being should "wear it round his heart." I would fully agree. If one only had this strength around one's heart — the stinging strength as well as the comforting strength!

Now this nettle, which Rudolf Steiner connects with the heart, has to be put into the soil, and my impression is (I say it is only an impression and nothing more) that the nettle has its sheath also, but this sheath is as wide as Mother Earth.

From many indications which Rudolf Steiner gave to us doctors, we know that the lung is deeply connected with the earth itself. We can easily understand, therefore, that the nettle is put into the soil, and the lung—the breathing, the ex- and inhaling of the whole earth—is put around it. It is not an animal organ, but the organ of the whole Mother Earth which surrounds the nettle.

These are the five preparations, and it seems to me that we should grow increasingly aware of how to place them into the whole compost heap. I am inclined to suggest that this should not be left simply to the discretion of those who use these preparations. One should have at least some idea as to how their radiations work and how, therefore, they may best be placed in relation to each other. My feeling is that they should be arranged in the following way, although this is certainly not a dogma. Say, to begin with, that you look upon the compost heap from above. I have the impression it would be good to insert the oak bark a little away from all the other

preparations, because it is the most special one. It is quite different from all the others. Further on you should insert the nettle. Then you should have a region where the other three are inserted as you like. I would prefer or suggest that the dandelion, yarrow, and camomile should lie as shown in the diagram. (Fig. 88)

In inserting these preparations, you not only bring about a living process, but you make the compost heap into a "becoming being," with a physical and etheric body, and also what I can only call "existentiality of consciousness." The more you study these preparations, the more you will see that you make the compost heap slightly awake with the preparation made from oak bark, that the nettle preparation makes it dream, and that the other preparations bring about sleep.

We are dealing really with three regions within the compost heap, and as we are here in the sphere of the plant, we should imagine that here are the roots, and that this oak bark-skull preparation brings into the compost heap an existence like the seed from which the roots sprout into the soil. And here in this region we have all that is connected with the leaf process and the stem process (nettle preparation). Yesterday I pointed out the pollen and the fruit, the stamen and the pollen, so that we can see how in this compost heap, by inserting the preparations, we actually create nothing else but the archetypal plant. (Fig. 89)

We now cover it and sprinkle it with valerian. Why do we do this? We enliven the phosphorus process, and this is a process which calls down the help of the heavens to aid all that has been done. To call down the forces to act in the way we had intended these forces to act — this is actually done with valerian.

I could of course now speak at length about valerian as a medicine for men and animals. But here you use it not so much in a medicinal way, but much more generally. It is done—I hardly dare to say it for fear of creating a wrong impression—as one uses incense at the altar. You do something to call down the help of the higher worlds: "Let the archetypal plant come down."

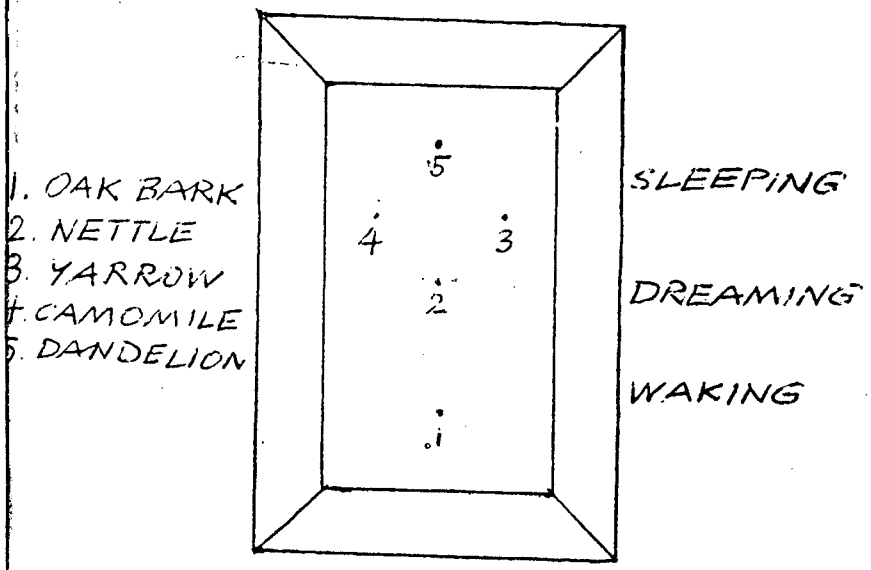

Fig. 88

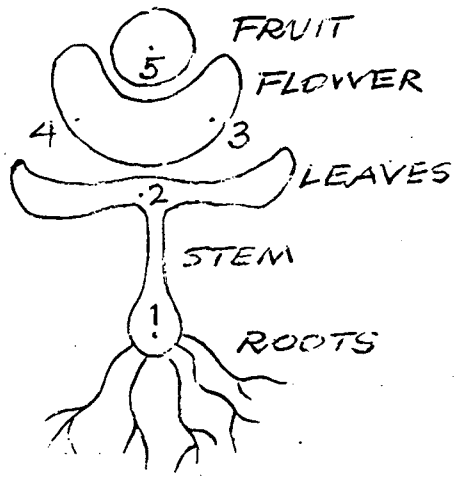

Fig. 89

To understand this means, of course, much more. It means that if we do everything in a proper way, we help to enliven those human beings who feed on all that we produce as farmers; we help them to create their own archetypal plant within themselves. The archetypal plant is not only the possession of the plant kingdom. We as human beings also carry the archetypal plant within us, only we do so in an upside down way. This leads to a renewal of our whole physical existence. What Rudolf Steiner once called the "phantom" is connected with the archetypal plant within man, which has to be built up in the course of time with the help of the impulse of Christ on earth. By applying in practice what Rudolf Steiner gave at Koberwitz, we serve this purpose.

You see more and more that not only will these things become a practice, but that, where men follow this practice, they will be relating the whole earthly existence to the cosmos again. The sprinkling of the compost heap with valerian is actually the most important process, and should live in our soul when we perform it. Something like the sprinkling of valerian, this calling down of the help of the spirit for the work on earth, should penetrate and infiltrate our whole existence as gardeners and farmers.

When I started this lecture course I said it seemed to me that all that Rudolf Steiner has given us in agriculture can only be compared with what, once upon a time, in the ancient Persian Epoch, was given to man when he was taught the knowledge of wine and wheat. We must realize more and more what a holy gift we carry as we learn to practice it and to understand it. This is the only answer to all the divisions in agricultural thinking in the world today.

When Alexander the Great once wrote to Aristole asking him why he gave all his esoteric writings to the world, and why he did not leave them entirely to Alexander, Aristotle answered: "You see, they may well be able to read them, but they will not understand them"—we must learn to understand. We may use any of these substances, but we can misuse them only if we do not understand them. Only if we try as farmers to develop more and more devotion towards spiritual knowledge shall we be able to be proper farmers. To separate the preparations from Anthroposophy, to cut away all the teachings about farming from Spiritual Science, means to cut away a branch which, being cut off from the tree, would soon die. It is the farmer who runs the farm, and it is Anthroposophy in the farmer which runs the farm properly.

The numbering of Steiner's works follows the sequence in the *"Gesamt-Ausgabe" (GA)*, or *"Complete Works"*. In each case the German title is given first, followed by the title of the English translation, if available. The year indicates the last edition of the title.

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