

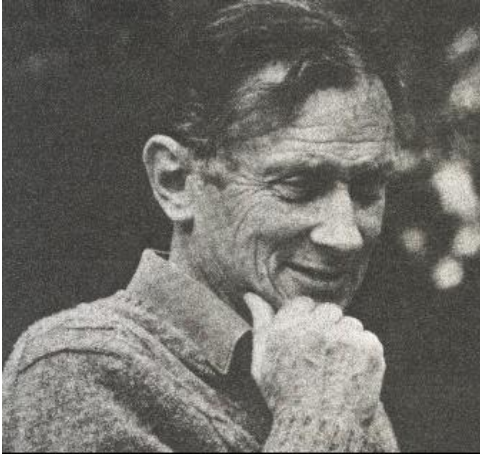
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INTRODUCTORY LECTURES
Volume 3

This book is the third in a series of published lectures whereby fundamentals of the Bio-Dynamic Agricultural Method are discussed in a down-to-earth and practical manner by Alex Podolinsky, a world leader in Bio-Dynamic Application on a practical level.

These lectures have been lightly edited so that the quality of the spoken word has been retained.

FOREWORD



There is so much happening in the vastness of nature, earthly and cosmic. No one will ever know what has to happen at this moment for this or that crop, garden or orchard. All is in constant motion and interchange with each influencing all other myriads of activities.

We have lost sight of this by being able “to grow” a “plant” with solubles on asphalt.

There has to be a sensing in the soil and in the vastness of nature to give direction.

I am not a healer of sickness. I am a builder of health. If I were a healer of sickness, then I would predominantly look at symptoms of disease, a black spot or so and would consider an anti-dote. Sometimes there is such a problem due to extremely inclement climatic conditions. We are not blind and we will act. But, generally, the very few symptoms of disease just do not worry us.

Steiner emphasised, when plants are sick, look at the soil. All problems arise from the soil. That is where in Bio-Dynamics the health building takes place, in soil-organism-structuring.

LECTURE 1

Lecture given by Alex Podolinsky at the 1996 Annual General Meeting of the Bio-Dynamic Agricultural Association of Australia.

When I ask a question, I do so as openly as possible. The participant is to search. His consciousness is to penetrate deeply into his observations. In framing the question, I use words with the least suggestiveness, as to answer, available to me.

My question today is: Which item is the most important on a farm?

A: The soil.

Yes, the soil is obviously one important factor.

A: Humus, minerals.

That is part of the previous answer.

A: Air in the soil.

Yes, also an important part.

A: Plant, animals, soil – in interaction.

Yes, very good. But listen to my question: Which item is the most important on a farm? Which item.

After many further answers and much searching, at the Western Australia's repeat conference a woman answered: "The man, the farmer." Yes, that is the answer. And this fact justifies that we consider this man somewhat albeit at an agricultural conference, especially, as this first lecture forms the base of the one to follow.

Ehrenfried Pfeiffer was a very special student of Rudolf Steiner. Steiner influenced him to study so widely in the sciences, psychology and economy, that Pfeiffer objected because of the volume/time demand. Steiner replied: "You will manage". He gave the poor German student quarters in his own house in Switzerland. The first bio-dynamic preparations were made with the participation of Pfeiffer. Steiner became impatient when it took too long to find the horns in spring and, on examination, pronounced the 500 effective. In the thirties I walked past this spot daily during a year's stay in Switzerland.

In spite of all the arduous study Pfeiffer undertook at Steiner's direction, Steiner said, "When your studies are completed, you can work at the Research Institute for three years, and then you must

work for three years in agricultural practice and continue in such rhythm". Steiner wanted people to keep their feet on the ground.

After Steiner's death, Pfeiffer eventually went on to manage a farm in Holland for his practical work. And before the war Pfeiffer migrated to the USA. Pfeiffer was not of practical farming background, but he was a magnificent scientist. In the USA he received an Honorary Doctorate and amongst other activities became a professor specialising in nutrition. He was one of the main early developers of this relatively new science. In the late fifties, and not long before his death, he gave a very frank lecture at the Goetheanum in Switzerland. He stated that all foods taken up by man end in a neutral substance, wherefrom the body absorbs whatever is required. Sugar could turn to fat and fat to sugar. Of importance was how the food was grown, namely, that it was bio-dynamically produced.

I am very sorry to hear that our farming member, reared on a dairy farm, the physician I would most trust of those I know in Australia, a holistic general practitioner and also a cancer specialist, Colin McLachlan, is not present today. He is of similar age to mine and expressed last year, "I do not know how you keep going", aware of my differing and absorbing tasks and timetable. The ensuing lecture was in part stimulated by this utterance.

I said this lecture is to be the base for a subsequent agricultural lecture, namely, dealing with aspects of the bio-dynamic preparations.

This first lecture is certainly not a medical lecture and it is not on diet. I am not a healer of sickness. In Bio-Dynamics, I am a builder of health. That is something totally different. Some liken the bio-dynamic preparations to homoeopathic medicines for the purpose of healing earth and plants. Steiner never said this and he well understood homoeopathy and founded the Weleda medicines. But some of the early and later trialers of the bio-dynamic method, as yet struggling with the concept of Bio-Dynamics, likened bio-dynamic preparations to healing agents.

In Bio-Dynamics, we are builders of health, not healers of sickness.

I have not the time for a wider study of the nutrition science literature of recent decades. But, as stated, Pfeiffer appears as one of the first to have spoken of bile, the substance in which all we eat should be neutralised. Today we are bombarded with books and advice on nutrition. I just picked up on television (so it must be

true!) that science has decided that sugar does not cause people to grow fat, therefore, “sugar is quite safe”, and we can consume as much chocolate as desired. What is the criterion in this case? Fat intake is blamed but not sugar.

We were warned about the cholesterol danger and in some countries, not everywhere, the margarine manufacturers succeeded....There is good and bad cholesterol and lack of good cholesterol is bad. Among white races the Italians are one of the healthiest and they eat olive oil by the gallon. Olive oil has no detrimental effect on the liver.

We are faced with an ever-increasing lot of little particles that are supposed to be in our diet, or we are to expect ill health for lack of this or that item. We are plastered with this to an inflationary state of mind. And, of course, there are numerous contradictory statements in the realm of these supposed requirements. Very confusing.

This whole scenario, does it remind you of anything else? What does it remind you of? The scenario of adding bits and pieces.

A: The one plus one principle as per addition to your *Active Perception* book.

This does belong there, but is not the specific answer required. I ask after a scenario.

A: It is exactly the same as in conventional agriculture.

Yes, that is it.

You have forgotten how you were plastered with what all had to go on the soil. To a point where nobody could follow with understanding.

Now, in all this bit approach to nutrition, what is forgotten? Something is totally forgotten.

I will raise the following picture. Who has travelled at 60 or 80 km/hr in a motor car on a highway with open vents and there is a car 100 metres ahead and suddenly there is a lot of cigarette smoke in one's own car? The person in front is smoking and you become a passive smoker. This gives an idea how we are all inter-breathing, sitting here.

There is interaction.

In regard to all the bits and pieces that are to be pumped into the soil, there is no picture of the overall soil organisation, of the plant and how the plant should be fed. Admittedly, you can stick a plant into an asphalt road with permanent access to water and the addition of essential major and minor elements and the plant will

continue to be apparent. With our training in Bio-Dynamics we would recognise, from the appearance, how little this plant is a plant.

In all this dietary advice, what is forgotten? Man himself. The organisation of a particular individual. And that organisation is different with every one of us. And we are not schooled at all as to what we should, actually, expect of ourselves. What we should do with what we eat. How we should select what we eat. How our food is cooked. What the taste of our food is like.

The worst scenario in that case is, please excuse me, the Australian habit. When the plate full of food arrives, the salt and pepper shakers are grabbed and without having tasted the food, on goes a liberal dressing of salt and pepper. I sometimes indicate, look, this is European cooking, would you taste first. And, in a good kitchen, with a good cook, there is a little spoon beside the stove with which the cook tastes the vegetables and whatever. If he is alone in the kitchen, he will dab the spoon in here and there and again, and taste. If there is somebody else, he will use the little spoon to dribble a sample on another spoon for his tasting.

There is no term akin to “cuisine” to characterise German cooking. There is fairly good and some famous cooking in most continental countries. Yet in German there is the term of “abschmecken”. Who of those present, conversant with German, would like to translate “abschmecken”? There is no English term for that at all. Tongue in cheek, in England there is water cooking. The vegetables are just dumped in water — or so it was in my childhood and youth over there at school and privately. There was the joke at country manor houses, where a Romanian chef would be enticed away, etc.

“Abschmecken” means “to taste of”. Tasting during cooking. Is there a need for more, of whatever, to bring the full value out.

A cow, who is not fed in a stable with machine-collected mushed up green feed akin to pigs’ swill, as unfortunately is evident in Europe, a cow, allowed to graze, selects very carefully. And, hopefully, there are some willows or other shrubs offering her special selection.

I run beef calves on Jersey mothers. I sometimes have a calf with white scours. And I do absolutely nothing. In two days the scouring has stopped. The cow will sniff at the rear end of the affected calf while it is drinking and then choose exactly the herbage to balance the digestion of the calf via the milk.

That is the sensitivity of a cow.

Steiner was quite humoristic and, talking about one, of what I would call faddy eaters, following a doctrine, said, “She wants to be a premature angel and eat herself into heaven”. There is that of course. The extreme opposite to the salt/pepper appliers.

The cow, as you know, has a much better digestive system and metabolism than we have. By design, ours is much closer to a pig’s.

Have you ever considered, when you have had a fairly big meal, say at a party, and you have a bit of everything in your stomach, how this is going to mix? Have you ever eaten fish, which was not off but wasn’t quite fresh, and, four hours and five hours after, the fish repeats itself. You can have the same with salad, with a coleslaw. Imagine, what that looks like in your stomach?

With a cow such does not happen, unless you had given that cow apples or other foreign feed she would not freely choose to eat — at least not in quantity. Or you feed the cow too much grain, for which she is not organised. She may pick a few heads, but she would not eat a few kilos of grain, as is common today. She cannot ruminate short grain feed.

I said, we can have coleslaw lying in our stomach and repeating itself. And in some dietary books we may be specifically advised to eat plenty of raw salads and such. We are not a cow. We have not a paunch with microbes for early compost-like predigestion. By comparison we are quite inefficient. We cannot readily cope with such. Certainly, some people cope better than others.

That is where we are heading. We must observe. What happens to a green manure crop of 6 to 12 inches, which is ploughed under with a mouldboard or disc plough — so nothing green is to be seen any more, which is considered ideal? What happens to that green manure crop?

A: It will be decomposed.

A: It will go rotten.

Many other answers follow, like: “breaks down”, “goes anaerobic”, etc.

If I had been asked that question, I would have answered in return, “what did the particular soil look like?”

By the fact that I built into my question that a mouldboard or disc plough was used, is indirectly suggested that the soil was badly structured, as nearly all soils are. But it could have been that somebody had obtained a bio-dynamic farm with good soil

structure and, in spite of wrong ploughing, the soil broke up allowing air penetration and a proper breakdown of the green matter. But we can assume that what was ploughed under as described, would go virtually gangrene. Have you ever picked out the slimy mess a few inches down?

It is a gangrene-like substance. What happens to the nitrogen of this cover crop?

A: It goes into the air.

No. How can it go into the air when sealed off by compacted soil not allowing air penetration?

The nitrogen was in the standing plant as a protein. After bad ploughing and sealing under the soil, the green stuff goes gangrene and the nitrogen leaches out, depending on the subsoil, poisoning the groundwater with nitrates.

To a degree, that could even happen on a bio-dynamic farm. A certain amount of nitrogen would be lost when a green manure crop is totally ploughed under in one go. That is why we plough with tines and between 10% and 30% of green matter would be seen on top after the initial cultivation. And, suitable conditions prevailing, we tine through again after one week. So, continuously, this sheet composing "heap" is stirred up. Just before or after the initial ploughing prepared 500 must go on. Thus full value of the green manure is obtained.

Now, this gangrene stuff underground is exactly what your stomach ingredients are like, when you "repeat" coleslaw. Never mind what has been said about eating mainly salads and raw carrots and whatever else — such may be the result. You have to watch what is happening to Y O U. Just like we watch the organisation of our soil. And this I find neglected, in whatever reading has come my way on diet.

Imagine being asked, "What would you like for dinner?" I know in the garden are a variety of salads. There are tomatoes, so sweet and without that unpleasant acidity which is hard to take. There are some of the yellow potatoes of the Hills, which make a wonderful potato salad or if you eat them cooked, they have such flavour and consistency as to have butter ingrained, making it unnecessary to add butter. I turn that over in my mind and I might ask myself, "Do you need meat?" Depending on what work I did, I require meat or I do not. Sometimes when I am burnt out because of physical or concentrated mental work and my sugar level in the blood has dropped, and no juicy sweet apple is available, I might take a glass

of my own sweet milk and, in this case, a slice of good white bread, full of easily available starch for additional sugar conversion, and I go to sleep for 10 minutes. Then I am again ready for many hours of work. If the immediate need for sugar-hunger had made me greedy for a second slice with a second milk, my stomach would have become oppressed, belly ache and gases would ensue, and I could not have rested. After the smaller initial intake time/rest must come for my own sugar metabolism to become active.

After very intensive work, my liver may cry out for amino acids almost exclusively and most readily available from red meat or from the type of red bio-dynamic ham of Ron Ward, naturally smoked by Richard Odell in Canberra. If I cannot so look after my liver, there will be negative results from liver to limbs, all over. I can sense reduction and hardening in the liver, slightly painful and a sluggish body.

For effectiveness, the bio-dynamic steak should be grilled or fried crusty on the outside whilst remaining slightly underdone inside. The crust stimulates, the red inside contains the amino acids. The same meat fried to a state of a leather sole, becomes ineffective and would turn my stomach on sight.

When the liver does demand meat, I relent. One should not so exhaust a liver, but I often cannot avoid it. Many farmers at the height of the season are similarly placed.

I want to demonstrate how I select. That is exactly what the cow does.

There may also be very nice peas and carrots. Yellow vegetables alone can load a liver. But carrots and peas combine deliciously. My liver, which was badly knocked in the war — we were poisoned, I stayed alive, weeks of temperature — before infusions could be given — so dried me out that on pulling the skin up on the arm and twisting it, it would so remain like parchment. That is good, because I could develop conscious awareness of the liver.

If my liver does not need meat I will not have any. If it needs some I will have meat. Not much at all is required. All this matters, inclusive of selection and cooking of the meat.

I am not trying to be a premature angel. I am just trying to consciously do what the cow does by instinct. What the cow does, unfailingly, when given the chance in nature, as in Australia or New Zealand, keeps her healthy.

First of all the scenario of me viewing what is available and what I would like to eat and the scenario of how I would like it cooked and seasoned, how it should taste — readies my whole person — unlike to a plant artificially filled with one or another liquid salt — and stimulates my whole organisation. That is how the overallness of these bio-dynamic plants, in the right composition for a meal, not creating an insane mixture that my stomach could not cope with — a matter of proportion, of variety (like companion plants) — how this overall totality of interaction of and between plants, their scents and flavours and with view to my receiving and preparing myself towards this inclusive of the cooking and possibly the bio-dynamic meat.....Why do we go to a restaurant, where we can select food and expect it to be cooked well, where cooking and flavouring skills can, in many countries, even hide, to a degree, the poor quality of conventional ingredients by the skill of preparation..... Well, from all this derives the connection between the life forces of the plants and meat nourishing my own life forces. It is then not all the food particles, vitamins and whatever, I am eating a totality, which, in the right proportions, in the right succession (companion plants) and altogether I have been stimulated for, got ready for.

In the flavouring, herbs play a role. And herbs are not quite plants and not quite animals. They have strong special qualities, can even be poisonous, or can be delicious. They have slight, one could say, animalistic soul qualities in their leaves, not found in normal plants other than in the, generally, not consumed flowers. But, whilst herbs should be used in cooking, in the food no particular herb should stand out in scent or flavour. The Italians may not use the herbs directly, but pulverise them in a mortar, add olive oil and blend in a little, allowing time (like with the glass of milk and one slice of bread) for flavour development.

When we have such preparation and such contact with the organism which is going to consume this food, then the herbs take on an action very similar to the microbes in the paunch of the cow. They are digesters. And we will not have a gangrene stomach content repeating for hours. The cooking was tasted, a bit of this or that may have been added. It has a most stimulating effect and one does not feel full, one does not have to eat too much.

Should I have had to accept conditions conducive to ending with a stomach full of a sour mass, I may choose a glass of red wine or a small glass of brandy or an appropriate (I question my

stomach) liqueur, to aid my stomach overcome the dilemma. Good red wine, of course, acts as one of the best overall stimulators and digestive aids available. This may not suit everybody. There are no rules, there is the observing I am talking of. Individual consciousness is required. We must know our organisation better.

After a well-selected and consumed meal, cheese may be sought and a little coffee. However, often, for the finishing touch, a little superb sweet may call. It can aid the digestion with acid forming and should not be of mechanical predetermination in the menu or of huge proportion. Just a finishing touch.

When I was young (and I hoped Colin McLachlan would now be here), a medical test was done regarding the overall functioning of a person which, in German, was called “grundumsatz”. I do not know what the term is in English and I do not know whether this test is still undertaken in modern medicine. There is a liver function test, but that is only one part of us. The “grundumsatz”, as far as medicine was capable of in those days, was a total function test, giving some idea of how well our body, and parts in inter-relationship and exchanges, functioned.

I do not want to relate to a petrol motor as model, and models, to project hypotheses, are in common use. But we could refer to air or water in the petrol line and understand why the motor is coughing — a result of malfunction.

“Grundumsatz”. German, Russian and Ancient Greek are primary languages, whilst English and French are typical secondary languages. Forty-two percent of English stems from Latin. Therefore, the many rather abstract and intellectual terms. In the English used in Australia there are new language developments by making something pictorial. When newly arrived in Australia, because of my background, I was invited by the director of the migrants’ camp, an Australian ex-officer, and he had the then prevalent ocker desire to prove Australia’s worth to me, “You would not know what it means to “get bushed”. I did not. Consider where this term is used and how pictorially it describes the situation so well. That is language development. In South Africa I have found comparable developments.

“Grundumsatz”. Those who understand German, “grund”, “gruendlich”, “grundbuch”, “grundsatz”, “begruendung”. Much develops from the word “grund”, because in a primary language such a word is akin to a concept, which in the English would require a wordy defining to obtain similar meaning. The German,

however, requires a listening penetration, or, if taken superficially, will also become flat.

“Being bushed” gives an imagination. So does “grund” open an active picture. But it so happens that in this case the equivalent English is also of Germanic and not Latin origin, “ground”. In the English, though, this word has not developed on to all the other usages found with the German counterpart.

“Ground” raises a picture to do with soil. To come up with important other uses for the German “grund”, one would have to, in English, revert to the secondary word, “basis”, “basic to”.

“Grundumsatz” in English would mean fundamental; change-over, fundamental being another secondary word. In medicine this existed in a very technical way. They feel safe with such.

There is a way, by observation, of you knowing what this total transference, metabolic process of yours, is like. In particular, if you are familiar with your stool and your urine. In my childhood, good physicians would want to see the stool and the urine. Not necessarily to “undertake a test”, as is so customary now, they wanted to see the two substances. I know exactly how my liver is functioning from the stool. If I am overworked, I know the stool symptoms. I know what it will feel like. The gall — similarly. You can tell from the colour.

I have here two wheat samples from Western Australia. Identical variety, sown same time, only a fence between, one biodynamic, one conventional. You will readily see and taste the difference. But I want you to look, with the objective-sensitivity of an artist, at the colour of the conventional wheat. It is very pale akin to a soil affected by aluminium, a sickening yellow covered by an opaque white film. The conventional grain is of such colour appearance and of this colour can be your stool, indicating lack of liver and gall functioning. The stickiness of even a well-formed stool indicates similarly, to mention only some typical symptoms.

As a little boy my palate and throat were cut by a tin soap bubble pipe, lacking the wooden mouthpiece. Gangrene set in. My life was saved by a natural healer doctor, by hourly gargling, day and night, with strong wormwood tea. Such healers required urine samples. In the life story of the late Clarke Gable of Austrian/German films, Ludwig Trenker reports, how, as a 16 year old peasant boy, jealous local doctors sent Trenker to this healer with a sample of cow urine, which to the layman looks quite similar to human urine. The healer viewed the cow urine and then quietly

said to Trenker, "Tell them at home she will calve in a fortnight". Which she did. I do not know of anyone on earth capable of such today. And we have undertaken thousands of cow urine tests in our laboratory, mainly with chromatography.

For snake bites this man had a black substance akin to our preparation 504, it was taken, sleep followed and so did normal health.

A further aspect of vital importance is: What do you do with your waking hours, what do you work?

When sometime last year, I read in the paper that psychologists had discovered that 40% of fathers have post-natal trauma, I telephoned Audrey Greenwood, mother of eight, and grand- and great-grandmother. And we had seven children. We giggled over this new finding of the psychologist for several minutes. In some European countries it is becoming customary for the presence of a veterinarian when a cow calves. I tell them that I never go near them, they are best off on their own, and only when it takes too long do I have a look. They fiddle from the start. But, of course, their cows do not walk much and do not find their own, entirely natural, food outside.

The type of work. Remember, what it was like, before you came to Bio-Dynamics, sitting proudly on your big tractor. Ploughing at great speed. Seeing nothing green afterwards. Putting plenty of chemicals and fertilisers on. You still have it all with some of your neighbours. An utterly mechanical existence. And remember, after the sixth, eighth or tenth application of 500 per day and evening, commencing at 3 p.m., how you feel that evening and the next day, having done something which is positive. I know we all require an income. When things are done right, bio-dynamically, the income is there. It may not be as large at the moment as gross income, but the net income is very good, constant and of future. I am quite realistic regarding money. The money I earn with very hard labour I am grateful to receive.

But, I could not face living if there was not anything essential to do.

Purpose of existence.

We now also hear, apart from sugar recommendations and the cholesterol story, how they dare, from one day to the next, to proclaim the opposite, just as was done in conventional agriculture, we now also hear the lame psychologists on stress. You should avoid stress or you will fall to all the diseases known. Well, I do not

know anybody, who has been stressed as I have been since I was a little boy. If I wrote my life's story it would be a continuation of challenge and stress. Actually, one stress every year, for decades, has been the AGM lecture I am engaged in at this moment. And, unfailingly, a day or two before something upsetting intrudes. I have never selected, by intellectual process, the contents of these lectures. They have gradually wafted into my consciousness over the preceding year. And it is, sort of, an interaction, like our overall in and out breathing, an interaction with what is the most needed for Bio-Dynamics at that time.

So stress is an essential ingredient of human existence. During the war in cold Russia, with very little to eat and very poor heating, I do not remember a single soldier ever with a cold. It just did not occur. We were not overfed and we were under stress.

My second oldest son, may he forgive me, for the first time at thirty-five noticed a little twitch in the back. He was kind of insulted. He is a very quiet person and already as a child was embarrassingly orderly. He avoided anything distasteful. And to suddenly have a back pain, however small, was an insulting intrusion.

At thirty-five people begin to notice that life is not endless. And they become a bit worried, until at least fifty-five or sixty. People spend a lot of time and effort in being concerned with health. They are in fact very worried about their health. Look at the relevant television advertising. People wander in one direction or another. They have a bit of sciatic pain, a bit of that or this. They visit a doctor, or, if they have more sense, seek an alternative. Whatever, but people are concerned.

I assure you, at forty-five you can begin to be sensible enough to know how to move and what to do — so you are an effective worker and the rest you forget. But you are then still a fairly new motor car and you are still fairly worried. I assure you, after sixty-five or seventy you begin to enjoy life, because you do not have to worry about all this any more. You have served your purpose. And, as long as you can actually move, you are very happy and you work. But if you have a bad sclerotic problem and you have to work extra hard, next day it may not be noticeable. Through very hard work, something happens which is also a “grundumsatz”. Being stressed can come to the point where every cell, every bit of you, is totally reworked. Nothing is too mechanically asleep and fixed and settles down and becomes hardened to whatever type of sclerosis.

Something happens through being t h o r o u g h l y alive. And you are better, even where it ached, than you were before.

So I see stress totally differently to these psychologists.

We can have such satisfaction of total man in creative mental or decisive bio-dynamic work. 500 is made at various centres in Australia. At the one in Western Australia up to twenty-five farmers help and five fillers are in use. Some of you have helped Trevor and usually there is a group of our members involved, as it is in New South Wales. Apart from the compost preparations, the second most 500 is made at my place and for some years it has been Frances, Elfriede and myself on our own. We have to finish quickly, because so much is on my agenda, inclusive of the time-consuming annual Demeter International meetings. I do most of the filling and to hold a horn with the left arm approximately 12,000 times a day and to concentrate on properly filling it, apart from collecting approximately three-quarters of a tonne of manure each morning, it gets me in the left shoulder and elbow, also the wrist sometimes. And my arm is old. The nerves can be affected by the concentration effort. But, actually, however tired, everybody feels better. With our set up, most ideal for quality preparations — cold, secluded, no electricity, creek — but technically not the easiest, because of slope we can not use rollers to transport the full boxes and must do a lot of carrying.

But our entire individualities, body, soul and spirit, are used and renewed, no slag left to harden. Physically we make the so essential 500 and the preparations. They cause, initially, a redemption of fallen earth and, eventually, a factual creation of new earth. The asparagus story is a particular example.

This activity is the absolute opposite of being mechanically fixed. All the crystalline diseases, arthritis, rheumatism, sclerosis, are fixation diseases. If you eat mechanically and the food is thrown at you and on goes pepper and salt and there is habitually expected (mechanical) a huge steak, to which everyone used to be accustomed, breakfast, lunch and dinner, and with eggs to boot..... This excess of red meat, which in the right proportion is so essential for the liver, your body is incapable of metabolising. The excess crystallises and becomes the beginning of rheumatism. One must sense the aversion to such mechanically expected amounts of meat. I see it and cannot eat. With the freedom of my age, I just leave it, however impolite. On trips I have to eat out and

there is little choice. I leave more than I eat. Most welcome was the recent exception, when I took a truly practical German Bio-Dynamic visitor and his wife, a veterinarian, visiting and we ended unexpectedly at Elsie McDougall's table. Her own vegetables, perfectly cooked and blended, and meatballs of incredible flavour. I can still taste it and the Remers made special mention. They had been on a prolonged trip and were only too grateful.

On the other side there are the inflammatory diseases. I would like to say something to this. And I will proceed via three observations which are objective and can be undertaken by anyone. Objective observation is the basis of all knowledge.

The first observation, if conscience ticks, never mind for what reason — I think everyone in this room will understand what I mean by “the conscience ticks” — one can have a fight with one's voice of conscience. One can try to suppress it. Again, the psychologists refer to various techniques to achieve suppression. But it is not really effective. One can argue against one's conscience, with clear intellectual argumentation. And yet, even whilst so engaged, one knows, “I am only lying to myself”. What I am trying to argue against is not overcome by my very sound reasoning. You may put conscience aside and be satisfied with your sound reasoning. It comes up again, even if in an oppressive dream or it just repeats itself in full consciousness.

The power of the voice of conscience is more powerful than whatever clever argumentation the brain is capable of. In the heart one knows all along that conscience has the rights.

When you observe this process carefully and weigh it carefully, you can find out that this voice of conscience is so powerful, although it appears to be in your brain, it cannot be from your brain, because the best you can produce with your brain is not weighty enough to act against it. And also, your brain could not, would not have wanted to, bring the content of what the voice of conscience says. From that you can know with objectivity that this voice of conscience is a voice and is not your own thinking. It comes from outside. Of needs it has to manifest in your brain to have access. Yet, it is more powerful than what you can produce in your own mind. And it is of a content that does not stem from what you can produce in your own mind. It actually is to warn you, where you may have thought you were right, and just did not know better and it shows you another side. The voice of conscience is a correction or a teaching, depending on how important the item is.

I want to draw to your attention the character of this voice. Additional to the specific teaching effort of the voice of conscience, what in German is called “ahnung”, must be raised. Listen to the sound. “Ahnung.” A very poor, by comparison lame, latinised translation would be “premonition”. The “ahnung” calls forth. Hints, without at all being specific, what perhaps should be your next challenge. When some first heard of Bio-Dynamics a gong sounded and some immediately, and without assurances via visiting successful bio-dynamic farms, grabbed at Bio-Dynamics. That sounding is the sound of “ahnung”, a special guidance. Even those who reassured themselves in others’ successes will have heard some of this sounding or they would have stayed right away.

There is a second such power, which we cannot combat fully. When subjected to it, whether we like it or not, whether we make every attempt to hide it, we grow pale. This power is fear.

When subjected to a real bout of the power of fear, your blood runs to the heart and you become pale. You may come to a point where you cannot even move, however much you strive to. It is like in a bad dream.

The third such power does exactly the opposite. It makes you red in the face. That is shame. And you can do absolutely nothing about it either.

Shame can have many sorts of causes. A minor one is one many tend to be more easily conscious of, but it is a very minor one. If a dirty joke is told, watch the faces of people. Even those who loathe that joke, or pretend to, find that the muscles at both sides of the mouth clam up to a particular grin. However much one would love to hide that grin, it is impossible. Such power. That is shame.

I could put underneath fear: Fear to Die. If you examine, a lot of all the involvement with health, diet, etc., especially between thirty-five and sixty, it is symptomatic of fear to die.

Fear to die or fear altogether. I would like you to really put yourself into the position of the man who lives mechanically, eats mechanically, thinks mechanically, accepts all the particle approaches of science and spends twenty-four hours a day on a mechanical machine conforming with all these data, and kowtowing to the conventional terms of financial security, the gamut of all that fixes lives.

All this is a freezing, crystalline activity and absolutely in contrast with what I described as stress and total rejuvenation in a creative work sphere.

Look at people so fixed. They do not have to be bureaucrats in offices. Bureaucracy is everywhere. They are pale. And if they are not physically pale — when on the screen you suddenly see a government chemist, veterinarian or agronomist, you recognise the fixation and know, by essence, his communication. Confronting is an expression of fixation, like death. Study this in varied countries or races. It is always the same expression. A form of bureaucratic fixation can be to have learnt too much, learnedness can counter creativity.

This was extremely in evidence in the Rachel Carlson film, taken over three years. At first proud chemists and bureaucrats from multinationals and governments ridiculing her. One year later, the same faces showing doubt, she could be right; third year, admission and this pale expression of fear and, perhaps, hatred.

This all belongs to the picture of fear. And many are totally fixed in this — in convenience of conventionality.

On the other hand: Ashamed to Live.

Shame and the inclination to inflammatory diseases. Perhaps even the cancers. There are quite a number here who have been in the position to represent Bio-Dynamics. Some do so extremely well. But, especially at the beginning of this sort of challenge and in the early years of personal bio-dynamic development, in the stress to be called to such action, some may have failed. Arguments may have arisen in their minds, “others may be better in representing Bio-Dynamics”, or “this man is not ready yet”. One can have the same skill in arguing against having to do something, as come up against the voice of conscience.

But then comes the day, when you take on this task and you do a very good job. Then you have actually undergone the process I mentioned before. You feel much better afterwards.

That is an overcoming of shame and a following of the voice of “ahnung”. What lamed you before was shame. The life that was denied by constant laming can show up as inflammations.

Psychologists consider so succumbing to shame as “inhibitions” and they advise techniques to overcome inhibitions. The impulse to “freeing” though is then a “brazen” prostituting of the cause of shame. It does not arise from the individual challenge of “ahnung”. It is an egotistical activity serving the person. The action found

through search of “ahnung” answers objective needs perceived outside of the person.

If you vegetate on the fear-to-die-side, in mechanical fixations, imagine what happens to your metabolism. Imagine what happens to your digestion. It is as though you had lumps of cast iron inside you including the slag. Sclerosis. There is absolutely no total transformation.

And if you are so ashamed, because you failed to act, you might crawl into your house, or, you concentrate on how to perform more actively next time. There is no value in decrying oneself as a failure and sinner.

We are positive builders as human beings when we are active.

We have to work on ourselves to meet situations with creative action. I do work on lectures, at nights or in the car.

Then it comes right next time. I stand and do it.

That is the human answer of human activity that follows from conscience to positive action.

The moralists pronounce huge moral arguments and expectations and if you do not live according to these prefixed ideas: do not forget Peter with the ear and the crowing cock — that is not fear, that is shame. Shame to get up and act.

It is much worse to not having acted as an individual — in situations where we are called up as human beings, namely, where initiative human action is required — it is worse not to have acted than to have sinned in a fixed conventional sense. And many of us so fail often enough.

Christ set an example of unexpected and, by the rules of the time, condemned, individual action.

The next task required of us is either the most unexpectedly impossible or the most impossibly unexpected.

So, stress. Total transformation by accepting challenges. We then walk on the knife’s edge of “ahnung”; to the left, Shame, and to the right, Fear.

The task of bio-dynamic action with view to the ever-changing climatic demands provides the chance to such creativity. Remember how unsure some were as to how to meet climatic demands. Even to decide, is it right to apply 500 in prevailing situations, or how to adapt the spraying technique. When to plough or rip. Even, is it too wet to harrow pastures.

LECTURE 2

Lecture given by Alex Podolinsky at the 1996 Annual General Meeting of the Bio-Dynamic Agricultural Association of Australia.

I start with a question, which I put before and I have answered, and those who were then present will, please, not answer now. Those who were not present are asked to answer.

I have here two soil photographs, shown on pages 81 and 82 of Volume One of my *Bio-Dynamic Agriculture Introductory Lectures*.¹ Page 81 shows the usual compacted soil as can be seen even with the rich Ukrainian or mid-western United States soils; page 82 shows the same soil one year later and after one rough chisel ploughing, seeding and application of 500.

Where does the dark substance in the photograph on page 82 derive from?

A: Humus.

Okay. That is a defining of what the dark substance is. But it does not explain my question, where does it come from, from picture on page 81 to page 82?

I am looking for a **substantial** answer. Where does the substance come from?

My son Peter brought a pleasant English wholesaler of organic products, who had practised organic vegetable growing, to Powelltown after both attended the 1995 IFOAM conference in New Zealand. He wanted to have 'done me', visiting this part of the globe. He stated that he knew all about Bio-Dynamics, but could not understand how we obtained such results in the span of only one year. I asked him the same question and I spiced it, for extra attention, with "...of course, you being a materialist ...". His back came up a bit, "Huh, I am not a materialist". I replied, "Okay, what is the answer?"

Where does the dark substance on page 82 come from? The Englishman replied: "It is the transposed organic matter available from the soil depicted on page 81".

¹ These Photographs are reproduced in this volume. Refer to Lecture 3, pictures 1A and B.

If you carefully study the soil in the picture on page 81, there is so little organic matter, a few sparse weeds on top and hardly any root matter. The visitor's answer is the typical mechanical organic explanation: organic matter converted to humus. But where on page 81 is there organic matter? So, in one year a huge lot of organic matter would have had to be produced in the soil on page 81, and in the same year would have had to be sufficient time to convert this new organic matter into humus, the large volume of humus on page 82.

That is just not possible in the span of one year.

A: There must have been some cosmic influence.

Well, Ron, you must have read a bit too much Rudolf Steiner, without individualising in understanding. And you are one of the best of our farmers, an all-rounder. On one of the best farms. And you have developed a valuable individual home market for a variety of products. But this answer is atrocious. It is airy-fairy.

A: A stimulation of soil.

Well, how can you stimulate?

A: 500.

Yes, no doubt 500 played a role. If you were to answer to an agronomist of the Agricultural Department... 500 is the all-over miracle ... I want a factual answer of substance.

A: Sunlight.

Well, you put sunlight on the soil on page 81 and see whether it turns to that on page 82.

In Switzerland, last year, I had to visit a semi-private research station (Oberwil), where for many, many years comparative test plots were monitored under identical cropping: (a) just natural, (b) artificial fertilisers, (c) artificial fertilisers and stable manure, (d) organic, and (e) bio-dynamic.

For scientific comparability all cultivation and application of the various methods, inclusive of Bio-Dynamics, were undertaken by the same technician, employed by a government agency. This man, of course, was not really conversant with Bio-Dynamics, neither was soil cultivation understood bio-dynamically. But all was "safely" comparable. I likened it to the cleaner of an orchestral pit, all instruments leaning on the chairs of the musicians, being engaged in evaluating the best of these instruments.

I was organised to speak to the scientists in charge. At my request I was shown the plots. At that time of the year, mid-July, in

the colour of the soil or the lacking structure, I could not detect any difference between the organic or the bio-dynamic. But there were photographs taken early in spring 1995, before cultivation and sowing, where the bio-dynamic soil, after the many years, was slightly darker than the organic.

They could not show me the compost preparations, the Swiss Bio-Dynamic peasants supplied these only at the time they were required. But the 500 was in the scientists' hands, stored, standing on top of peat moss in an uninsulated wooden box. The lid was screwed down on the glass jar and on opening the 500 stank putrid. Obviously not much would be achieved with such. The answer of the scientist was, the 500 came from a special Bio-Dynamics centre and therewith was avowed that it had to be good quality — I cannot speak to the original quality this 500 may have been. But you will understand, why we are so strict also on storage of bio-dynamic preparations in Australia.

We would never permit comparative tests involving Bio-Dynamics to be undertaken under such conditions.

I could also not detect a difference in the standing crops.

Independently, chromas had been made of soils and crops and, akin to the spring photographs, by interpretation, slight differences between organic and bio-dynamic were detectable.

The two scientists were defensive and said they could not see any purpose in applying bio-dynamic preparations and they can detect no result. They argued this way and I tried to tell them about overall management defects of farms in Europe and of lack of soil structure. They replied that there were plenty of farms in Switzerland with good soil structure. And I, in turn, said I had not seen any such just travelling in Switzerland, could they take me to farms with soil structure.

I showed them the photographs of pages 81 and 82, and spoke of the results of one year. There was silence and some tension. It, sort of, left objective scientific discourse of evidence and became personal. The man in charge of the station said to me, "You manipulated these photographs in the dark room to the advantage of the one on page 82". I replied that "actually no one had ever inferred such, I think I might as well pack up and go". He suddenly realised what he had done and he said, "Well, we might have run these trials for so many years and we see no results". I answered, "From what has been undertaken here, I would not expect any

results either, I cannot detect any results at this moment. One purpose of my visit is, to find out exactly, why there are no results”.

That opened the situation. I was then shown the 500...

But I did draw to their attention that, even if I had swindled in the dark chamber, I could never have produced the soil structure so evident on page 82 by such means. A soil scientist should be very much aware of this.

The episode ended somewhat humoristically. That day was also my birthday and I was unaware that this was known. A birthday lunch followed the station visit and the two scientists had been invited and sat to my left, many others were there. Camilla and Marcello had travelled up from Italy and one sat to my right. Impromptu, they suddenly mentioned the Italian bio-dynamic results obtained with Australian preparations, farming methodicity, application and storage. The ideal results shown on pages 81 and 82. Just as if it had been pre-rehearsed for the benefit of the two scientists who, however, by then had long accepted my integrity.

So, I answered the scientist in charge, when he disclaimed the darkness shown on page 82, by pointing to the soil structure, with exactly what I hope to hear from you — as a second question.

The remaining first question still is, where does the dark substance come from?

A: Microbial activity.

Yes, but you admit to having heard that before(!). But, I would have answered it too, now, or we would not get on.

Microbial activity. It is not the “500” itself. That is in the background, stimulating. I want to know physically, substantially, exactly, what happens.

The microbes live only seconds, and give their body substance into the soil. And this huge volume of dark substance on page 82 is a totally new creation of soil. In our preparations are microbes, some, which Pfeiffer, according to correspondence of the early fifties, isolated, which did not exist before in nature.

We have the example of Benham’s asparagus. Initially the DDT level in their soil was 9.0. The highest I have encountered. They built glorious new soil. Compost was also added. After two years, tissue tests of the asparagus read 0.01 ppm of DDT. After some years total DDT in the soil was 2.4 ppm, but not any more as DDT, but as breakdown products, DDD, DDE etc. Conventionally one might have expected, with reduced DDT readings, a lessening of this chemical, because conventional scientists do not know the

capacity of bio-dynamic new soil building activity. The ratio soil:DDT would have changed, without actual reduction of DDT. But, breakdown products demonstrate a realistic reduction via biological means.

The asparagus roots initially of course live off the new humus and shun the DDT holding clay colloids.

The beginning of bio-dynamic activity is the creation of new soil. And this explains wherefrom the dark substance in the picture on page 82 derives.

However, even this is still only a materialistic partial answer.

There is something much more important in the difference between the pictures on pages 81 and 82 than the dark substance.

What is that?

A: The way the roots are formed.

No, not this alone.

A: The form of everything. That there is nothing that jars the view.

You are near it, but I want an exact expression and that exists even in the English language (!).

A: The structure.

Yes, it is the structure.

A building design like this new part here, which was recently added to one acre of existing cool and storage shed for juice manufacturing, can today be coughed up by pressing buttons on a computer. But what was necessary for the original building to be created? What are the main pillars made of? Yes, forty-four gallon drums filled with concrete. What is this first cool store, possibly the first large privately-owned orchard cool store, made of? Yes, mud brick. Farry disced up clay, disced in straw, moistened and filled forms with a front-end loader.

Who had the idea? Who designed, also at first, such enormously wide roof trusses?

It was Farry's creativity. Those economic pillars and roof trusses are not on the computer. The building is much more interesting than this conventional new addition above us.

Farry's designs were a bit rough, but very effective and extremely economical. The result of the active brain I spoke of in the earlier lecture. After having designed his buildings, or the many agricultural innovations, implements, even a golf course, he would have been immensely satisfied and have digested his meal very

well. And, for sure he would have been excited beforehand. Good total transference.

That is living a human existence.

In the soil on page 82 is the same kind of structure. Where does it come from? And, you see, I pointed that out to the Swiss scientist. Even if I had swindled in the dark chamber, how could I have created such structure. People know so little about real soil structure.

Where does that structure in the soil come from? That is the first non-materialistic item, however realistic it is. Farry's design is more than half of the existing building, so is the structure of the bio-dynamic soil on page 82 the most important item of the picture.

No answer. Yet, I spoke of this last year.

A: From the creative input of the grower. (Laughter.)

That is also a little airy-fairy. Who actually voiced this? Ah. You also read too unrealistically! (More good-natured laughter.)

A: Alex, do you want a realistic answer or a materialistic answer?

A realistic answer, which however will then also be of material consequences.

A: Would a realistic answer be that the structure comes from the air in the soil?

No. The air can only get in after the structure is there. (See figure 1 of comparative dairy farms: top, dark blotches of air pockets on bio-dynamic soils and, bottom, on each conventional neighbour. Taken from the Honours Thesis of James Lytton-Hittchings.)

A: Is it from electrical happenings in the soil?

Please, leave electricity out. It is the worst of all. (Again laughter.)

I discussed the answer last year. It is in my book *Active Perception* and we find it in so many bio-dynamic chromas.

It is an activity that comes with 500, which is akin to the ego of man in the organising of man, and in the creative actions of men like Farry's designing. Akin to what works in the centre, between fear and shame.

It is an initiative activity.

Steiner actually said, 500 brings ego into the soil.

I do not like just repeating such intellectually, unless I can make it visual. I do so in the chromas and similar testing methods

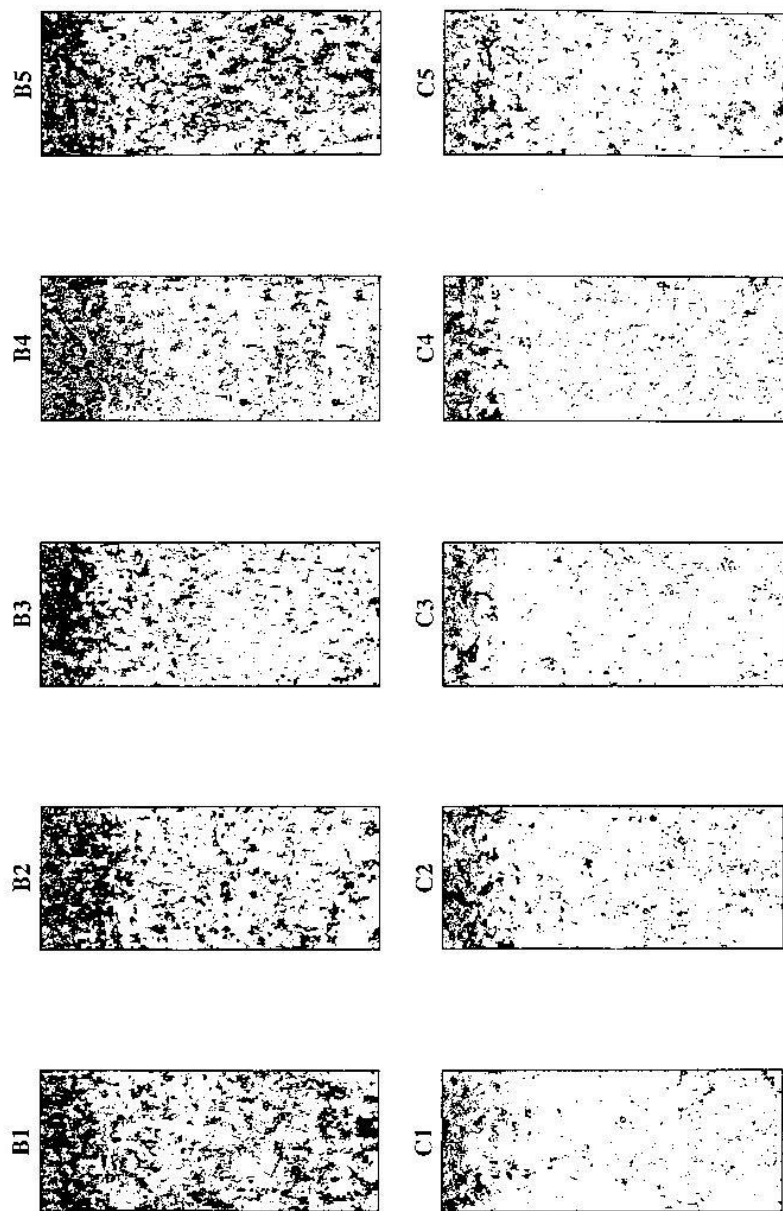


Fig. 1. Vertical soil-pore sections (170×420 mm) from single adjacent fields of biodynamic (top) and conventional farming systems

or, here, in the soil. I so proceed, step for step, in the book *Active Perception*.

The most important with the soil on page 82 is how 500 structures.

And without this structure there is no organism-soil, no organisation. There may be lots of humus on rich river flats, Ukraine or mid-west US soils, in the Po valley or the Queensland Darling Downs. These humus contents are remnants of old humus being mined and vanishing. New humus production does not take place properly without at the same time structuring of the soil taking place. Such structuring does still occur in nature or with so-called organic agriculture. But never with these two does structuring occur as takes place under the building influence of 500 and never so within one year.

Trevor Hatch, Evan Hardie or I distinguish between old humus soils as cold soils, compared to the new bio-dynamic structured soils, for one with more obvious and exciting structure and with more air content, as warm soils.

In *Active Perception* I ask, "how can 500 work on soil structure on large sand farms?"

Often these were badly affected by salt. The salt is there because Australia was once under the ocean. Whilst any type of native vegetation existed undisturbed, no salt affectation was noticeable. Saltation became an increasing problem only after white man interfered with the naturally existing soil structure under native vegetation. Compacted soils lack in structure. Through capillary action the sun draws up the salt. On our farms the salt decreases and vanishes in evidence at the top, because newly made soil structure permits drainage and the salt goes down where it was before soil de-struction. Quite simple.

500 has a power to structure.

The old members present will remember that early on we undertook NPK tests of your farms and continued to monitor. Whereas those who joined us in the past 20 years were not so surveyed. Experience taught me. I am not interested in the NPK levels of soils other than the poorest sands when newly cleared and where no elements have ever been applied. I do not look at the conventional NPK and trace element test results some submit.

I say to new farmers, I want to see your farm in one to three years' time, of course depending on the climate, when the soil has developed structure. Then I am confronted with an organisation of

sense. Soils and plants will give me a sensible answer as to functioning, temporary or semi-permanent needs and so forth.

Conventional testing of soil alone is like diagnosing a man after he has been put through a mincing machine instead of looking at the organised human individual.

The living, structured organism has to be seen.

I said earlier, I am not a healer of sickness. I am a builder of health. If I were a healer of sickness, then I would predominantly look at symptoms of disease, a black spot or so and would consider an anti-dote. Sometimes there is such a problem due to extremely inclement climatic conditions. We are not blind and we will act. But, generally, the very few symptoms of disease just do not worry us.

Steiner emphasised, when plants are sick, look at the soil. All problems arise from the soil. That is where in Bio-Dynamics the health building takes place, in soil-organism-structuring.

In spite of good soil structure occasionally symptoms of deficiency do occur. Then we investigate and apply the required element or trace element in medicinal volume, not as a fertiliser-like a constant volume of salt and pepper.

Australia, overall and with the exception of smaller areas of rich soils, is the poorest continent for soils, and we were given the special opportunity of soil building activity. We realise that soils can be limited as to farming use. I take great note of the experience of our pioneers as to what will do in an area. Australian bio-dynamic experience offers unparalleled practical evidence of the transmutation of elements Steiner first referred to. Greenwood's orchard is the prime example. Huge production and "loss" of elements through farm gate. Yet, after 55 years of no NPK input, the soil, according to conventional testing, is the best supplied ever tested in that area. In my observation transmutation of elements only persists where there are actively growing legumes and I suspect that nitrogen is the source material for transmutation.

The overall organisation has an immediate effect on everything that grows, eats and partakes in the vicinity. Without organisation nothing works and corrective bits have to be added.

The organisation, the structure is like the ego of a building, the building individuality, the design of the man. Many people just blindly overlook this designing factor and just assume that "it" happened. That would be extremely unintelligent. The design factor of sense is undoubtedly the foremost in creation.

Now I would like to ask you with a view to Lecture 1 of Volume One of our *Bio-Dynamic Agriculture Introductory Lectures*: What is the most surprising and the most important part which also is not in the conventional interpretation of what an organic soil is? What is that?

A: A reference to hair roots.

Yes, that is part of it. Generally there is little or no awareness of the differences between white, young, mainly horizontal feeder roots and the dark, more vertically running longer water uptake roots.

I am asking after the most important ingredient in that lecture.

Long pause with no reply.

At the initial OPAC meetings in Canberra this important part was incorporated in the National Standard. It fell to me to argue for it, well knowing that I would fail a most important challenge if I could not get it in. And, at the time, it was Tim Marshall, representing the organic organisation NASAA, who said, “but, Alex, nobody who has not read your lectures would understand this”. I replied, “Tim, it is still the truth”.

It concerned the definition of “organic” and I had quickly sketched out the paragraph and not edited. Tim, who has shown appreciation of the soil structure we achieve with our quality of 500, supported my effort by offering to improve on my wording, being good at formulating. Thus, that definition came to acceptance.

This most important part of Lecture 1, once incorporated in the National Standard, caused considerable opposition in written comments from agricultural departments, some beyond objective scientific language; even with ridicule and bitterness, as it was “too obvious to require mention”.

A: The use of soluble fertilisers.

Do you mean, the actual recognition in Lecture 1 of the solubility problem of fertilisers? This is certainly an important part of Lecture 1, but not as important as what I am asking after. But regarding this solubility, I must narrate an anecdote I only heard of recently from Tony Fitzpatrick. Unbeknown to me, Farry once gave a lecture to a large group of “satisfied” conventional farmers in Bendigo. And Farry, of course, was not subject to fear or shame and could tread on corns, albeit with hidden concern, responsibility and kindness, with the best of them.

Before Farry commenced, a smug farmer in the front row said, “now tell us how this Bio-Dynamics works”. Farry shot back, “you

tell me how your system works". Nobody in the room gave an answer. Farry proceeded with the water solubility and general content of Lecture 1 where, actually, the conventional failings — in total — are defined as not elsewhere before.

But there is one part in that first lecture totality which cannot be so found in any book and it is the most important single item.

Single factors like "worms", "microbes", "roots", even "structure", appear in all definitions. The distinction between feeder roots and water roots, less or not at all. The soil is generally taken as a separate entity in conventional organic literature. Plant and animal only in the sense of being healthier, but less an actual realistic membership with the soil.

The recognition that the plant has no individual metabolism, as has man or beast, because the plant lacks an independent warmth organisation, I have never found included.

Thus I give a clear lead to my question and answer. I am making it hard so it sinks in better.

I expected that Trevor would not answer this, but I am surprised all the same. He often betters me now in detail.

It is the SUN.

The sun finds mention artistically and even in some religions. But other than for photosynthesis in no book describing soil and plant objective interaction is the sun mentioned. Even warmth hardly appears. As though there was shame attached to mentioning something so obvious and so readily available.

Sun warmth is what revs up the metabolism of plants. And is not that of paramount importance? But, still it is not the sun itself.

In our solar system the sun is the all-important centre. It could well be likened to the ego of our solar system.

Maybe Vincent van Gogh is so highly valued because he is the painter of the sun. Whereas, many today only sunbake or obtain solar hot water.

And, according to his letter, van Gogh was conscious of the sun as a king of cosmic ego. He saw Christ's face in the suns he painted. And in painting plants and trees he strove to depict the plants' formative forces. His trees as painted from 1889 till his death are like bio-dynamic plants.

In the National Standard the sun had to be referred to as "warmth".

The plants have no independent metabolism. The sun warmth starts to move feeder roots in the plants and these roots take up

just as much as the sun directs. No indiscriminate feeding, causing nitrate problems. Altogether, what wonder of sense and ego directiveness.

That the sun can so perform is only really possible when there is soil structure.

Here, now, are soil chromas and organic matter tests to varying levels. The comparative tests, like the one in Oberwil referred to, which I have studied, lacked one major component, namely an equivalent test of original bush or forest next to it and therefore comparable to the farmed soil example.

For instance, the comparative tests done by Doug Small for the Victorian Agriculture Department “calculate a loss” of phosphate on the Bio-Dynamic farms compared to the conventional neighbours. Calculated according to the phosphate leaving the property with produce. In fact, no lack of phosphate was established in soil, plant or animal tests on farms — in spite of up to 30 years without phosphate applications. And, no examination had been made, or could have been made, of phosphate levels originally contained under natural conditions prior to farming.

The chromas I have here (shown opposite) were made on my farm. When we began in Powelltown the organic matter level in the soil here shown was 0.9% and the chroma picture indicated absolute lack of biological development. The soil was effectively stone dead and full of granitic gravel, referred to as “black sands”.

The tests show the same soil — then a brown loam — after six years of bio-dynamic treatment with prepared 500, rotational grazing, hay cutting. In the observation of the conversion I discovered the “underground” composting referred to in my books. And beside is an equivalent test series of the native forest (belonging to our farm and which joins state forest continuing on for approximately 600 kms to the east coast of Australia). Native, virtually untouched forest of density and great height of mountain ash and messmates. Our many recent European visitors are familiar with this venue.

<u>Bio-Dynamic Soil</u>			<u>Native Forest</u>		
No.	depth	organic matter	No.	depth	organic matter
	(inches)	(%)		(inches)	(%)
a.	4	11.4	h.	6	9.7
b.	10	8.4	i.	12	7.8
c.	16	6.7	j.	18	4.7
d.	22	5.0	k.	24	2.5
e.	28	4.2	l.	34	0.7
f.	34	3.3			
g.	40	2.4			

The chromas here show at the top and right down the profile rather good soil-life expression and humus level. Refined humus and beautiful structure to 18 inches.

The chromas here show less well-developed humus. Physical inspection shows coarse particles in soil structure, which lacks cohesion.

The chromas and organic matter levels of the bio-dynamic soil show soil development to greater depth than the untouched bush of huge trees and mixed scrub full of native legumes and rich in plant variety.

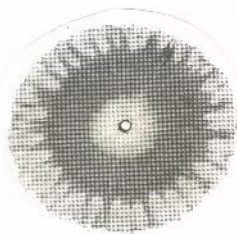
A wonderful comparison indicating the power of bio-dynamic development.

So, a human being minced up cannot perform, neither can a soil perform sensibly unless it is structured. Structure indicates an organised system.

I recently visited a farm which was one of the first with DEMETER™ registration and for whatever reason retired from our type of bio-dynamic practice. Only homemade 500 without preparations has been used for some years and the farmer indicated, yes, the farm had gone back in some areas.

We have one example, Ray Quigley's, the longest practising bio-dynamic farmer present, who, on account of sickness, did not apply 500 and the preparations for some years. He is on very rich alluvial flats. Soil and pasture continued, perhaps with more negative seasonal influences less balanced out, but bloat slowly became evident again, also milk fever and general health defects.

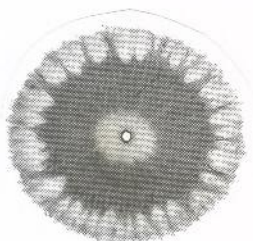
500, alone, is the frame of uprightness, of structure.



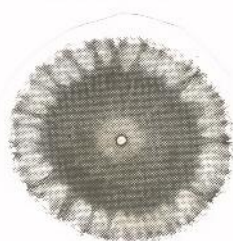
a. BD 4"



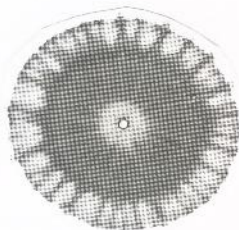
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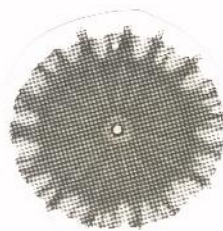
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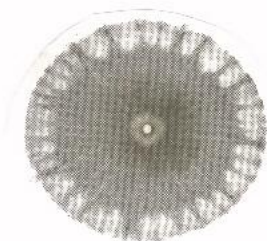
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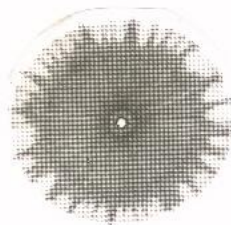
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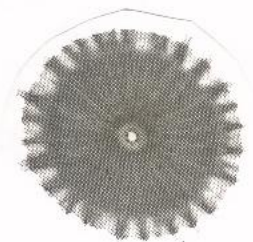
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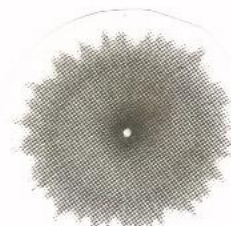
e. BD 28"



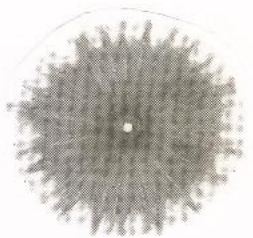
k. Native 24"



f. BD 34"



l. Native 34"



g. BD 40"

Philosophical endeavour over centuries often reflects the needs of a time. A major philosophy of our century was the existentialism of Martin Heidegger. It could be argued that, in quintessence, existentialism means, “here I stand, independently, aface of anything”. But, content-wise, existentialism is somewhat empty, like an upright, but empty medieval knight’s armour with closed helmet.

The structure of the greatest of all cathedrals — Chartres — is but an outline. Those exceptional windows, figures and the walls themselves complete the building.

500 is the structurer, but all that I hinted at regarding our metabolism, the importance of all the organs — that is the other preparations.

Lectures are given in many countries by whoever about these bio-dynamic preparations. The main emphasis is always the same. It is taken from Steiner’s suggestions via, say, Lily Kolisko or other early bio-dynamic representatives.

Each preparation is aligned to a particular purpose, element or cosmic force, the activity of which it calls forth. For instance, “valerian brings phosphate forces” — whatever that is to mean — because nothing is actually to be seen happening.

I would claim that such pronouncements are intellectual repetitions and you have never heard me mention any such and it is not in my books.

Rudolf Steiner definitely did not want intellectual repetitions. He demanded that we should speak from the basis of individualised concepts, i.e., after individual experience of even what he may have first spoken of.

It is now between seventy and one hundred years since Steiner’s working. It should be considered a very poor performance to still continue with intellectual repetitions. Objective demonstrating of reality must be expected.

What I have to say about the preparations is, that within the framework of the structure of 500, they perform similarly as the organs perform in the human body. Outwardly, the sheath of 500 is the horn or the hoof, coming from the top and bottom ends of a cow, the skull is the sheath for the oak bark preparation, other sheaths are taken from various areas of the cow and the herbs providing the raw material for the preparations have a relationship to various organs, like heart, liver, kidneys, as known to age old medicine or as made visible in crystallisation pictures republished in my earlier *Bio-Dynamic*

Agriculture Introductory Lectures. Appropriate remarks can be studied there.

So, the bio-dynamic preparations fill the empty structure provided by 500. And the sense I spoke of regarding the human organisation's healthy functioning: in choosing food; cooking; in providing a menu that suits; - that continuous sensing, that sensing in the soil, I would say, is more intricate even than in the human body. The human body is held within one skin and there are mechanisms in a mature body, less so in a child's, to, for instance, get rid of pesticide residues. We have an independent warmth organisation, closely related to our ego organisation, which is also specifically related to the functioning of the, kind of mystery gland, the pancreas. We can put on additional clothes or go inside. We can heat or cool houses. As long as we do not become mechanical automation and dead.

By contrast, there is so much happening in the vastness of nature, earthly and cosmic. No one will ever know what has to happen at this moment for this or that crop, garden or orchard. All is in constant motion and interchange with each influencing all other myriads of activities.

We have lost sight of this by being able "to grow" a "plant" with solubles on asphalt.

There has to be a sensing in the soil and in the vastness of nature to give direction.

Remember in Volume One, the reference to the months of extreme wetness — and we know from our experience how much better bio-dynamic farms cope with drought or wetness — and where Evan Hardie and Don Rathbone state that, from their observations, there must be a way in which our soil is kind of sheathed by a membrane against extreme wetness and how worms stay alive. Evidence of sensing.

Steiner said, the plant is like an upside down man in the soil. The upside down part is not necessary. But 500 and the preparations act like a human organisation in the soil. And until the soil is so organised, I am not really interested in all the bits' symptoms of failings and sickness.

I repeat, Steiner said, "if the plant is sick, (*like rust on wheat*), look to the soil". There is malfunctioning there and "treating" the rust or "breeding" new rust-resistant plants, only a very temporary measure, is a wrong approach.

I have brought examples of all preparations for you to view to this conference. Some of you have never seen these preparations. For transportation we encase each of the preparations in a ball of compost or they are used as prepared 500.

In our experience preparations are only of appropriate quality if trans-substantiated in coldness and, of course, if made to highest quality standards. The Australian climate is suitable to preparation making to very limited areas.

We discuss preparation making only with committed bio-dynamic practitioners. We further require that highest quality herbs, correctly picked as to maturity and season, be used. For instance; dandelion flowers must be picked after the sun first opened them and before a bee touches them. Otherwise, even in spite of too quick drying, the flower will turn to white fluff and this cannot transform to a "preparation", namely, the humus-like substance particular to dandelion.

A great deal of time and dedication is needed to make effective preparations. In season it takes hours per day to even pick the flowers. For 507 the individual little flowers have to be separated out of the heads and the golden liquid of wonderful scent emanates. An age-old heart remedy.

Steiner did mildly suggest that farmers should make their own preparations. But this was in a time of much available labour on farms used to handwork.

My friend Dr Hans Heinze who, now retired, was one of the leaders of Bio-Dynamic revival in Germany after the war, wrote in a letter that even with small farms in Germany, the making of preparations on farms just does not work.

In Australia it would often be quite impossible.

Some of you trip overseas and visit bio-dynamic farms. You should be able to recognise the quality of preparations, also the management of farms for suitability to the working of the preparations.

Preparations are called "preparations" because there is to be total transformation of the plant source into the appropriate humus. Like cow manure into 500.

Preparations, once lifted, must each be stored totally isolated. That is why peat moss is used. It is logical that the peat moss must totally surround the preparation on all sides. Our requirement is a double walled box, bottom, sides, top with at least three inches of dry peat moss, to stop, for instance, conducting undesirable electric waves, in

between the walls or interior compartments of the six division box. No electric light or current near storage shed is permitted.

On lifting, the 500 and preparations should be kept exactly as moist as when lifted. They must continue their life activity, further working and transforming. They become more humic, not “mineralised” as once described in the United States. Once dried out, the preparation has lost its effectiveness. There may be chroma readings, but they may be descriptive of the plant substance remains, not the preparation in full power as demonstrated in the book *Active Perception*.

The theory that preparations, on lifting, should be dried out so they retain their original life, is not acceptable. That is a false form of “holding” the preparation and the opposite to storage isolation of the living and changing preparation.

To end this lecture I would like to call up the so telling soil pictures on pages 81 and 82 of Volume One once more.

My very special friend Charles Walters, from Acres USA, whose eyesight has been adversely affected, rang me about two years ago. He has an enormous library and is familiar with huge quantities of books and as a publisher has to give room to all sorts, maybe to the annoyance of some.

The nearly-blind Charles rang me and said, “I have someone in Central America on cleared tropical bush, and you know how dead such soil goes. I have before me the unique expression of what your Bio-Dynamics achieves as per those two photographs. Can you help the man?” Charles is far sighted.

LECTURE 3

The Canticles of the Creatures

Saint Francis of Assisi

Most high, omnipotent good Lord,
to Thee praise, glory, honour,
and every benediction.
To Thee alone Most High do they belong
and no man is worthy to pronounce Thy Name.

Praise be to Thee my Lord
with all Thy creatures, especially for
Master Brother Sun
who illuminates the day for us,
and Thee Most High he manifests.

Praise be to Thee my Lord
for Sister Moon
and for the stars,
in Heaven Thou has formed them
shining, precious, fair.

Praise be to Thee my Lord
for Brother Wind
for air and clouds,
clear sky and all the weathers
through which Thou sustainest all thy creatures.

Praise be to Thee my Lord
for Sister Water,
she is useful and pure.

Praise be to Thee my Lord
for Brother Fire,
through him our night Thou dost enlighten
and he is fair and merry,
boisterous and strong.

Praise be to Thee my Lord
for our sister Mother Earth
who nourishes and sustains us all
bringing forth diverse fruits
and many coloured flowers and herbs.

Praise be to Thee my Lord
for those who grant pardon
for love of Thee,
and bear infirmity and tribulation.

Blessed be those
who live in peace,
for by Thee Most High
they shall be crowned.

Praise be to Thee my Lord
for our Sister Bodily Death
from whom no living man can flee;
woe to them who die in mortal sin
but blessed they who shall be found
in Thy most holy Will;
and them the second death can do no ill harm.

O bless and praise my Lord
all creatures, and
thank and serve Him in deep humility.

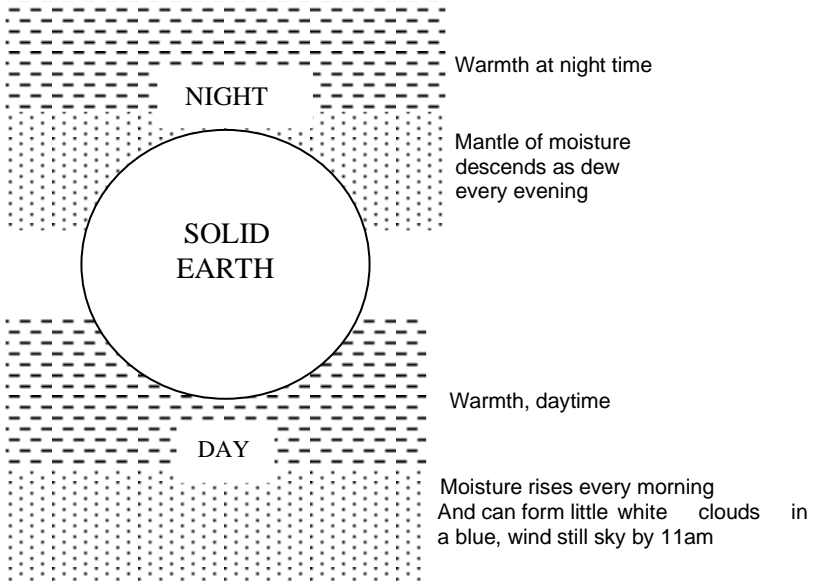
The following is a result of lectures given by Alex Podolinsky at Gubbio near Assisi, Italy; Mildura VIC; and Perth WA, in June and August 1997.

If one visualises the planet Earth from a far distance I predicted before ever an astronaut went up, that only Earth would show colour and none of the other planets; I likewise predicted there would be no water or what we know on Earth as the four elements, the solid, water, light and warmth; And water in this glass would splash out, if it were not contained in the glass. Similarly the water in our environment houses light.

If we fly at high altitude and look up, the blue turns black and if we look down there is light blue. The reason is, that the farther away from Earth the thinner is the moisture belt and therewith water's ability to house light.

A "glary" cloudless morning is glary because of high humidity, water in the air, and we expect a thunderstorm and rain.

The four Earth elements are organised so:



Warmth descends in the morning to Earth. Warmth rises in late afternoon and again exchanges place with the descending moisture.

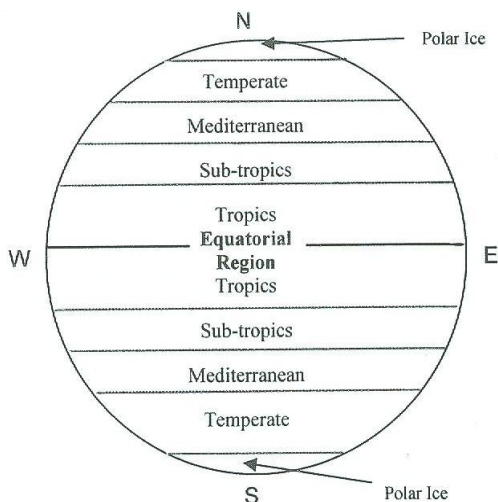
Warmth exchanges with water. A breathing in and out of Earth. The night side of Earth, on account of the moisture attachment, being heavier than the day side, a rhythm, aids the rotation of Earth.

We are much aware of pollution. The awareness started with the power of Rachel Carlson getting through to John Kennedy and bringing the effect of pesticides to mankind's, however reluctant, acceptance. There is a new type of pollution which has not been generally recognised as yet. It is caused by telephone, facsimile, Internet and television systems being relayed by satellites. One result is that racing pigeons cannot find home. We have had a lost pigeon at home, whereas of 5000 released in France not one arrived at the English destination. One Australian "re-directed" pigeon arrived exhausted at Macquarie Island.

The effects of this latest type of pollution have to be awaited. The Australian Bio-Dynamic office will not join in the Internet game.

But a much more serious, maybe the ultimate form of pollution, is that the Earth's breathing rhythm — the water and warmth exchange — has been disrupted.

About 20 years ago I wrote a paper on the carbon dioxide effect in Earth's atmosphere, disagreeing with the conventional view of Earth's general warming adopted by governments. The following is happening:



Because of the polluting gasses, in particular carbon dioxide, held in a mantle around Earth, Earth's breathing-out of the warmth in the afternoons is affected. The carbon dioxide layer around Earth inhibits the natural flow of warmth into the farther atmosphere. In consequence excessive warmth is held in the warm tropical and sub-tropic and, in the summer time, temperate regions of Earth, causing oceans to excessive steaming off of water, which moves under the pollution mantle to drop in the polar regions and increases ice build up. In consequence, the polar, temperate and even the Mediterranean regions are at times getting colder. Lower temperatures than before have been recorded in Siberia. Canadian wheat crops have been threatened.

In southern regions of Australia "spring" has come later. Ditto in similar regions of the northern hemisphere, where also droughts and floods have occurred as are common to "imbalanced" Australia. The temperate regions are subject to increased storms caused by the new temperature variations between poles and tropics. Especially so in the southern hemisphere because of the large Antarctic ice continent and, with regard to the Australian region, the heat contrast provided by the

Australian continent, and, in between a more temperate ocean. The Temperate/Mediterranean regions are affected by out of season cold polar blasts or equally unseasonal warm monsoon periods. Warming of oceans in tropic regions occurs. One result of this is the El Niño effect, aided by vast oceans of the southern hemisphere allowing temperature movements in water.

Overall, the temperate zones are suffering increased cold lashings to the point where insufficiency of warm and moist growing weather impairs adequate functioning of the soil biology to viably nourish plants. Transmutation of elements is hindered.

“Reliable” winter rainfall areas of Australia have either been subjected to months of rain and coldness up to December, or have experienced drought, interspersed, occasionally, with “unseasonable” monsoon rains extending down from tropical regions. “Dry” inland areas have received subtropical rain bands.

In Europe usually wet areas of France have been dry and could hardly cut hay, whereas at the same time there are floods in East Germany beyond any ever recorded.

This most serious breathing pollution of Earth causes a devastating situation far beyond mere chemical pollution. And we have to find an agricultural answer.

If we visualise the planet Earth from a far distance..... we have to note that Earth is a planet, like others and moves through our solar system at great speed and revolves every 24 hours. Earth does not consist of only fixed matter to be understood and manipulated mechanically. One with Earth are the other three elements. For this reason Earth has life like no other heavenly body in our environment and is therefore the most important of these bodies. This importance finds expression in the unique colour Earth shows in contrast to the deadness of other planets.

Earth's responsibility as the life body of our universe becomes obvious.

Earth has life and therewith future metamorphosis and only on Earth is new physical substance created — in the leaf of plants. In photosynthesis sun warmth and light, water and the solid meet. By comparison every other production of physical substance is a recycling of solid material.

It therefore becomes paramount that these leaves can function as per design of nature and are not mechanically denatured. Added to the breathing problem of Earth, which does also effect all leaves negatively

in as much as sunlight does not penetrate through the CO₂ layer, the following further ill-effect on leaf functioning would additionally devastate Earth's purpose. An additional problem is caused wherever holes in the ozone layer allow unnatural sun power to burn leaves.

For the sake of logical building structure I will now have to briefly repeat the essence of Lecture 1, in Volume One of *Bio-Dynamic Agriculture Introductory Lectures*, before turning to the sustainability of humus.

Referring to figure 1. The line denotes the top of the soil.

Organic books speak of worms, of microbes, they mention roots. Agricultural literature does not generally distinguish between the mainly vertical water uptake roots and the fine white more horizontally inclined feeder roots (depicted in green).

Look at the compacted soil examples depicted. 1A) sandy loam; 2A) compacted clay loam; 3A) original clay loam forest soil; 4A – bottom left) market garden — Agrilatina near Rome.

There are the sparse roots of a few weeds. Farming on such soils would require that essential major and minor elements are applied from a fertiliser bag in the required water soluble form. In figure 1 the phosphate is marked blue and the nitrogen red. After rain or irrigation the soil water will be blue and red with phosphate and nitrogen respectively.

The plant has to take in water when it is in leaf. Just like we have to take in air. And the plant transpires water through the leaf. After application of soluble phosphate and nitrogen to the soil the plant is forced to take these in, as blue phosphate and red nitrogen are mixed into the soil water. Too much of these elements are then forced into the plant. Nitrogen may not adequately assimilate to a protein but appear in the plant as an undigested nitrate, turn to nitrite and cause health problems in animals and man. Acetonaemia in stock, blue babies etc., have been recorded due to nitrogen poisoning for decades. Likewise fungal and pest problems in plants.

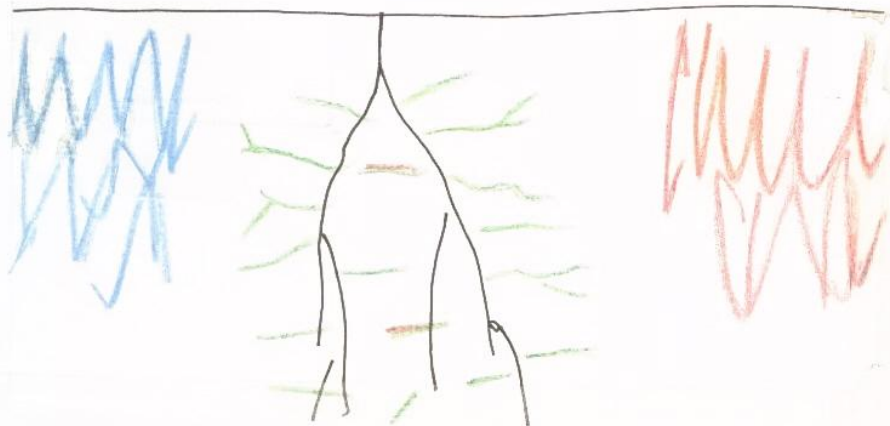


Figure 1

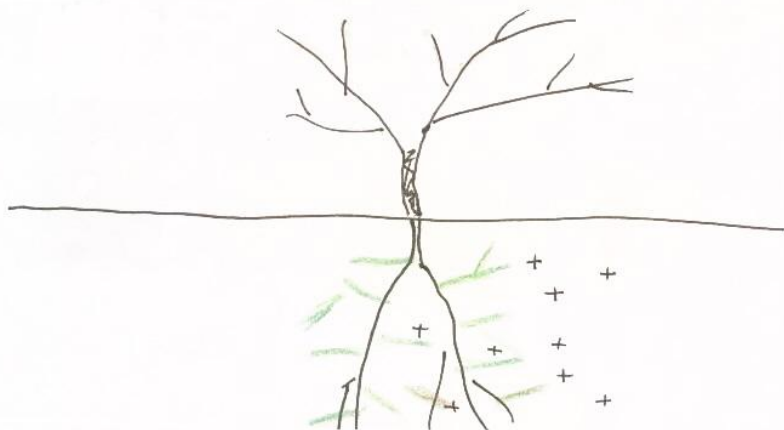
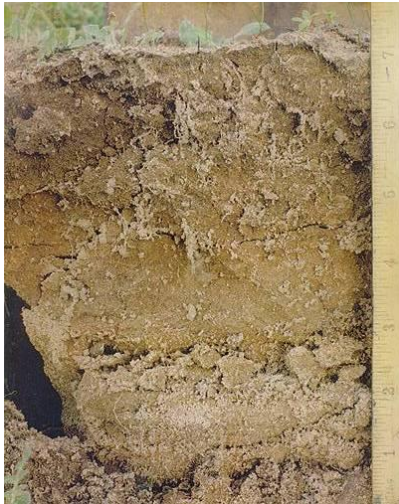


Figure 2



Photograph 1A



Photograph 1B



Photograph 2A



Photograph 2B



Photograph 3A



Photograph 3B



Photograph 4

In nature's organisation plants are not to take in elements through the soil water. That plants can be mechanically forced to take up elements through the water uptake roots does not mean that they so should, irregardless of the equally mechanical understanding and pride "to so make plants tick". Plants should take up elements through humus. However, this most essential component of the soil eludes agricultural science. A total life function as that of humus cannot be captured statistically. Part identification of humus as organic matter, carbon or humic acid is utterly inadequate.

The mechanical approach of the physical sciences has satisfied the belief of the agricultural science fraternity. There is safety in numbers. Yet I have never seen a ball of real humus at any agricultural university. But I have read theories as to how plants can take up only parts of humus.

A ball of humus — in a realistic experiment — provides a ready answer. If buried in spring in a glass jar with root access, the entire mass of dark humus vanishes after some weeks and is replaced in the jar by tightly packed white feeder roots.

If we want to know a human being, we try to meet the alive and awake entity, not dead parts.

The total entity humus, instead of being encapsulated by skin, is held in its colloidalness. It can hold water "in" and in its chelation effect can hold water "out" of soil.

Humus is made by soil creatures who build the essential water soluble major and minor elements into the humus where they are "held" by the colloidalness of humus. And these therefore do not mix into the general soil water like the blue phosphate and red nitrogen stemming from the fertiliser bag.

In a biologically active earth the soil creatures will implant unplaced water-held phosphorous and nitrogen into the humus colloids. Sense of instinct.

However, beyond the distinction of water uptake and white feeder roots, and the feeding of plants under discretion of the sun via humus and not through the water of the soil, the most important function of humus is that it acts akin to bile in the human metabolism.

Everything eaten by man is totally neutralised in bile before assimilation in the human body. – We do not have implanted in us, a bit of rabbit here, or some cabbage there. If this were to happen a gradual poisoning would take place.

In the soil-plant realm all elements becoming available should likewise be neutralised. Symptomatic for such happening is, that humus has a neutral smell. Cow manure transubstantiated into purest humus, namely the biodynamic soil activator 500, has lost any semblance to the cow manure, which would, so aged in moist conditions, be “stinking” and registering ammonium nitrogen.

Neutralising decaying substances and then making available purified components towards building new plants necessitates that the old biological material – in neutralisation – undergoes the immensely secretive and important, creativity process of Chaos.

Plants should not be fed elements indiscriminately and in too great a volume via the water of the soil, but under jurisdiction of the sun. Plants should also receive purified elements or a continuous slow poisoning takes place.

In the mechanical approach to understanding the biology of soils, apart from microbes and worms, organic matter and roots come up. Decaying roots provide material for worms and microbes to turn into “humus”.

What about the effect of living roots?

In pictures 1B (same as 1A after one year); 2B (bio-dynamic pasture 10 metres distant from conventional pasture shown in 2A); 3B (bio-dynamic vineyard developed on the soil of 3A); 4B (top right of photograph, bio-dynamic development), the effect of 500 is shown. 500 does not so perform “mechanically” on “soil” per se. 500 requires actively growing white feeder roots to become effective. On poor sandy dryland soils, with tufts of grass plants isolated one foot apart, the 500 effect shown happens only in the environment of each plant. The sand in between remains almost unchanged.

Like the individual or humus, also the soil must be approached as an active total entity.

Back to Figure 1.

I will draw in a deciduous tree in winter time (Figure 2). There are no leaves. The tree is dormant. What has to happen for this tree to again awaken? The winter cold has to be replaced with spring sun warmth. Sun warmth is the awakener of plant metabolism, and is a constant part of the active plant.

This is so simple and obvious that it is overlooked. And science deals with the “metabolism” of plants akin to the metabolism of man, which is independent, because man has an independent warmth organisation.

No doubt plants function metabolically. But without due regard to the sun and with an only partial approach to some metabolic happenings — the slip into mechanics occurs.

The books do not distinguish adequately between the older, darker, more vertical water intake roots, and the younger more horizontal active white feeder roots. The latter can be observed in biologically active, humus-rich, structured soils as depicted.

In the design of nature only these white roots should take in minerals from the soil, namely, the **neutralised elements** held in the humus colloids. Before the spring sun awakens leaf growth, white hair roots begin developing. And throughout the season the hair roots perform, guided by sun warmth. They take up humus elements in warmth, and slow down or stop in cold. Just sufficient nitrogen assimilation into a high quality protein. Poisonous nitrification does not occur, but the building of high quality plant substances of nutritious flavour.

So is nature's organisation of plant growth — total plant metabolism.

A partial mechanical understanding, however, based on the "knowledge" that plants can take in only water soluble elements, raises the cleverness of making elements available artificially. The distinction between white feeder roots and dark water uptake roots vanishes.

When plants are in leaf water uptake and transpiration have to happen akin to man breathing. This happens, principally, hot or cold. It is a rhythm much less linked to sun warmth than the natural white hair root feeding.

When plants take in soluble elements, salts, via the water uptake system, too much of these salts are taken up, especially during cooler spells, because they are taken up outside the jurisdiction of the sun, away from the intricate organisation of nature. Indiscriminate mechanically-induced feeding occurs.

A law pertaining to cells, man or plant, is the balance of salt and water. When plants are indiscriminately filled with unassimilated salts, each cell has to hold additional water.

This is the truly scientific explanation for the artificially produced giant cabbages. They are full of excess salt and water. The undigested nitrogen also shows up in the blue-green colour of leaves.

Light uptake by plant leaves requires transpiration of water through these leaves. Plants holding artificially induced excess

salts in each cell, however large and water-filled, transpire less water than their smaller, natural counterpart. Therefore photosynthesis is reduced and therewith the creation in the leaf of the most valuable components and flavours.

The soil shown in 1A is the same large paddock as shown in 1B after only one year's conversion to Bio-Dynamics. The weedy pasture was roughly aerated by ripping, sprayed twice with the basic soil activating 500 and lightly over-sown. Two important changes have to be noted.

1) The soil has become much darker. Wherefrom does the dark physical substance originate?

No, it is not root matter transformed into humus. There are insufficient roots in the soil 1A to provide adequate material for transformation to humus. In one year not enough roots could be provided and also turned to humus.

The microbes activated by 500 live for bare moments and are replaced. The bulk of the new humus to be seen in 1B is made of the dead bodies of microbes.

2) Whenever such takes place the soil becomes newly structured.

Question: What is the Sydney Opera House or the Cupola of Saint Peter's in Rome made of?

A: Stone, cement, tiles, gold.

Yes, all of these provide material substances for these buildings. But what about Joern Utzon and Michaelangelo and their building intentions and designs? Without these those materials would be rubble. The spiritual designs effectively become part of the physical buildings.

Pertaining to soil we must note that wherever humus darkness newly occurs after effective use of 500 the soil does not just "darken" whilst remaining akin to a heap of rubble. New structuring of the soil inevitably also occurs. A well-designed sensible arrangement of cavities for essential provision of air, drainage, provision of space for other subsoil creatures, etc., etc. And, equally inevitably, masses of white hair roots occur in interaction between 500, plant and soil as shown in the B pictures.

To just be satisfied with the "result" of "more roots" is again a materialistic judgement. Of concern is the quality of these roots, namely, that they are the white feeder roots symptomatic for new structuring of soil. The importance of 500 in general, and especially

after a soil structure disrupting activity of soil cultivation, becomes obvious.

Side effects of the lack of soil structure cum humus activity is evidenced with regard to the two enormous problems of land salination and the NPK run-off causing blue-green algae poisoning.

Australia is particularly prone to salt as most of the continent was once covered by the sea. Salt is plentiful in the soil region. Yet major salt problems have been evidenced, and increasingly so, only in recent decades. And to focus mainly on irrigation areas is fallacious. Dry land saltation, even in irrigation areas but especially in Western Australia, is the major concern.

In the situation of undisturbed native vegetation, there is natural soil structure. Therewith natural drainage exists even after flooding. Salt remains at a manageable level mainly below the particular root zone. As soon as man destroys the natural soil structure, drainage reduces or ceases. Soil compaction results. Salt is drawn up by capillary action. Generally this happens over a period of time. Saltation creeps up from lower lying country.

The implementation of new drainage channels to get rid of salt is relatively futile. One small area will temporarily benefit whilst other areas are burdened further. It is a battle with the symptoms, not the cause. Only an overall improvement in soil structure will stop new salt release from the land as salt will be returned to below the root zone. This will of need be a slow process, if not as slow as the initial influx of salt symptoms.

“All” the salt of Australian soils can never be got rid of by drainage channels. And the official policy of pumping salt water onto native trees or into lagoons, wherefrom, it is admitted, the salt will drain into rivers, is unacceptable.

Likewise misleading is to blame excessive use of irrigation for the salt problem in irrigation areas. Certainly, due to lack of soil structure, irrigation has generally to be applied too often. Whole districts in turn suffer rising water table effects combined with saltation. Whereas on structured bio-dynamic farms irrigation is applied three times less often. Water penetrates deeply and enhances the biology of soils. Water is taken and held by humus colloids. No salt is drained off the farm.

Many bio-dynamic farms in Australia overall demonstrate the overcoming of salt.

Regarding blue-green algae: evidence shows that on well structured, humus maintained bio-dynamic farms all NPK is held in

the humus colloids. No waste of NPK occurs as pollution of waterways.

We shall recognise more and more that soil is not a rubble heap of minerals and “humus” but functions healthily only when structured akin to an upright, healthy human.

Within the confines of a lecture I cannot discuss in further detail the origin of the structuring influence of soil stimulated by 500. An answer is attempted in my book *Active Perception*.

Correctly applying good quality, moist and colloidal, “prepared” 500 (i.e., also containing the six bio-dynamic compost preparations) will bring the results shown in the B series of pictures, evidenced for decades in Australia and of recent also in some European countries adopting our method and practice of Bio-Dynamics. To initially achieve this is relatively easy. But to maintain it in the onslaught of the ill-effects of the outlined weather problems due to Earth’s breathing disruption; chemical pollution in air and water; salt; commercial production effects on manpower etc., puts today’s farmer in the position of a surfboard rider.

Overall, the worst ill-effect on the **sustainability of humus** is caused by the outlined weather conditions. South Eastern Australia in particular has experienced five consecutive years of continuous cold autumn, winter and spring rains. “Spring” commenced only in December, the actual beginning of summer and turned into summer with great heat. No period at all of the warm and moist spring weather required for the development of soil biology. The tops of even winter vegetables melted away and the root zone became inactive and reduced also in length with the consequence that the potassium and phosphate deeper down was out of reach to roots. Clover, usually dormant in winter, was barely in evidence by December and, other than in irrigation areas, never got going in the ensuing rainless heat of summer. In consequence soil structure suffered. On recognising the situation, and for the first time in decades, small amounts of natural phosphate, lime and potassium and soil aeration had to be supplied in aid of plants.

A prolonged three to five year drought can also devastate, but, with good biological conditions earlier, is more readily overcome.

On the “rich” Nile river flats of Egypt we were finally taken to where the best soil development was supposed to be. The area was planted to six or seven foot high fennel plants for seed harvest. A process of about ten to eleven months. The undersown crop of legumes was long dead. The plants were dry, dormant,

awaiting maturity of the seed heads. Again, no root activity for months. Dry, hard soil, although obviously “rich” and black, resulted in no structure at all.

I saw similar symptoms on equally “rich” black Polder soil in Holland. A crop of peas not yet podded, and the “structure” so poor that cracks developed in so short a time, sufficiently wide, to allow entry to hand and wrist.

Where does such rich black river flat “humus” derive? In the mountains of Abyssinia and Switzerland. It differs greatly from new 500 humus made on the spot which is s t r u c t u r e d.

Soil humus is only really colloidal, with all the benefit therefrom, **so long as** the soil is **in activity**. When even the richest humus particles are washed down a river or the best structured new 500 humus is, say, disrupted by cultivation: together with loss of structure, the colloidity of humus breaks down and considerable amounts of the water soluble elements, formally held in the colloidity, enter the soil water with the expectable negative effect on plant uptake. Exactly one reason for application of prepared 500 on newly cultivated vegetable soil so that sufficient white hair roots develop in time with the plant development and uptake of elements. All soils within reach of the newly unfolding white hair roots will be adequately structured right through. Ditto, say, with pasture after dry autumn or winter wetness. Roots must be reactivated.

After a crop, even under irrigation, such as the fennel example, green manuring, followed by short cycle, green picked, strongly biology stimulating legume roots, should counter the earlier ill effect. Depending on conditions, more than one such crop should be used.

The effect of good quality 500 is startling on poor soils, but is just as obvious on rich river flats.

When the great representative of organic agriculture, the Zulu Robert Mazibuko, visited me he took a rubber-like ball of moist colloidal 500 into his hand and immediately sensed how such colloidity would spread throughout the soil. No similar result comes from fibrous and dry “500”. The excellent Italian bio-dynamic preparation maker Carlo Noro came up with an interesting comparative test series. Into equal test jars filled with equal amounts of water he inserted equal amounts of the following:

A: compost, which disintegrated and mixed with the water in 0.5 to 1 hour;

- B: 500, which held together for 2 to 3 days;
- C: prepared 500, which remained a colloidal ball without discolouring the water for over 30 days and had not fully broken down one year later.

Big crops will result from rich river flats. Without sufficient soil structure these crops will take up elements via soil water to the degree humus particles have broken down and crops, however large and marketable, will suffer in quality and flavour and will be subject to plant diseases as outlined in Lecture 2 of Volume One, *Bio-Dynamic Agriculture Introductory Lectures*. However, water feeding will not be as rampant as with artificial fertilisers.

A further fallacy is, to believe that green manuring is absolutely natural. In the first of my videos I show a citrus grove in conversion to bio-dynamics, which had been going organically for ten years. No fertilisers had been used, but some “Round-Up”. Otherwise there was an abundance of white clover-rich pasture, regularly mowed, under the trees. The soil structure under this ideal looking pasture was very poor, especially where “Round-Up” had been used. The flavour of the oranges was acidic bitter, akin to conventional fruit.

However “organic” these conditions may appear, the lack of soil structure and, equally of course, white hair root development, as well as the bitter taste, indicated that the NPK contained in the cut and disintegrating clover never reached a humus development but became available through the soil water.

On account of the after-effect of “Round-Up”, bio-dynamic soil structure development took years longer than usual. And as the soil gradually developed, acidity reduced noticeably and was replaced by choicest sweet flavours.

“Organic Agriculture” is misunderstood as a method along the lines of requiring no more than the application of “organic” fertilisers. Most of these are water soluble even if not quite as quick-acting as artificial fertilisers.

Organic agriculture is farming within the organisation of nature.

POST SCRIPT

Even the best of books, videos or lectures would not make for solid bio-dynamic development. Where many are involved in an activity there has to be some form of organisation as distinct from bureaucracy.

Some hold the view that the most successful form of government is a benign dictatorship. Historically this was in evidence during the reign of a good monarch. In more recent centuries a desire of equal freedom for each citizen arose with democratic attempts. This succeeded so long as a mutually carried ideal remained alive. But inevitably ended in whatever form of bureaucracy when the ideal waned and was replaced by greed for power, money or self-importance.

In how many parliaments today can the major parties demonstrate true policy ideals? To what degree is the main policy of each party the importance of being in power and to waste parliamentary time in condemning the opposition? What leader of a party is safe when he trips overseas, especially when his "ratings" are down, maybe even, because he showed some integrity? And to what degree are all these parties subject to the vast financial resources of multinational company interests? The latter function akin to renaissance principalities. Every member of staff, the higher the more, has to be subservient to the company with the motto of efficiency, increase in turnover, export. New forms of administered greed to the cost of individual labour.

An organisation can only function when there is practicable and practised ideal to which each member freely subscribes. In the case of Bio-Dynamics there has at the same time to be a guided learning process. Freedom of work is chosen by the individual practisant and carries responsibility to the Bio-Dynamic method. It is not a free-for-all egotism. Furthermore, effective Bio-Dynamic preparations, storage, application and appropriate general farm management are required. Of recent, also certification.

This all falls to the leadership of the organisation.

The life-blood of a functioning Bio-Dynamic organisation is the absolutely free wish of each member to practise the Bio-Dynamic method. Only each farmer, after initial understanding of Bio-Dynamic principles, can run his farm, akin to a musical instrumentalist in an orchestra. The individual farmer knows his

property and has to find answers to climate and the many other requirements. But the individual farmer cannot live in total isolation. Exchange of developments, knowledge, experiences, products, marketing, certification and more, have to take place. Organisation. The orchestra has a conductor.

The Bio-Dynamic Agricultural Association of Australia (BDAAA) commenced in the early 1950's in a "democratic" form with a committee elected off the floor. I declined membership and acted solely as adviser. All the twenty-seven members were genuinely interested farmers. The most worthy were elected to the committee. After two years these members were called to a meeting in another state by two newcomers of a particular sectarian inclination with the aim of a sectarian takeover attempt.

I already had sufficient experience with conventional democratic small-time hall or show committees to realise that, modestly, the best members declined after short periods in office and eventually, less-suited, more self-oriented members took over.

I was responsible to introducing Bio-Dynamics and could not see such happen to it. A new form of organisation was required encompassing the best of the past, benign dictatorship and democracy.

The BDAAA executive contains highly-regarded, leading farmers. New executives are not suggested from the floor, but are nominated by the existing executive and have to be ratified by the membership at the next AGM. And, of course, there is also a method of cancelling membership of executives.

And, most importantly, membership of the BDAAA is solely for practising farmers. The lifeblood of Bio-Dynamics is maintained. Living organisation exists.