

LECTURE IV.

Delivered 12th June, 1924.

As you have seen, the methods of Spiritual Science seek in agriculture as in other matters for a comprehensive vision over a wide range of the character and activity of spirit in Nature, whereas a materialistically inclined science has entered more and more into small units and restricted spheres. Even if in agriculture the units concerned are not always of microscopic order as in some of the other sciences, yet agriculture usually concerns itself with the workings within restricted spheres and with what can be inferred from these limited observations. But the world in which man and other earthly creatures live can by no means be judged from a narrow standpoint.

To adopt this standpoint as is done by contemporary science in relation to agriculture is, in view of the real facts of the case, rather like attempting to gain knowledge of the whole being of man by observing his little finger and the tip of his ear, and trying to reconstruct the whole from these two features. We must oppose to this - and never was the task more necessary than today - a real science which will go out in search of the wide range of cosmic relationships. How greatly the scientific ideas current today or, at any rate, a few years ago, stand in need of correction, can be seen from the absurdities which not so very long ago prevailed in the matter of human nutrition. Everything was very scientific - it was all scientifically proved and no objection could be taken to any of the facts adduced. It was taken as scientifically proved that a man weighing from 70 to 75 kilograms required about 120 grammes of protein a day. This was regarded as scientifically established. Today no man of science would give credence to such a proposition. Everyone knows nowadays that 120 grammes of protein are not only not necessary but would actually be harmful, and that man is at his healthiest when he is taking about 50 grammes a day. In this case science has corrected itself. It is known today that if too much albumen or protein is consumed, it produces poisonous by-products in the intestines. If we examine not only the particular periods in the man life when albumen is administered to him but his life as a whole, it will be found that the hardening of the arteries (arterio-sclerosis) which takes place in old age can be attributed primarily to the poisonous effects of overdoses of albumen. Scientific investigations of man, for example, often go wrong because they only take account of the moment. A normal human life lasts longer than ten years and the harmful effects of the seemingly beneficial causes which they seek to promote often do not emerge for a long time. Spiritual Science is less likely to fall into such an error. It is true, I do not wish to echo the facile criticism so often leveled at science today on account of such rectifications as I have just exemplified. I can see quite well that this rectification was necessary. But on the other hand it is equally facile to fall upon Spiritual Science when it seeks to enter practical life, because it is obliged to lay stress upon the larger connections of life, and because its eyes are open to those more attenuated forces and substances which play into the spiritual, and not merely to the coarser forces and substances of matter.

This applies in every respect to agriculture and particularly to the question of manuring. Now the very phrases used by scientists in dealing with this question show how little they understand of the significance of manure in the economy of Nature. A phrase very often used is: "The manure contains the nourishment for the plant". I mentioned the subject of nutrition earlier just to show you how science has of late been obliged to review its own position on the subject of human nutrition. Science had to correct its own errors because it started with an erroneous view of the nutrition of anything living.

The old view was, if I may express myself quite freely - I hope you will not be offended - that the most important thing about nutrition was what one ate every day. It is quite true that what one eats is important, but the greater part of it is not there for the purpose of being taken into the body and deposited there as substance. **This greater part has to give over to the body the forces which it contains in itself and thus stimulate the body into activity. (*Earthly Forces*)** The greater part of what is taken up as substance in this way is eliminated again from the body. **What matters, therefore is not whether a certain weight of matter in certain proportions undergoes digestion, but whether we are able to take up in the right way, with the food we eat, the active forces therein. For we need these active (*Earthly*) forces when we walk or work, or even more when we use our arms. On the**

This is the first indication of an understanding of nutrition that is elaborated further in the eighth lecture.

This understanding is now referred to as the cosmic and earthly nutrition streams. Dr Karl Konig in "Earth and Man" has delivered 3 lectures outlining this subject in much more detail.

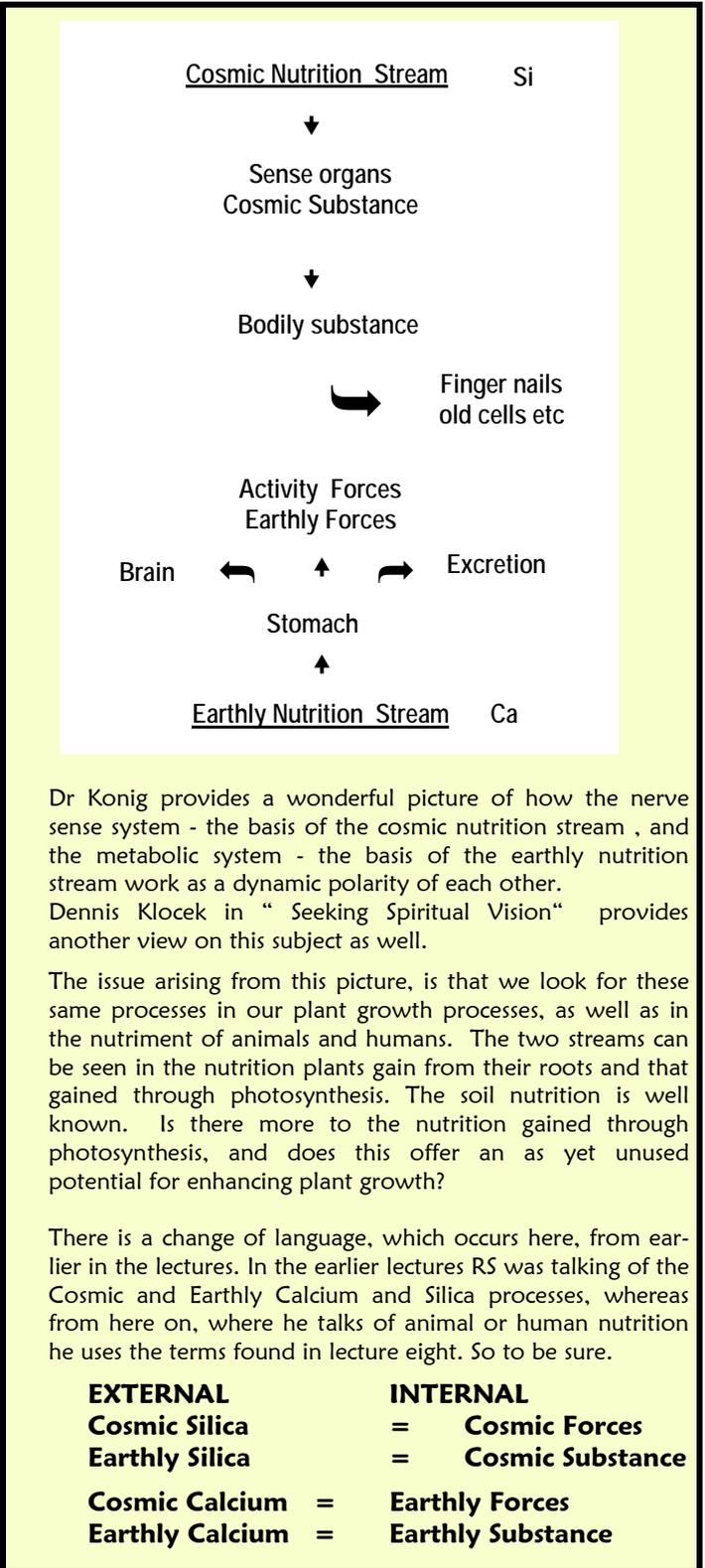
In lecture 8 language the forces released from our food and used for movement activities is called Earthly Forces, while the stream of activity mentioned in the next paragraph, which outlines how we are nourished by our senses is called the Cosmic Substance stream.

other hand, that which the body needs in order to fill up, to enrich itself, as it were, with substance (the substance being continually discarded and renewed during the course of every seven or eight years) is absorbed for the most part through the sense organs, (*Cosmic Substance*) the skin and the breathing in a highly attenuated state and only becomes densified in the organism. The body absorbs it from the atmosphere, densifies and hardens it, so that for instance it can be cut off as hair and nails. The schematic formulation: "Food taken in, passage through the body, wearing away of the nails, peeling of the skin, etc" is quite wrong. It should run: "Breathing, highly rarefied absorption through the sense organs (even through the eyes), passage through the organism, excretion." What is absorbed through the digestion on the other hand becomes important because its "inner ' mobility" (Regsamkeit) is set free, just as when fuel is burned. It introduces into the body those forces which open the way for the will to act in the body.

Now it really makes one despair when, in face of this truth, which is the simple outcome of spiritual investigation, one sees the attitude adopted by modern science which maintains precisely the opposite view. One is tempted to despair because it makes one see how difficult it is to find any meeting-ground whatsoever with modern science, on all the most important subjects. Yet such an understanding will have to come, otherwise where its views were applied to practical life science would simply lead us into a blind alley. For science is unable to understand certain things even when they are under its very nose. I am not speaking of the experimental side of science. What science says here is, as a rule, true. The experiments have a definite value; it is the theorising about them, which is bad. And it is unfortunately on these theories that suggestions for practical application are based. All this makes one realise the difficulty of finding a meeting-ground. However, an understanding will have to be reached and in the most practical spheres of life, among which we must reckon Agriculture.

If these things are to be rightly handled, it is necessary to gain insight into the mode of activity of substances (*physical*), and forces (*etheric*), the dynamic (*astral*) and of the spiritual too in every part of agriculture. A child who does not know what a comb is for, will bite into it or otherwise misuse it. In the same way we shall make quite a wrong use of things if we do not understand their essential being and their specific functions.

To make the matter clearer let us take the case of a tree. A tree is different from an ordinary annual plant which remains at the merely herbaceous stage. It surrounds itself with rind and bark, etc.



Dr Konig provides a wonderful picture of how the nerve sense system - the basis of the cosmic nutrition stream, and the metabolic system - the basis of the earthly nutrition stream work as a dynamic polarity of each other. Dennis Klocek in " Seeking Spiritual Vision" provides another view on this subject as well.

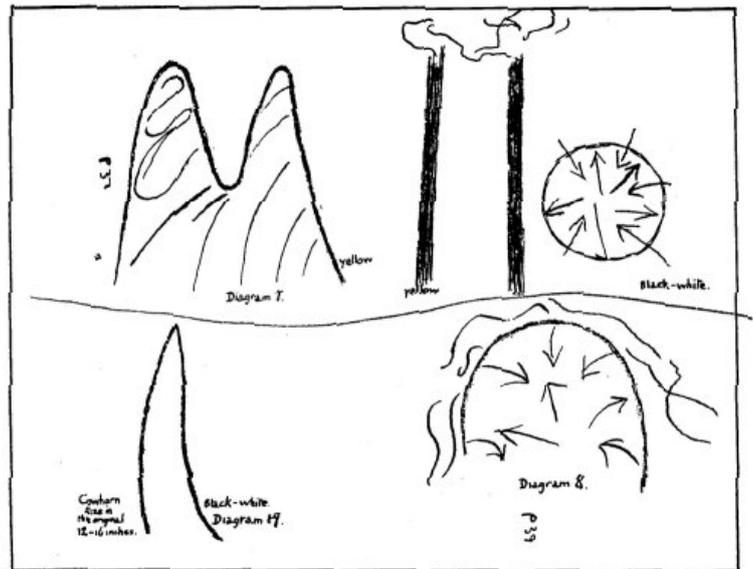
The issue arising from this picture, is that we look for these same processes in our plant growth processes, as well as in the nutriment of animals and humans. The two streams can be seen in the nutrition plants gain from their roots and that gained through photosynthesis. The soil nutrition is well known. Is there more to the nutrition gained through photosynthesis, and does this offer an as yet unused potential for enhancing plant growth?

There is a change of language, which occurs here, from earlier in the lectures. In the earlier lectures RS was talking of the Cosmic and Earthly Calcium and Silica processes, whereas from here on, where he talks of animal or human nutrition he uses the terms found in lecture eight. So to be sure.

EXTERNAL		INTERNAL
Cosmic Silica	=	Cosmic Forces
Earthly Silica	=	Cosmic Substance
Cosmic Calcium	=	Earthly Forces
Earthly Calcium	=	Earthly Substance

This is a clear statement that we are requested to approach agriculture as an expression of the spiritual bodies activity and interaction.

What then is the fundamental nature of the tree as opposed to that of an annual plant? In order to answer this question, let us compare the tree to a mound of soil which has been piled up and is exceptionally rich in humus, i.e. which contains an exceptionally large quantity of more or less decomposed vegetable matter, and includes perhaps some decomposing animal matter as well (See Diagram No.7). Let us assume that this is the mound of soil, rich in humus, and I will make in it a crater-like depression; and let us take this (Indicated in the second part of the drawing) as the tree, the more or less solid part being outside, while inside grows that which goes to build up the tree as a whole. It may strike you as strange that I should place these two things side by side, but they are more closely related than you may perhaps think. The reason is that soil such as I have described, soil containing plenty of humus, i.e. **substances in course of decomposition, bears etheric life within it.** And this is the point. When soil is so constituted as to have etheric life within it, it is on its way to becoming the outside covering of the plant, but does not in fact develop so far as to become bark. Now imagine (although, of course, this does not happen in Nature) that such a mound of soil, with its humus content has, by means of its etheric life, raised itself to a higher form of development and wrapped itself round the plant. **For if any part of the earth is raised above the general level, if the outer separates itself from the inner, then that which is raised above the normal level will show a definite tendency to life, a distinct tendency to be penetrated with etheric life.** This is why, if you want to make inorganic soil more fertile by mixing it with humus-like substance or with any sort of decomposing refuse, you will find it easier to do so successfully if the soil is heaped up into mounds. For then the soil itself will have the tendency to become inwardly alive and plant-like. The same process takes place in the formation of a tree. The soil bulges upwards, as it were, and surrounds the plant with its own etheric life. Why do I say this? The reason is that I wish to waken your consciousness to the fact that **there is an intimate kinship between what is enclosed within the contours of the plant and that which comprises the soil round the plant.** It is untrue that the life of the plant stops short at its outer sphere. The actual life is continued, particularly from the roots, into the soil and in many cases there is no sharp



The mounding of soil will naturally allow for a greater aeration of the pile. The more oxygen available to a space, the more etheric forces that can become active, in that environment. RS image of the soil being heaped up allowing for greater etheric activity and the tree, is providing us with an image of the greater working of the etheric body in plants, as opposed to the soil. His emphasis on the humus content is again showing how the humus is acting as the carrier of the etheric activity into the soil, as earlier indicated. The humus he suggested is plant material, which has not yet reached flowering and seeding. The astral and spirit activities have not yet used the etheric in their tasks and so this organic 'bound' etheric force is available to become part of the humus, if it can be released, 'captured' and held correctly. RS also suggests that due to the Astral and spirit activities not coming into form, such as flowering and seeding, then their 'potential' remains and also becomes available to the humus and any further life forms that develops from it. The 'potential' are forces that have been drawn to the plant through the primary 'Being' phase of the plants formation, but left unused in the secondary 'Manifestation' phase, due to the plants life being cut short, due to harvest. These unused forces are still present and available as they have not yet been used in the creation of substance.

It is appropriate to view the soil as a form of stomach, in that a further process of plant digestion goes on in the soil. The products of photosynthesis are carried to the soil via the cambian layer. These simple carbohydrates and sugars are given to the soil environment. This environment includes many bacteria, fungi, protozoa and nematodes, who use this as a food source. In turn this soil life gives back to the soil many nutrients, either from their excreta or from their decaying bodies. The amino acids and proteins in this excreta contain more stable forms of nitrogen than that provided by artificial fertilisation. These substances are available to the plants as a food source which is carried to the plant through the vessels of its inner core. In this way the soil acts as a digestive organ, much like our stomach, so that it can then feed the plant a higher nutrition, in much the same way as our intestines, pass the chyme from the stomach, into our blood stream. When contemplating the Stinging Nettle preparations, in the following lecture, it is

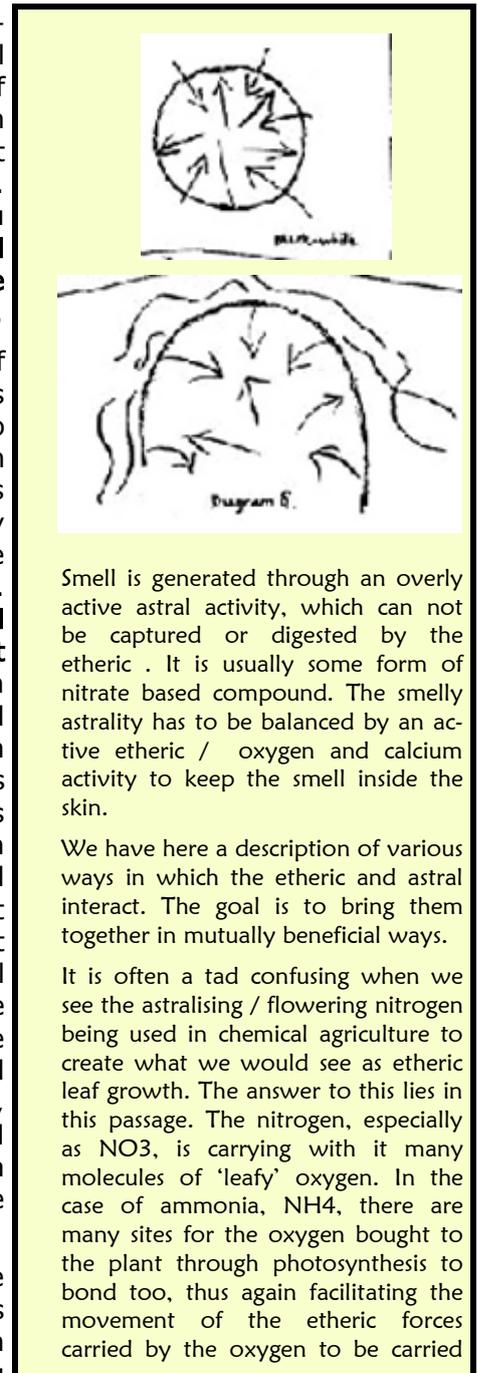
boundary between the life within the plant and that in its immediate environment. **In order to have a fundamental understanding of a soil which is manured or similarly treated, one must know that manuring consists in a vivifying of the soil so that the plant may not be planted in dead soil.** A plant will more easily develop from its own vitality, for what is necessary for fruit formation, if it is planted in something already alive. Fundamentally all plant growth is slightly parasitic in character; it grows like a parasite on the living earth. And it must be so. In many parts of the earth we cannot rely on Nature herself to supply a sufficient quantity of waste organic matter to enable the soil adequately to revivify itself by decomposition of such matter. In those places, therefore, we must assist the growth of plants with manure. This necessity, however, arises least of all in districts containing so-called "black soil", for here Nature herself has seen to it that the soil is sufficiently alive.

You will see from all this what is really happening; but there is something further which must be understood. One must learn - and this may not always be pleasant - to enter into a personal relationship with everything that comes within the sphere of Agriculture, and particularly with the work connected with manure and manuring. The job may seem to be an unpleasant one, but you cannot do without this personal relationship. Why? Well, if you consider the nature of any living being, you will find the reason. **Every living being always has an inner and an outer side. The inner side is inside some kind of skin, the outer side is outside that skin. Let us begin with the inner side.**

The inner side of every living thing has not only streams of force which go outwards in the direction shown by these lines (see Diagram 8) but it also has streams of force which go inwards from the skin, which are pressed back. Now an organism is surrounded on the outside by streams of all kinds of forces. There is something which expresses very exactly although in a "personal" way the relationship which must be established by the organism between its inner and outer side. **All the forces working inside the skin, all that stimulates and maintains life, must - pardon the phrase - inwardly smell, must have an inward stench.** Taken as a whole, life itself consists in this that what is generally diffused as a scent is instead held together so that the scent is kept inside and does not stream outwards too strongly. An organism must therefore allow as little as possible of its scent-producing life to escape outwards through its skin. Indeed one might say that the healthier an organism, the more it will smell inwardly and the less it will smell outwardly. A living organism and particularly the plant organism (apart from the flower) is designed not to give out scent but to take it in. And if we consider the beneficial influences on a meadow full of fragrant aromatic flowers, we shall begin to notice how living things mutually support one another in Nature. This fragrance of flowers which is diffused and which is something different from the odour of mere life, issues from sources of which we shall become aware later and it acts on the plants from outside. One must enter into a personal, living relation to all these things; only then are we really one with Nature.

Now the main thing to understand is that manuring and the like must consist not only in conveying a certain degree of aliveness to the soil, but also in enabling the nitrogen to spread through it, in such a way that with its help the life is carried along certain lines of force as I showed yesterday. In manuring therefore **we must bring sufficient nitrogen into the soil to enable the life to be borne into the organic structure of the soil which is to bear the plant.** This is the task, but it must be carried out exactly and properly.

Now here is a very significant hint: when purely mineral matter is used for manure, it never reaches the earth element, but at best only the water element in the soil. You can produce with



Smell is generated through an overly active astral activity, which can not be captured or digested by the etheric. It is usually some form of nitrate based compound. The smelly astrality has to be balanced by an active etheric / oxygen and calcium activity to keep the smell inside the skin.

We have here a description of various ways in which the etheric and astral interact. The goal is to bring them together in mutually beneficial ways.

It is often a tad confusing when we see the astralising / flowering nitrogen being used in chemical agriculture to create what we would see as etheric leaf growth. The answer to this lies in this passage. The nitrogen, especially as NO_3 , is carrying with it many molecules of 'leafy' oxygen. In the case of ammonia, NH_4 , there are many sites for the oxygen brought to the plant through photosynthesis to bond too, thus again facilitating the movement of the etheric forces carried by the oxygen to be carried

mineral manures an effect in the watery part of the earth, but you will not achieve a vivification of the earth element itself. Plants therefore, which are under the influence of any sort of mineral manure will exhibit a type of growth which betrays that it comes from water which has been activated, not from the solid element which has been vivified. The best way to approach these things will be to take the most unassuming and often despised kind of manure, viz. compost. Here we have a means of vivifying the soil. We include in compost all kinds of neglected refuse from farm or garden, mown grass, fallen leaves, and the like, nay, even to the remains of dead beasts, etc. These things should by no means be despised, for they retain something not only of the etheric but even of the astral elements. And that is important. In a compost heap, all contained in it is actually pervaded not only by living and etheric but also by astral elements. These are present to a lesser degree in solid or liquid animal manure, but they are more stable, more settled - especially the astral element only we must make use of this stable or settled character in the right way. **The action of the astral element upon nitrogen is hindered wherever the etheric element is too ebullient.**

A too powerful sprouting of the etheric life hampers the astral element in the compost heap from doing its work. Now there is in Nature a substance which I have already mentioned from varied angles which is extremely useful in this respect, and that is the chalky or limestone element. If therefore, some of this - preferably in the form of quicklime - is introduced into the compost heap, we get the following special result: without causing the astral element to "volatilise" as it were too much, the etheric element is taken up by the quick-lime and the oxygen is absorbed as well; In this way, the astral element is brought to a wonderful activity. This leads to a very definite result: In manuring the soil with compost, we are giving over to it something which has the tendency to carry the astral element directly into the solid element without the detour through the etheric element. In this way, therefore, the earthly element is thoroughly "astralised" and thereby becomes penetrated with nitrogen. This result, indeed, very much resembles a certain process in the human organism - a plant-like process - so plant like in fact that it does not proceed to fruit formation, but stops at the stage of leaf and stem formation. **What we give over to the soil in the compost has its parallel in that process which brings about in the food we eat that "mobility" of which I spoke before** (see paragraph 7 & 8 of lecture 3). We bring about a similar activity in the soil when we treat it in the manner described. Soil prepared in this way will be especially suitable for producing plants which, when they are eaten by animals, will continue to bring about a similar activity in their organisms. In other words, we shall do well to manure our meadows and pasture lands with this compost, and if we carry through the process carefully, with strict regard for the other proceedings and ingredients, we shall succeed in obtaining good fodder, which, when mown and dried, preserves its quality. I should like to remind you that to take the right steps, one must look into the nature of the whole process, and finding the right thing to do in any particular case will, of course, depend to a great extent upon having the right feeling. This feeling, however, develops, when we look into the whole nature of this compost process. For instance, if the compost

In life forms the astral and etheric are in a mutual relationship with one another. Where one goes the other is effected. If one is too strong the other is weak. If ones activity is too much then the other needs to be strengthened to bring back harmony. Here we are told that a too strong etheric activity will stop the astral forces bind to the chemical nitrogen and to the soil. The etheric is pushing off the astral and limiting its ability to contact its physical carrier. What happens with this etherised nitrogen? It off gases. Lime is shown here as a substance that attracts excessive etheric forces to itself and also draws the nitrogen to itself. A point worth considering when investigating the Oak Bark preparation later.

It is well known also that Calcium has an attraction for nitrogen and in legumes allows for the bacterial nodulation to occur. Fungi are stimulated by strong etheric activity, while bacteria are stimulated through the astral activity. We can conclude from this passage that a fungal dominate compost will result from too strong an etheric activity. This needs to be restrained or properly completed if we are wanting a bacterial nitrogen stabilised compost to develop.

Mobility

I am not convinced that this reference to the paragraphs in lecture three, by the original editor, are the 'mobility' references RS was referring to here.

If we reflect on the images of digestion provided in the second page of this lecture we are presented with images more suiting to this outline.

"so plant like in fact that it does not proceed to fruit formation, but stops at the stage of leaf and stem formation."

This is a similar comment RS made when discussing the role of humus formation in the soil. He is describing a process that has some astrality active however does not proceed to the seeding / ego phase of the cycle. In the earlier section of this lecture he was describing how the metabolic processes are a mixture of the Earthly forces / Etheric activity interacting with the Cosmic Substance / Astral activity. To have health, movement and to put on weight we must have these activities in balance. In this section he is saying the same must occur in the compost making process. A balanced Etheric and Astral activity in the compost can be then carried over into the pasture and

heap is left alone the astral element in it will begin to spread in all directions. It will then be a question of developing the right personal relation to the heap in order to find out how it can be made to retain its smell within it. This can easily be done by putting down a thin layer of the compost material and covering it with peat moss, then adding another layer and so on.

In this way we hold together that which would otherwise "volatilise" itself as smell. Nitrogen, indeed, is a substance which in all its modifications is eager to spread out into all directions. And now it is held back, by this I wish to indicate how necessary it is to treat the whole "agricultural-individuality" in the light of the conviction **that etheric life and even the astral principle must everywhere be poured out over it to make our work effective.**

Now following this trend, we can take a further step. Have you ever wondered why it is that cows have horns, while certain other animals have antlers? It is a very important question. Yet what science has to say about it is quite one-sided and based on externals. Let us consider why cows have horns. I said that the forces within a living organism need not always be directed outwards, but can also be directed inwards. Now imagine an organic entity possessing these two sets of forces, but which is unformed and lumpish in build. The result would be an irregular, ungainly being. We should have curious looking cows if this were the case. They would all be lumpish and unformed, with rudimentary limbs as at an early embryonic stage. But this is not how a cow is constructed. A cow has horns and hoofs. Now what happens at the points where horns and hoofs grow? **At these points an area is formed from which the organic formative forces are reflected inwards in a particularly powerful way. There is no communication with the outside as in the case of the skin or hair; the horny substance blocks the way for these forces to the outside.** This is why the growth of horns and claws has such a bearing upon the whole form of the animal.

Things are quite different in the case of antlers. Here the streams of forces are not led back into the organism, but certain of them are guided for a short distance out of the organism; there must be valves, as it were, through which the streams localised in the antlers (we can speak of streams of 'force', just as we can speak of streams of air or liquid) can be discharged. A stag is beautiful because it stands in intense communication with its environment by reason of its sending outwards streams of certain of its forces; by this it lives within its environment and takes up from it everything which works organically in its nerves and senses. Hence the nervous nature of the stag. In a certain respect all animals which have antlers are suffused with a gentle nervousness. This is clearly to be seen in their eyes.

The cow has horns in order to reflect inwards the astral and etheric formative forces, which then penetrate right into the metabolic system so that increased activity in the digestive organism arises by reason of this radiation from horns and hoofs. If one wants to understand foot-and-mouth disease, i.e. the retroaction from the periphery to the digestive tract, one must know of this connection. Our remedy for Foot-and-Mouth disease is based on the

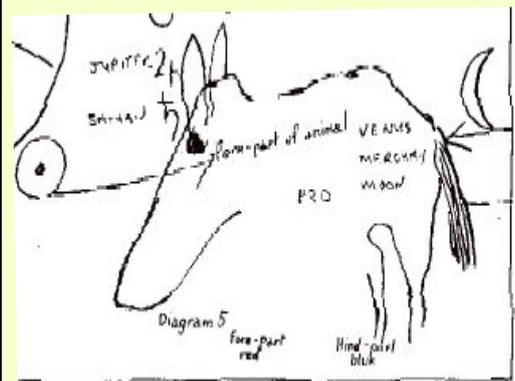
The Cow Horn

This passage has caused some confusion particularly in New Zealand.

The key passage I have highlighted below outlines how there are forces coming inwards and outwards of an organism, however with the cow horns we have a situation where the forces coming from inside outwards, can not leave the body of the cow and are reflected back inwards, while the forces normally coming into the animal are cut off from entering.

This reflecting back of the metabolic forces leads to an enhancement of their activity, a doubling up as it were, which is shown in the cows ability to support its huge digestive dominance with its four stomachs and the most processed manure.

Malcolm Gardner's translates this paragraph the most clearly when he writes **"At these places the streams are especially strongly turned inward and the outside is particularly shut off. All outward communication, such as can occur through the skin or hair is completely ruled out."**



A further confusion can arise in this section where we try and align RS picture of the animal in lecture 2 and that outlined here.

Earlier we are presented with the picture of the animal being formed by Sun forces aided by the outer planets, entering the front of the animal and Moon forces aided by the inner planets entering from the rear of the animal. Naturally it would seem proper to build upon that image. See next diagram.

recognition of this. In the horn, therefore, we have something which by its inherent nature is fitted to reflect the living etheric and astral streams into the inner life organs. The horn is something which radiates etheric life and even the astral element. Indeed, if you were able to enter into the cows belly, you would smell the current of etheric-astral life which streams inwards from the horns: and the same thing is true of the hoofs.

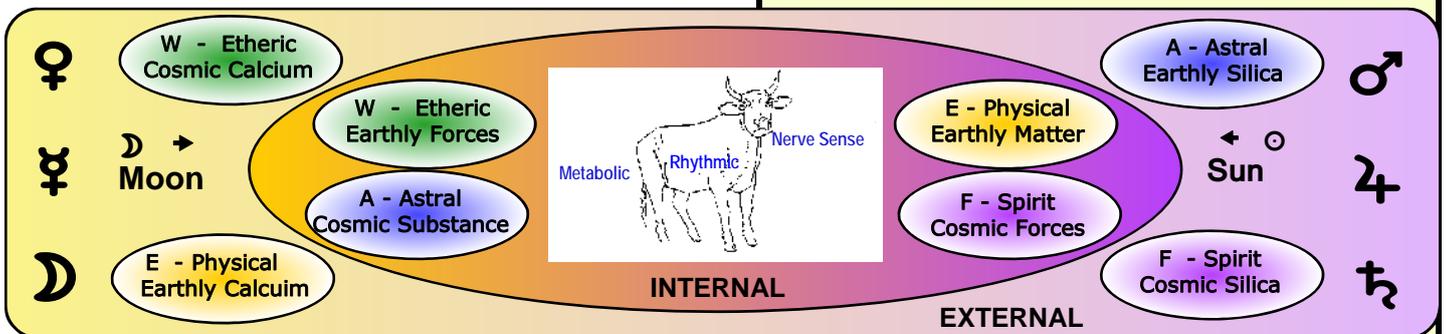
Now this gives us a hint as to the measures we may recommend for increasing the effectiveness of ordinary stable manure. What is ordinary stable manure really? It is foodstuff which the animal has taken in and which up to a certain point has been assimilated by its organism, thereby stirring into activity certain dynamic forces in the organism. Its main use has not been to increase the amount of substance in the organism, for after having had its effect, it is excreted. It has become permeated with astral and etheric elements. The astral element has

In my 'Biodynamics Decoded' (BDD), <http://rimu.orcon.net.nz/garuda/images/BDDDecoded3.jpg> - we see how in this course, we are provided with the associations of the Sun and outer planets being related with the Silica pole. This naturally associates these parts of the vortex, with the elements of Warmth and Air, and the Spirit and Astral bodies; while the Moon and inner planetary processes would be associated with the water and earth elements and the etheric and physical bodies.

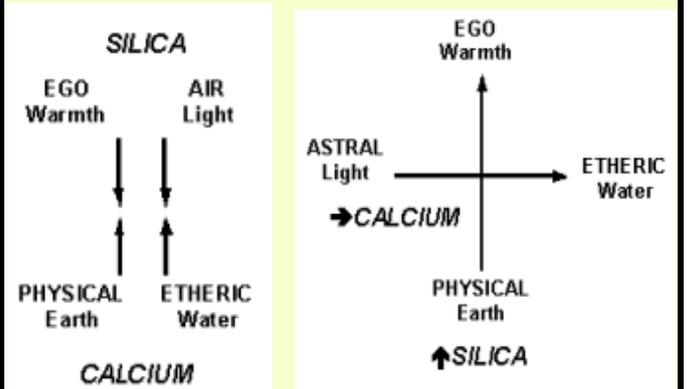
So we might expect activities coming from the metabolic pole, to be dominated by the physical and etheric bodies. While those coming from the head to be spirit and astrally dominated.

Confusion, can arise then, when RS talks in these passages, about the Etheric and Astral activity present in the digestion of the cow. The answer to this confusion is addressed more clearly in the eighth lecture, when RS outlines the working of the head and metabolic regions as discussed earlier.

In BDD — <http://rimu.orcon.net.nz/garuda/books/BDD4fold.html> — I outlined how, in creation, we meet



filled it with nitrogen-bearing forces and the etheric element with oxygen-bearing forces. The substance which emerges as dung is permeated with these forces. Imagine now: We take this substance and pass it into the soil in some form or other (the details will be dealt with later). Thus we add to the soil an etheric-astral element whose proper place is in the belly of the animal, where it produces forces of a plant-like nature. For the forces which we produce in our digestive tract are of a plant-like nature. We should be extremely thankful that we get such a residue as dung, for it carries etheric and astral forces from the interior of the organism out into the open. These forces remain with it, and it is for us to keep them there. In this way the dung will act in a life-giving and also astralising way on the soil, not only on the water element in it, but especially on the solid (*earthly*) element. It has the power to overcome what is inorganic in the earthly element. Now what is passed over to the soil will necessarily, of course, lose the form it originally had when taken in as food, for it has to go through an inner organic process in the metabolic system. There it enters upon a phase of decomposition and dissolution. But it is at its best just at the point where it begins to dissolve through the workings of its own astral and etheric elements. It is then that



two sets of polarities. The 'macro' polarity, eg Warmth and Air in polarity to Water and Earth works more externally in the environment, while the 'micro' polarity shown in the duality Fire and Earth as against Air and Water works internally as the organisation of life forms. Hence RS's use of both these patternings.

In these passages RS is talking about the internal working of the cow organism, and so we have to read them, in the light of the micro polarities. He is discussing the digestive function of the cow, which is governed by the 'World' Moon and, which is a very one sided activity in this animal. We see clearly in the 8th lecture that the This Moon digestive pole of the animal is maintained through the activity of the Astralised Cosmic Substance and the Etherised Earthly Forces. Here RS is not using those terms, but

the parasites, the micro-organisms make their appearance. They find a good feeding-ground in which to develop. This is why the theory arose that these parasites are themselves responsible for the virtues in the manure. But they are only indications of the condition of the manure. **If we think that by inoculating the manure with these bacteria we shall radically improve its quality, we are making a complete mistake.** Externally there may seem at first to be an improvement, but in reality there is none. I shall deal with this point later. For the moment, let us continue with the matter in hand.

Let us put manure just as it comes to hand into a cow-horn, pressing it full, and bury it at a certain depth - say 1 to 2 feet deep according to the soil which should not be too sandy or clayey. We can choose any spot where the soil is in good heart. Now by thus burying it with its filling of manure, we preserve in the horn that function which it would normally exercise in the cow's body, that is the reflecting of the (*internal*) life-giving and astral elements. Through the fact of its being surrounded with earth, all the currents of etheric and astral forces stream into its interior. These forces attract all the astral and etheric elements from the surrounding soil, and the manure contained in the horn becomes inwardly quickened with these forces in the course of the winter season when the earth itself is most alive. For the earth is most inwardly alive during the winter. All these living forces are preserved in the manure and thus there is a highly concentrated, life-giving manuring force in the contents of the horn. Then (in spring) the horn can be dug up and its contents removed. Those of you who were present at Dornach when last we made this experiment will remember that you were able to convince yourselves of the fact that when the manure was removed it was completely odourless. It was quite striking. The manure no longer smelt at all, though naturally it began to do so a little when it was mixed with water. This shows that all its odour had been concentrated and worked up within it. You have here a tremendous astral and etheric power which you can utilise by taking the content of the cow-horn after its period of hibernation and diluting it with water which perhaps should be slightly warmed. As regards quantities and dilution, I have ascertained by repeated observation that an area of about 1500 square yards (near one-third of an acre) can be served with the contents of such a cow-horn, diluted in about half a bucket full of water. The whole of the contents of the horn must be thoroughly united with the water. You must begin to stir it briskly round the edge of the bucket until a crater is formed in the middle reaching almost down to the bottom. At this point, suddenly reverse the movement thus causing the liquid to swirl round in the opposite direction. If you do this for an hour, the ingredients will become thoroughly mixed. You must remember what a really small amount of work is entailed in this. Besides I can very well imagine that some of the less occupied members of a farming community would derive particular pleasure from stirring manure, at any rate to begin with. It would be splendid work for the son or daughter of the house, for it is a very agreeable experience to find that a faint scent develops from what is at first completely odourless. It is extremely beneficial for a man thus to establish a relationship with the work he is doing, instead of studying Nature in a large way as it were with the help of a Baedeker.

he is talking of the spiritual body activity standing behind these activities.

So with cow horns we are given the picture that the metabolic processes are not able to stream as far forwards and outwards as it does in the Stag, but are reflected back into the interior of the cow to support the digestive processes of the cow. In the stag these 'Moon' forces provide it with a delicate sensitivity. Interestingly these are the Moon / female forces that provide this sensitivity.

Micro-organism Inoculation

RS clearly states that it is not the bugs that make the environment it is the environment which makes the bugs.

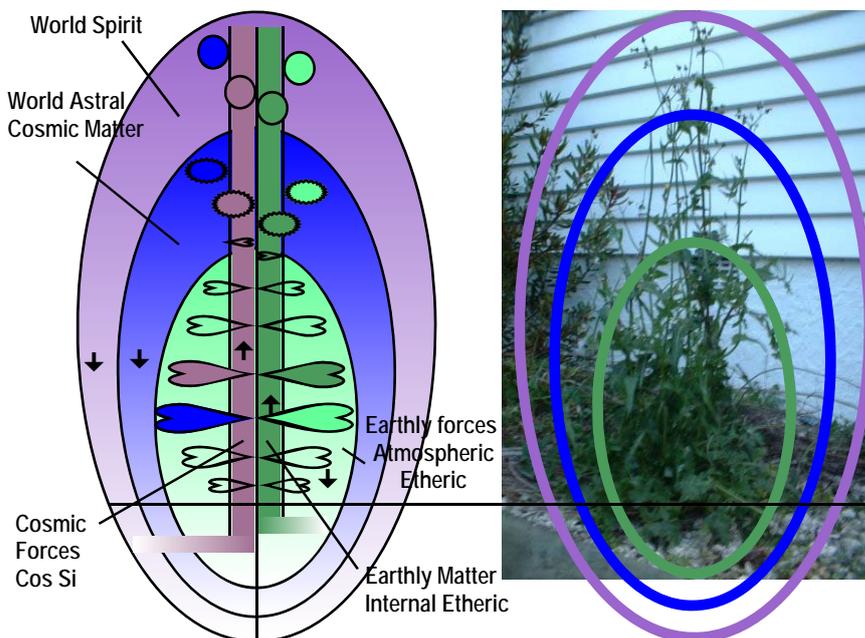
In the light of the present trend towards the application to the soil of super bug mixes this should cause some reason to reflect on this practice. Many people know that if the environment is not right

The next thing to do is to spray the mixture over tilled land so that it can get thoroughly into the soil. Small areas can be treated with an ordinary syringe, larger areas will naturally call for the employment of specially constructed machines. But once we have learned to combine this kind of "spiritual dung" with ordinary manure it will be found that very great fertility will be produced. In particular it will be found that these things are capable of still further development, for in addition to the measures I have just indicated, we can proceed as follows: Again we take a cow-horn and fill it in the same way, not with manure this time, but with quartz or flint or even orthoclase or feldspar that has been ground to powder and mixed with water so as to form a thin paste. Then instead of leaving the horn in the ground throughout the winter, we leave it there over the summer, take it out in late autumn and keep it till the following spring. Its contents, which have been exposed to the summer-life of the earth, are then emptied out and treated in the same way as has been described in connection with the dry manure, except that much smaller quantities are required. Thus a pinch of the contents of the horn about the size of a pea or even of a pin's head can be diluted in a bucket of water; the main thing is that it must be stirred for an hour, as before. And if you use this mixture

for spraying the plants (not pouring it on to them but finely sprinkling it) you will see, particularly in the case of vegetables and the like, that this has the effect of supplementing and reinforcing that which works out of the soil through the cow-horn manure. And if, as would not be amiss, the practice were extended to whole fields - it would be easy enough to devise machines which would sprinkle the liquid over whole fields - **then you would see how the cow-horn manure was pressing up from below, the other drawing from above**, neither too weakly nor too strongly. And this could have a wonderful effect, particularly on cereals.

Now these things are derived from a wider range of experience than those which result from the point of view which would seek to construct a whole human being theoretically from his little finger. Let us not underrate the results obtained. For to tell the truth what is generally meant by making a farm productive is to make it as paying a proposition as possible. Nothing else matters very much. Unconsciously at any rate the farmer is always pleased when by some method or other he has achieved big results - big potatoes, out sizes, something inflated and swollen. His research goes no further than this. And yet this is not what matters most. What matters most is that the food which is put before man should be that which is most beneficial to him. You may grow the most splendid looking fruit in field or orchard, but it may only fill a man's stomach and not really benefit his inner organic existence. Modern science simply has not found the way to supply man with the food which will support the life of his organism.

You will see that what Spiritual Science has to say on the subject is very different, for it has for its background the whole economy of Nature. The principles are drawn from out of the whole. That is



"then you would see how the cow horn manure was pressing up from below, the other drawing from above"

This phrase can do with some reflecting upon and remembering, as in it we are presented with a strong picture of the action of 500 and 501.

There is no doubt that 500 enhances plant growth from below and is seen in an expansion of the plants leaves and even shows a tendency to be inhibited the plant from going to head or seed, when overused. Imaging what RS says about the overly active etheric pushing off the inward moving astrality.

There is however some discussion still as to how 501 works, though.

When applied 501 can be seen to easily rush a plant off to seed, thus strengthening the inward moving cosmic pole and thus causing greater leaf differentiation, leaves become smaller, internodes shorten, the skin thickens and a certain stunting of the plant, not unlike the effect of sowing plants at Moon opposition to Saturn, can be observed. It is as if the astrality and spirit are being drawn closer and strengthened.

Reflecting on what we are told in the second lecture, regarding the roll of Silica sand and its drawing of the Cosmic processes closer to the soil, we could imagine that by applying Horn Silica (sand) to the plant—via an atmospheric spray—that this contracting influence is a result of the Cosmic activities being drawn more closely to the Earth. **So the plant is being pushed inwards from the outside, by the World Astrality World Spirit and the Terrestrial Silica forces.** This inward moving Astrality enfolds and uses the outward moving etheric activity to move the plant focus towards flowering.

Another consideration is **the role of the outwardly moving Silica processes**, being released by the Clay processes. We were told in the second lecture of the Cosmic Silica process, working from the Earth through the stalk of the plant, shooting the plant into space. We can see its action in the biennial plants. In the first season this upward movement is dormant, and so the leaf growth occurs, with slight leaf differentiation, as a rosette just above soil level. In the spring of the following season the sleeping Silica awakes, and the plant is thrust into the awaiting Astrality, just above the soil. As it pushes upwards into the Astrality, leaf differentiation, stretching and flowering occur. The manifesting of this thrusting into space can be effected by several things.

If there is a strong accompanying Earthly / etheric (500) activity working, thus pushing up from the Earth, then the inward moving astrality is reduced. It is pushed off. The stalk process remains strong, however the leaf reduction and metamorphosis is slowed. This

why the particular indications have a decisive bearing upon the whole. If farming is practised in this way, it cannot but result in giving the best both to man and beast. Indeed, as everywhere in Spiritual Science, the study of man is the starting-point; man is taken as the basis. Thus practical hints can be given as to how man may best sustain his human nature. This is what distinguishes our way of looking at things from those usual to-day.

etheric activity can become so dominant that we have outward growth, without the checking influence of astral flowering occurring. We have just created a creeper, by having strong outward Silica and outward Calcium processes with little inward moving activities.

The question remains even in this circumstance, is this outward moving Silica process pushing or being sucked. Interestingly, a close reading of everything RS has said about this Silica process coming from the Earth shows, at no time does he say it is pushing. He uses words like radiates upwards, drawn upwards, conducts the force upwards and so on. It is only here that we have this strong statement about 501 causing a 'drawing from above', Malcolm Gardener says "pulls from above".

I am left to reflect on how in lecture two, we are told that sand pulls the cosmic Silica processes into the soil. Clay allows it to radiate back outwards. Is this radiating back outward, actually acting as if a compressed spring is being released, and the Silica processes, at home above the Earth, pulls the plant upwards.

In discussion with other folks, on the BDNOW email list, the view was put forward using an osmotic frame of reference. It is understood that as energy moves from a disorganised to an organised state, it moves from lesser concentration to a greater concentration. By spraying Silica 501 into the atmosphere, this causes a more organised concentration of Silica activity, above the plant. Therefore the Silica processes in the lower part of the plant are drawn to this greater concentration and the stalk is pulled upwards. This greater concentration on the top of the plant, and in the atmosphere about the plant, would also intensify the surrounding astrality causing it to move inward simultaneously, thus the contracting influences one sees with 501. The moderating influence to these Silica processes, is the state of the Calcium processes, both from the earth and the atmosphere, accompanying these Silica processes.

This understanding is given some support when RS is asked in the following discussion:

QUESTION: How large should the areas be on which the experiment is made? Would it be necessary to do something to preserve the cosmic forces until the new plant comes forth?

ANSWER: For these experiments it is relatively easier to lay down the broad lines to be followed. The actual proportions will have to be worked out in individual cases. In answer to this question I suggest the following experiment. Let us plant two experimental beds with wheat and sainfoin respectively. **Then, if silica has been added to the soil, you will be able to observe that the wheat (a plant whose natural and permanent tendency it is to produce seed) is being hampered in its seed formation. In the case of the sainfoin you will also see that the seed formation is either completely suppressed or is retarded.** In such "experiments" you can always take the effects on the cereal as the basis for comparison with the corresponding effects on sainfoin as representing leguminous plants. In this way very interesting experiments can be made in seed-formation.

I have not heard of these experiments being carried out. However I can vouch that on my silica sand soil the results are as RS has suggested. Special efforts are needed to make some plants fruit in satisfactory manner. If this "silica has been added to the soil" is referring to 501 sprayed to the soil, then his comments gives weight to the view of intensification of organised concentration, sucking the plant into the root pole, rather than to the fruiting pole. I have often put my SilicaMax, (homeopathic 501) in liquid fertilisers. I have watered around tomatoes. I find it gives them a greater fungal resistance , yet have not noticed a marked reduction in their fruiting abilities.

Another school of thought says, that in life processes substances moves in one direction and forces move in the opposite direction. With 501, the inward moving substance stream is intensified, while the outward moving 'etheric' force stream occurs simultaneously. This sees the inner Silica process being drawn outwards and the plants form in manifested by forces moving inward.

I have not found a satisfactory combination of all these viewpoints yet ,that has answered all the questions associated with my experience of using 501.

I see the two Silica processes, the outward moving , stem forming process, which I can see as radiating back from the Earth. However I see the inward moving astrality based Silica processes carried in the light and warmth of the atmosphere, working most strongly with 501. I have experienced this inward moving stream, characterised as the periphery to the center action, most often, when I have sprayed 501. Contraction is the order of the day , even to the point of greater tap root formation on sprayed plant compared to unsprayed plants. A strong outward moving 500 process, is needed to accompany 501, to limit this inward contraction.

My view may well be somewhat influenced by the fact I have lived the last 10 years on a Siliceous sand based soil, with weak clay and calcium processes. Hence 501 may act more strongly here, in its contraction mode, than its pulling upwards character.

Either way, we are provided in this course, with a fourfold picture of plant growth, we need to work with. A simplified two fold picture, would be nice, however to do so, is to deny much of what is said in the course.