



Sektion für Landwirtschaft
Section for Agriculture
Section d'Agriculture
Sección de Agricultura

The Preparations

the Heart of Bio- dynamic Agriculture

Report from the Agriculture Conference
at the Goetheanum in Dornach/Switzerland 2018



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Dear Readers,

The conference on the preparations in February 2018 which brought together more than 900 people to the Goetheanum from 47 countries, was a lively, deep and inspiring experience. The articles published in this booklet represent a concentrated extract drawn from some of the lectures, professional groups and workshops. We hope that this will make the key content of the conference more widely accessible. The theme of the preparations as well as many other key themes for biodynamic agriculture are continually worked on at the Section for Agriculture. We always welcome donations to support our work (see bank details below). Many thanks,



Ueli Hurter

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Understanding the nature of substance

Manfred Klett, 7th February 2018 during the meeting of the Circle of Representatives

When he gave his report on the Agriculture Course in Dornach, Rudolf Steiner referred to the extraordinary and deep mystery of manuring. Knowledge of this mystery is I believe connected with the nature of substance itself. It is something which can only be attained through intuition, the highest level of spiritual scientific investigation. It was this understanding of the nature of substance that led to the preparations.

Knowledge of the preparations comes about primarily through working with and practically experiencing them. The individual practical engagement over the years creates the foundations for an internal dialogue on what one is actually doing. Thought-based research of the preparations requires the full breadth of anthroposophical understanding – something that Rudolf Steiner saw as a requirement for those attending the Agriculture Course in 1924. The interchange between daily practice and thoughtful reflection can be the basis for developing an objective heart-based knowledge. This heart-based knowledge can be characterised as a 'feeling towards' the esoteric secrets of the preparations.

I believe I can recognise a methodological approach that underlies the preparations. In the background lies everything that underpins human existence – the reality of life, the reality of death and the reality of resurrection. In other words – with time, space and eternity. We can observe how in the composition of the preparations, the whole of creation including the human being is included.

Take for example the yarrow preparation. The flower is the starting point. The plant's qualitative nature is manifest in the flower. The vibrant vitality of the yarrow through the seasons of the year dies in the flower. The spiritual researcher can now ask himself: How can I give permanence to this flowering condition? Can I hold it fast? The answer is: I cannot lead the plant of itself into a further stage of development, but must draw on something from another kingdom of nature to do so. The organs of animals have the capacity to hold on to these substances of the flowering process. What is the organ which can give permanence to the interactive processes between potassium and sulphur as they exist in the yarrow? Through its antlers the stag is cosmically awake (sulphur) to everything in its surroundings (potassium). These experiences are then condensed within its kidney-bladder process. The bladder is used to surround the flowers. Like the yarrow flowers, the stag bladder stands at the end of an evolutionary process. It goes no further in the stag. This organ however (like all the organs used for the preparations) retains in terms of form and substance, the capacity it had when it was formed within the living organism – even after the organ has been removed from the dead animal. The third step is then to hang the filled stag bladder in the summer sunshine and bury it in the winter earth. The physical body of the earth has, even more clearly



Picture: Chartlotte Fischer

than animals and plants, fallen out of the active evolutionary stream – it has become a 'finished work'.

We encounter the kingdoms of nature as 'finished work'. They are magnificent, yet our thinking perception must recognise them as having fallen out of the stream of evolution. We feel with sadness how the developmental idea is no longer active in nature. Our deed, in taking these three steps of making the preparation, stimulates new relationships that nature alone cannot achieve. We take the entire past into account and simultaneously plant a new seed. Through our actions the developmental idea is reborn in nature. The potential for individual and cultural development is after all what makes us human. We can now build this capacity for development into nature through the preparations. Something has been placed in our hands which calls for a great deal of responsibility and long term vision.



Manfred Klett (Germany): Co-founder of Dottenfelderhof, former leader of the Section for Agriculture at the Goetheanum.

Results of research into the effects of the preparations

Jürgen Fritz

I would like to begin my lecture by describing two approaches I have taken towards researching the effectiveness of the preparations. Firstly, the precise research trials undertaken at universities involving four replications and a statistical analysis. This is about measuring, counting and weighing. I consider this to be an important foundation. Secondly, the picture forming methods. These for me, are methods that lend themselves well to the assessment of living qualities. It is also about training our observation of what is alive – it is about qualitative perception.

The first question I faced when working with the preparations was: Do the preparations have an effect? This question is very justified given that quantities of 100g horn manure and 4g horn silica are applied per ha, 2/3 of which remains behind as sediment in the stirring barrel and only 1.3g gets sprayed out. From the perspective of natural science this is hard to imagine.

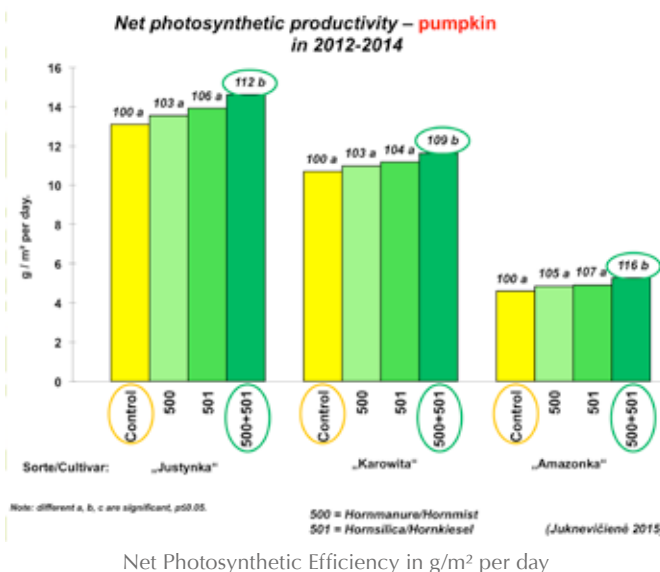
I wrote my thesis on the horn silica preparation. I took on the work on my own initiative and I was intrigued and enthusiastic. When I discovered significant responses from plants treated with horn silica, I immediately set about looking for things that might have been carried out incorrectly. The scientist in me could not imagine that the preparations could work.

If the preparations do work, the next question is what effect do they have? According to the Agriculture Course they should: a) Enliven compost and soil, b) Improve plant health, c) Improve food quality. These things are easy to understand. The broader heading “Bringing full reason to plant growth” is more difficult to grasp. What is meant by this and what is the aim? For me it means strengthening the self-organising capacity of a plant or the soil, so that it is better able, even under difficult conditions, to develop its potential – according to its type and inner nature. Type and inner nature are not generally accepted terms today. I therefore tend to refer to “enhancement of resilience” along with harmonisation and normalisation of plant growth.

The effects of the preparations have been presented in 19 theses, two long-term trials and many scientific publications over the last 45 years. With this presentation I wish to focus on the most recent theses which come from Lithuania. The example shows trials with squashes.

In each of the three squash varieties the net photosynthetic efficiency increased following treatment with horn manure and another with an application of horn manure followed by horn silica. The combined application of horn manure and horn silica led to an increase of between 9% and 16% as compared to the control.

I showed four hours worth of further results at the university – until the students were exhausted –, because I consider



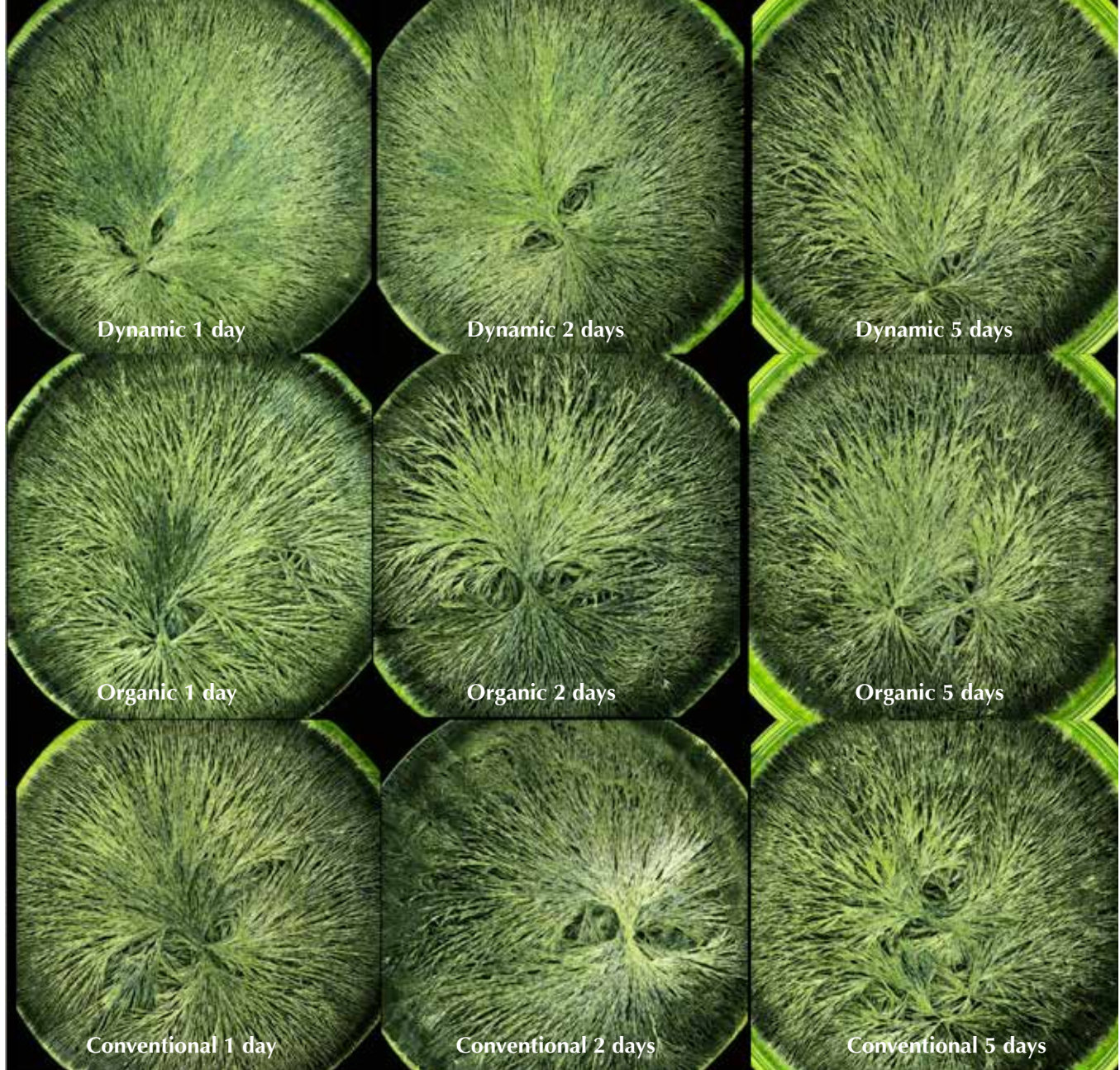
these field trials into the effects of the preparations, done at universities, to be very important.

The most recent research results support the earlier findings and show how the effects of the preparations accord with their original intentions. Getting the same response from plants after they have been treated with the preparations is not as clear and simple as calculating the path of a billiard ball that has been struck! The extent to which the plants respond and the conditions under which they do so, are not always the same. The results however consistently show an increase in their resilience. The frequency of significant reactions by the plants confirms that the preparations have an effect.

Training observation with picture forming methods

I have asked myself whether there are more suitable methods for exploring living processes. This led me to the picture forming methods. I am now going to show you some of the results of tests carried out on grape juice and wine samples that were collected during the years when Georg Meissner wrote his thesis. Although the same amount of grape juice was used in all variants, the 'dynamic' pictures have a much finer needle structure. This indicates that there is a greater amount of substance present in each picture and also that the effect of the substance is stronger in the dynamic samples. The biodynamic pictures show less evidence of ageing than the organic and conventional ones. Every year these differences have been statistically significant. Test results from double blind trials demonstrate that living processes can be successfully assessed using picture forming methods.

Evaluations are carried out using both analytical and picture forming methods, but we also use the qualitative perception technique.



Crystallisation pictures of grape juice 0.200 ml of biodynamic, organic and conventional production, with varying days since pressing.

Qualitative perception used in a project with nine researchers led to a greater level of confidence in the allocation of encrypted wheat samples to the different cultivation methods – dynamic, organic, conventional.

Qualitative perception is however not only helpful when reading crystallisation pictures, but also in gaining access to the living world. One student said: “Not only can I look at crystallisation pictures, but also at plants, my girl friend, ... everything.” Apart from crystallisation pictures we also practice the approach on plants. Growth gestures then become visible.

A scientific study of these methods shows that a perception of life can gradually be enhanced from the 'analytical' to the 'qualitative'. In my experience, it is important to have a combination and be modest, critical, reverent and open-minded. It is also important to be critical and test whether an experience is genuine. It is however also necessary to be open and however tentative an initial experience might be it should be taken seriously and then tested in further exercises

I believe that it is important to find occasions and situations in which the effects of the preparations are made visible. For instance by setting up research plots. This is important for the sake of one's own clarity and certainty about the preparations and their effectiveness. This will ensure greater motivation and interest in the careful application of the preparations. The preparations do work on their own, but the enthusiasm and interest of those using them increases their effectiveness. I can't demonstrate this statistically, but that is my experience in running more than 20 years of preparation trials. It is about looking for opportunities in which a personal relationship can arise.



Jürgen Fritz (Germany): Coordinator for Biodynamic Agriculture at the University of Kassel-Witzenhausen.

Biodynamic Preparations – a New Relationship Between Earth and Cosmos

Pierre Masson

In 2005, along with my son Vincent and other partners, I established a business to support the biodynamic movement. “Biodynamie Services” produces and distributes biodynamic preparations in large quantities. It does so because many farmers new to biodynamics are not yet able to make them for themselves. We currently use 70,000 horns each year.

We decided to make the preparations in the same way as the pharmacists prepare medicines for Weleda and Wala. I am aware of course that this will seem strange to those committed to the principle of a completely self-contained farm organism. For me however the preparations leave the spatial domain as soon as they have undergone their transformation. They then become universal substances.

Our approach is to take great care in executing the work, pay close attention to the anthroposophical background and make the effects visible and of immediate value to the farmer. This also corresponds with our own reading of the Agriculture Course. In his report about his stay in Breslau, Rudolf Steiner writes: *“It is really an issue which I would like to call a cosmic-earthly question of the highest order. It is quite clear that forces of a spiritual origin will need to be found for agriculture, forces which are as yet completely unknown and which will have significance not only for the improvement of agriculture but to enable humanity to continue living on the earth at all – the human being must after all live from what the earth produces – also in a physical sense.”* We must therefore draw on spiritual scientific insights and produce visible results in the material world.

How should we understand this verse which Rudolf Steiner gave to Marie Steiner on 25th December 1922 (GA40)?

“The Stars once spoke to Man
It is World Destiny that they are silent now.
To become aware of this Silence
Can become Pain for Earthly Man;
But in the deepening Silence
There grows and ripens what the
Human Being speaks to the stars.
To become aware of this Speaking
Can become Strength for Spirit Humanity.”

What does it mean that the stars are silent? Can we learn to speak to the stars and can they speak to us again?

The relationship between earth and cosmos and the significance of the preparations

Rudolf Steiner's spiritual scientific insights provide us with a working hypothesis: The earth is a living being which devel-

ops. It grows old. As a living being the earth is subject to the laws of all living organisms. It has a birth, a youth, a period of adulthood, old age and death. The whole being of the earth is embedded in the cycles of successive incarnations. The earth had its youth long ago during the geological epochs that produced the sedimentary rocks, coal, oil and also limestone – a time of exuberant vitality. The amazing activity of the primeval plant and animal worlds bears witness to this. In the current age human beings have been entrusted with unique responsibility for as well as being creatures of nature they also possess the spiritual seed force of the Self. They share responsibility for the future evolution of the earth. Rudolf Steiner describes this in the following way: *“Our task today is to take hold of the more or less dead substances of nature and lead them back to the spirit.”* It is up to us. How should this be done in relation to agriculture and human nutrition? How can we work with substances in such a way that they become part of a new evolutionary process and connect with the forces from the cosmos? Christian von Wistinghausen brought me to the work with the preparations. For his father Almar who took part in the Koberwitz course, the preparations were cosmic substances. Please allow me to present my understanding of the relationships described in the Agriculture Course between cosmos, earth, plants, animals and human beings, with the help of a blackboard drawing and then point to the significant role that the biodynamic preparations can play in our time.

Let us first of all draw a human being standing upright, in a vertical direction with the head pole of the organism – the location of the neuro-sensory system and of our thinking activity. Then the metabolic pole with the functions of metabolism, reproduction and the limbs. Between the two is the rhythmic, circulation and breathing system which supports our capacity to feel and have sensations.

We can see in the case of the animal that there is a different orientation with the backbone running horizontally and parallel to the ground. The intermediate pole is less defined than in the human being. With a ruminant such as the cow for example metabolic functions extend into the nerve-sense pole. The animal is able to sift through the cosmic forces, but is not able to make use of them for itself. Instead they are excreted to produce their valuable manure.

The plant is like an inverted human being. Its nerve-sense pole is in the soil which Steiner describes as being akin to a diaphragm. The leaves can be compared to a kind of large intestine which thanks to the sunlight, is able to absorb carbon dioxide. Leaves, flowers, fruits and grains are all part of the metabolic system in the same way as the human being has metabolic and reproductive organs.



Pierre Masson during the lecture (Picture: Verena Wahl)

Plants do not have their own rhythmic system. For the sun and the whole cosmos works upon them from outside. We can now draw in the zodiac with the constellations we know so well – Aries, Taurus, Gemini etc. Then we can bring in the solar system with the sun and planets as seen from the earth. In the first and second lectures of the Agriculture Course, Rudolf Steiner describes how the sun does not work alone. Its effect is influenced and accompanied by forces from each of the planets. The sun works together with the more distant outer planets Mars, Jupiter and Saturn. To have full effect, silica and warmth needs to be present. These are the true 'cosmic' forces. This activity leads to the formation of nutritive substances as well as everything of a qualitative nature – flavour, scent, colour. The sun also has an effect when it is supported by the inner planets Moon, Mercury and Venus. This has a more terrestrial quality as can be seen for example in the rich greenness of the leaves. To be effective, limestone substances and water must be present. This more earthly stream supports the plant's reproductive capacity.

What has been described here is an ideal situation. Besides growing older the earth is also affected by various forms of chemical, electromagnetic and radioactive pollution as well as the ambient immorality of our culture. All these prevent the cosmic forces from becoming fully effective in nature, our soils and our crops. This has reinforced the barrier between the earth, nature and the cosmos and it grows stronger by the day. The ageing of the universe means we are currently undergoing an extreme densification of matter. The compaction and salinisation of soil are both symptoms of this development.

How can we assist the physical body of this ageing star so that it may continue to support us in our present and future

tasks and ensure that humanity and the whole of creation can evolve further? In the Agriculture Course Rudolf Steiner gives no clear indication of the relationship between the cosmic forces of the past which are gradually being extinguished and the biodynamic preparations which have the power to restore these forces. In what follows I will try to describe this relationship based on what Rudolf Steiner has said on other occasions, most notably in the medical lectures.

With the horn manure (500) and horn silica (501) preparations we have to do with the direct influence of the sun and its structuring, uprightness-forming and individualising forces. These enable both plant and soil to develop their true forms. They are connected with forces of the Self, the 'ego potentiality' that Rudolf Steiner describes in the 8th lecture.

Having connected ourselves with the forces of the sun by applying the horn manure and horn silica preparations, we will now consider the organs which the six other plant-based preparations form and their connections to the planets. To awaken these new forces we must create something entirely new. We bring substances together in a way that could not happen in nature. A stag's bladder filled with yarrow flowers has never been seen out in nature. We can nonetheless try to think through this process.

Yarrow in the stag's bladder can be brought into connection with the Goddess Venus as she is described in ancient Greek and Roman myths. If we carefully observe the effect of *chamomile* growing on the fields we can begin to recognise its capacity for bringing about balance, for enabling wet and compacted soil to breathe again. Its therapeutic qualities reveal its connection with the sphere of Mercury – the God of change, merchants and physicians. In the *stinging nettle* preparation we find the forces of Mars which are connected to iron and



the gall bladder. It brings activity and energy but also a certain balance. Using the skull of a domestic animal we make the *oak bark preparation* which stands in connection with the Moon, living calcium and reproduction. With it we try to contain excessive etheric forces. The *dandelion preparation* in the mesentery is connected with the activity of Jupiter and the liver. With it we influence the absorption and redistribution of elements like calcium and silica. The *valerian preparation* is connected to Saturn and in the human organism, with the bone marrow where the red blood corpuscles are formed. Creating these completely new biodynamic preparations demonstrates the genius of Rudolf Steiner. They involve substances capable of building a new bridge between the cosmos and the earth. They are forces that really do come from the future. They were completely unknown before as was mentioned in Rudolf Steiner's previously quoted report.

What can be expected of the biodynamic preparations?

The stable organic matter content of the soil increases. Soil structure rapidly improves and the roots penetrate more deeply. Within six months of a vineyard being treated (18th April – 11th December) with preparation 500P (horn manure to which the six compost preparations have been added), the soil became darker, more crumbly, was less sticky and held water better. Our results have been steady and reliable. We have a very simple approach. Every year we run 2–3 days introductory courses into biodynamic agriculture and viticulture. We reach hundreds of people in this way (almost 1,000

in 2017). We encourage everyone who is new to biodynamics and wants to start working with it, to set up systematic trials comparing organic and biodynamic. This means that one part of a plot will receive the preparations and the other none. The results are nearly always amazing and it seems to us that changes occur ever more quickly.

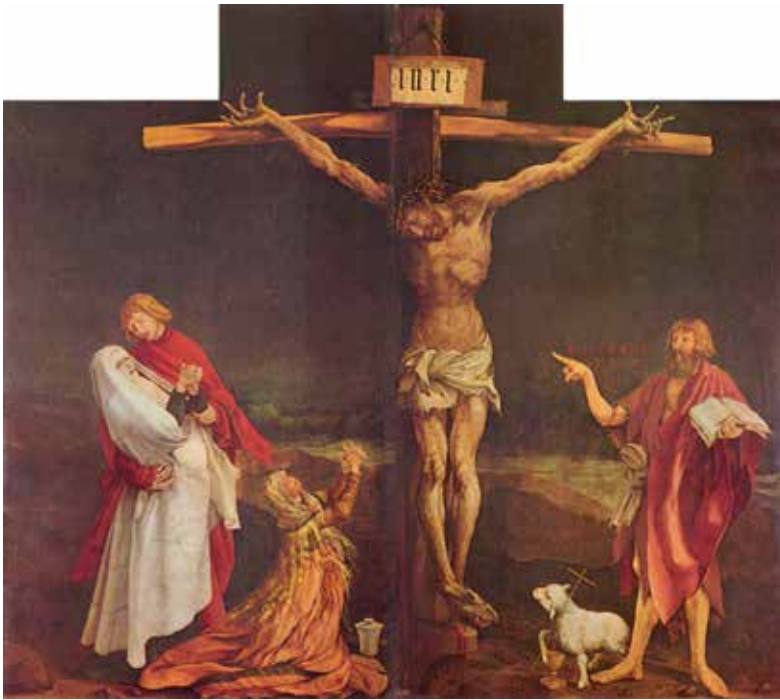
The appearance of the plants changes. The root system develops; the plants adopt a more typical form, become more upright and have more glowing colours. They are less susceptible to disease. The leaves of plants that have received the preparations appear more airy and have a glow to them. We have found in our own comparative trials that quality of the product improves, especially its flavour. It contains more polyphenols and its physical resilience is also better. There is for example less need for sulphur on the vines.

Some key principles of our work with the preparations

Plant cultivation, harvesting time and storage are all very important. We try to bring all the preparations to a colloidal state, because this is the model towards which the soil should develop. It also makes them particularly effective. Regarding the colloidal state we can say: The colloidal state is the foundation upon which all evolution, transformation and metamorphosis occurs. It is a condition that is open to receive the formative forces streaming in from the cosmos, it is a state that is receptive to life. All the preparations including the horn manure progress to this colloidal state during storage.

Good quality water and a temperature of 35°–37°C seems crucial when it comes to stirring. The quality of the stirring vessel (its form and type of material) and that of the energetic stirring determine whether the full potential of the preparation can be developed. Working with the rhythms of morning and evening is of vital importance for the stirring and spraying of the preparations. We are not yet finished with our research. For example when is the right time to harvest the stinging nettle – in spring or in autumn when the meteoric iron comes to earth? Do they have the same value?

An anecdote on the effectiveness of the preparations: It is known that one or two applications of 500P per ha have a strong effect on soil activity and on the behaviour of plants. As has been mentioned there is a measurable increase in organic matter and an improvement in soil structure and porosity. It does not replace manure but increases fertility. It was several years ago and we were burying 30,000 horns in the same place and we knew exactly how much manure was needed to fill them. It troubled me to think that the farm from which we collected the cow pats might suffer a loss of fertility. I realised however when I calculated the amount of manure needed for 30,000 horns that it works out at less than the amount of manure produced by one cow in a year. With 30,000 horns 30,000 ha of land can be made fertile. If this manure was used direct or as compost, only one hectare could be enriched. By making preparations we increase the manuring power by a factor of 1: 30,000.



Grünewald: Isenheimer Altar – The Crucifixion



Fra Angelico: Noli me tangere

Sacrament for the earth?

It is possible to see the preparations as cosmetics for the face of the earth. Cosmos in Greek means firstly 'the good order', secondly and more exactly 'the order of the universe'. The third meaning is 'ornament, a woman's beauty'. The word 'cosmetic' originates from the word cosmos. Cosmetics, creams and balsams can be used to refresh and bring order to the hair or tired skin. Mother earth in the state she is in today, has real need of such care especially the surfaces used for agriculture. Could there be a better cosmetic for the face of mother earth than the biodynamic preparations? They are demonstrably able to give this star with its tired, polluted, ageing, sclerotic body, the opportunity to regenerate itself and even to be the germ of a future universe.

Could one go even further and characterise the preparations as a sacrament for the earth? I do believe that the biodynamic preparations can be seen as a medicine, as a cosmetic and even as a sacrament for the earth. With the idea of creating 'a new earth' we change a hardened mineralised earth to a humus rich, soft, pliable, living earth formed of a kind of spiritualised substance.

Applying the preparations also brings a significant change to the plants and with it the regeneration of human nutrition. The human constitution then becomes more balanced. With a more harmonious connection between the physical, etheric and astral bodies the human 'I' can improve the link between the forces of thinking and willing and the harmonising sphere of feeling. This in turn can lead to a new path of development for mankind.

All these things make it possible in our time to respond to the 'silence of the stars' referred to above. The biodynamic preparations are indeed a new language through which human beings may speak to the stars, and send a signal to the Gods.

In the painting of the Crucifixion by Matthias Grünewald we see at the foot of the cross next to Mary Magdalene a vessel containing the healing ointments. When reflecting on Mary Magdalene and how she anoints the body of Christ, we can also think of the painting "Noli me tangere" (do not touch me) by Fra Angelico in the monastery of San Marco in Florence where the risen Christ appears to Mary Magdalene as the gardener. The mysterious pot of ointments is nearly always found at the centre of these paintings, clearly visible beneath a tree, a symbol of the plant world and of the etheric. It is placed in the centre between Mary Magdalene and Christ. It always stands directly on the earth, on this earth which has become the body of Christ through the Mystery of Golgatha. Do not these images of the vessel containing healing ointments which are depicted in these paintings point towards our duty of care towards the body of the earth? The biodynamic preparations can certainly be of help to us in this direction regardless of our cultural or religious background.



Pierre Masson (France): Founder of "Biodynamie Services": Consultancy, training, publishing, preparation making.

Preparations: call of my destiny

Binita Shah

A connection can be made between the work we do with the biodynamic preparations and our three human faculties of heart, hands and head. I can also relate this to the trinity as it is conceived in eastern philosophy. The Heart is linked to the Creator “Brahma”, the Hands to the Preserver “Vishnu” and the Head to the Destroyer or the Articulator “Shiva”.

The call to my heart – Brahma

Meeting Peter Proctor in March 1995 and learning about Biodynamic Agriculture, back to back over several hours, had a lasting impact on me and I soon realised that this was to be my life's task. It was like the call of destiny.

The first results of the biodynamic tomato experiment carried out in October 1996 made a big impression on me. No fertilisers, no chemicals and yet the flowers kept coming and fruiting continued even when the plant had almost died. It was the continuous flowering and fruiting which surprised everyone. And then I realised that biodynamic agriculture had the potential to change the lives of small farmers in India. This meant of course that somebody would have to make the preparations (and maybe in larger quantities, too) and of course convince the farmers that they should use them. But it was not going to be easy. For me, however, there was no looking back. I gave myself the task of producing preparations for farmers on a large scale and also decided to build my life work around it. In October 1998, I decided to take on the family orchard in Nainital, Uttarakhand. I brought 30 sets of preparations and 10,000 earthworms with me and started work.

The Journey of the Hands – ‘Vishnu the preserver’

Getting farmers to use biodynamic preparations was a process which for me began by carefully observing the way



Indian farmers were living. I saw how farmers were committing suicide and that large numbers were abandoning agriculture. On the other hand I could see the intensive and highly mechanised approach of modern farming. Could we intervene, I wondered, and use the biodynamic preparations to bring about change?

A business model was needed to carry out this work with the biodynamic preparations. Contracting to a large company or being a not for profit organization that had constantly to beg for funds, did not appeal to me. The descriptions on packaging and other educational literature needed to be communicated clearly in the local languages. The biodynamic preparations had themselves to be packed in colourful and handy materials. This was how we came to develop the one-page biodynamic calendar. We found that the best way to catch the imagination of simple, small farmers of India was to speak about the cow and the planting calendar. I found some Russian-made portable slide projectors in a flea market in Delhi and put together a slide show describing different biodynamic activities. This was probably the first generation of multimedia communications for the rural regions. The slide show could be presented anywhere – in homes, barns or in road side shops. After such a show, a few farmers would usually agree to make some compost assisted by our team.

Compost is the driver of change. Compost has always been and continues to be the first step in introducing biodynamic practices. In 2000 we made 100,000 composts in Uttarakhand as a part of a government supported project and I received the title of ‘compost queen’. Up to now we have made 1 million compost heaps and saved 8 billion Indian rupees. Making a compost has become one of the most important steps for me. It acknowledges the dignity of labour, the importance of biomass recycling and the self-reliance



Pictures: Binita Shah

that compost making brings. Once the compost heap has been made, it is customary to take a picture of it and then spray valerian on the heap.

CPP (barrel preparation) has carved out a unique niche for itself in our work. Using dung from a lactating cow and converting it into a beautiful black material with many uses, has always appealed to the farmers and their co-workers. Compost is different in every village and in every season. The compost and the way it turns out is always a surprise and symbolizes the uniqueness of each farm. CPP on the other hand is a product that is made in an almost identical way everywhere. CPP is the most versatile preparation and has so many uses, it is the 'jack of all trades', a support system to treat all problems. CPP is used whenever something is missing.

The third realm – 'Shiva'

Ever since my first encounter with the 'old man with the horns' Peter Proctor, there has been this strong underlying belief that here is something worth exploring and spending time with. And when my co-workers ask: Mom, how do the preparations really work? I try to answer this by narrating a unique experience I had when for the first time I went to retrieve the animal parts for the preparations. Taking two assistants with me, I set out to obtain one cow intestine, one mesentery and one or two skulls. We came to the trenching grounds and the place where the dead animals are dismembered. All this happens out in the open and on the ground. There were heaps of carcasses strewn all around and the place was extremely smelly and suffocating. One of my assistants decided to leave immediately as he was about to throw up. I closed my nose and mouth with a handkerchief and waved him off. My second assistant was behind me holding the bags etc. and was beginning to go all white. We

were standing very close to the carcass whose parts were being taken out for us. The body of the cow was bloated and as I looked back at it after taking a last look at my second assistant, I could see right inside the cow's body. The belly was like an elliptical, pink and white layered expanse – like the universe – and looked like a water colour painting. There was no end and as I looked I felt I was inside the belly receiving the cosmic radiance the animal had received in its life. It was only later that I was presented with a copy of Rudolf Steiner's Agriculture lectures and many years later still that I read the description in lecture four of the streaming of the cosmic forces inside of the cow's belly; how the micro and the macrocosm unite there.

When we inoculate the compost with preparations 502–507, we give it a property of life forces. It bears the impulse of the universe, we can also call it the 'will'. The will of the universe is life giving and life maintaining. This will is one whole, each individual life form takes from this universal will another whole – like the child takes will from its parents. In the end, I will say that it is the will of the universe which brought me into this work, it is this will which brought my co-workers to me so that together we can reach out to more and more farmers. It is the same will which brought us all together in November on my farm in the Himalayas and now again here at the Goetheanum. Let's continue our work by stringing the will of small farmers together into one Universal Will.



Binita Shah (India): Works with 50,000 subsistence farmers in India with biodynamic agriculture. She is founder of SUPA Biotech and SARG.

Concerning ego potentiality

Benno Otter

The idea of 'ego potentiality' was introduced by Rudolf Steiner in the eighth lecture of the Agriculture Course. He said that human excrement is something very different from animal manure. Human excrement is of little use since all that is nutritious in the food has been extracted by the human I forces. What we excrete is therefore of little value, it has no constructive quality. The activity of our I uses up all the forces contained in the food. With animals it is different. Rudolf Steiner describes how the animal does not develop much of an I and refers to the animal as having an 'ego potentiality'. The forces of this 'ego potentiality' then remain in the manure. There is of course the question as to how the cow comes by this ego potentiality. It can only enter it through the food, that is through the plants which the animal eats. Plants have this 'ego potentiality' within them. With a plant, this 'ego potentiality' can be more easily understood. When the plant begins to grow, its shoot goes upwards and its root down. The plant has no incarnated I and so the I of the plant world is not in the plant itself, but in the centre of the earth – we can imagine it as being there. It is easy to think of the plant's Higher Self being down there because after all the roots of every plant are orientated towards the centre of the earth. If we imagine the earth as a sphere with plants growing everywhere upon it, then all these plants ray inward with their roots and outward with their stems. The forces of 'ego potentiality' come to expression in the plant world through the unbelievably strong vertical growth impulse.

If we then turn to the preparation plants and try to imagine how this 'ego potentiality' expresses itself, we come to the family of grasses. These are the main food plants for cattle. For me these are also preparation plants. They provide the initial substances for the cow pats and therefore the horn manure preparation. The grasses express this vertical gesture in a very powerful way. They even want to retain this verticality when flowering. The ears of grain are also in the vertical though sometimes bent a little to left and right and move in the wind. We need the grass in a digested form to make the horn manure preparation.

We can then ask ourselves how it is with the other preparation plants. What is the special characteristic of the valerian plant in the verticality of its stem? It is simply air. The valerian plant has an amazing air-filled stem and this air even penetrates into the roots. If we cut through the roots, we will find air chambers in them. The special quality of the valerian is that air is contained in its stem, the realm where its 'ego potentiality' is expressed. The dandelion really has no stem at all, it is all condensed into the rosette of leaves. There is only the flower stem and this flower stem is also

filled with air. The stinging nettle plant cannot remain upright for long when it is fresh and full of sap. If I cut and try to put it in a vase; if I want to make a beautiful bunch of flowers from nettles, I cannot do so because they will immediately wilt. As soon as the plant is mature however it develops a very lasting structure. If it hasn't all been mown down in the summer, these fibrous nettle stems will still be standing in winter. The yarrow plant is also quite special. Yarrow has a very perfectly formed stem and the horsetail is actually nothing else but stem, stem and more stem. And even under the earth the stems of the horsetail continue.

If we look at the roots, we find that the dandelion has a root full of vitality that descends vertically down. Chamomile has a strongly developed taproot. The oak is a very special plant. It has of course a very powerful taproot, but the oak continually struggles to be upright. It tries every year, but never succeeds. It grows upward for a bit, but is then forced to grow sideways, because its bud has been chewed off. It has a cluster of buds on top and can grow out to left or right. It tries again and again to grow upwards but somehow never manages it and this produces the oak's gnarled characteristic. I think this also demonstrates an incredibly strong 'ego potentiality'.

This 'ego potentiality' is also found in the animals. The organs used for making the preparations are mainly taken from the cow and we can ask ourselves how this 'ego potentiality' can be strengthened through our approach to management, breeding and feeding. When we then make the preparations, the animal element is brought together with the plant element and a whole new organ is formed for the farm organism. Let us take as an example the dandelion package. It is separated from its surroundings and inside it there are a great many dandelion flowers – it is a newly formed organ with a skin around it. It is a skin that is always connected with what is going on inside and with what happens outside. These preparations help to strengthen the farm individuality and enhance it with the power of the 'ego potentiality'. This does not happen in one year. It happens from year to year to year. There is a wonderful statement in the Agriculture Course by Rudolf Steiner: It happens continuously, the individuality develops step by step, it needs time.



Benno Otter, Co-worker of the Goetheanum Garden Park since 1982, contact person, coordinator, offers courses and advice. Garden park management, composting, preparation making and training apprentices.



The preparations as a source of life

René Piamonte

Working with the preparations has for me meant a long journey of deep inner questioning. That is why I would like to emphasise that today I want to speak to you from the heart, and not from the knowledge of the mind. That is why I would like to speak to you in my mother tongue and offer my gratitude to Constanza Kaliks for translating. The preparation work was started during the 1980s in Brazil in Botucatu with the help of many people who had attended a course in Emerson College. People came from all over South America to visit Botucatu. I also came there to learn about preparation making. This work continually requires us to engage with our own questions: Why these preparations, why at this season, why this rhythm? And in struggling to find answers we can begin to discover why the preparations are important for the earth. In order to have some idea of what we are working with in South America, approximately 30,000 horns are used to make horn manure and 500 horns to make horn silica each year. It may seem a lot, but it is actually not a lot at all. It is not even enough because the biodynamic movement is growing in South America. The preparations have to be imported to Argentina from Brazil and from Germany to Honduras and then Mexico. What is produced locally, is frequently insufficient. If the preparations turn out well, they work everywhere.

The Coca Cola preparation

The horn manure and horn silica preparations were introduced very quickly. Many questions were asked right from the begin-

ning such as for example: Why must the horns come from a cow and not a bull? But generally the work itself gave us the answers. There was a lot of discussion and many arguments as to why it should be from a cow and not a bull, but the best thing was to put some manure into a bull's horn and see how it turned out. There is nothing better than to see the result. During my courses I have been asked whether we might not just as well put manure into a yogurt pot. And of course I immediately answered: "No way!" "Can we use a coca cola bottle?" My answer was again: "No way!" And then during a course someone came along with such a bottle and said: "But teacher, could we not try it out?" I then had to take up the challenge. There is a fundamental principle in education namely that there is no such thing as a stupid question, only one's own inability to understand it correctly. I therefore decided to take up the challenge. We filled cow horns with manure in the usual way and then two bull horns and a coca cola bottle.

And it was interesting that for six months, whenever they passed the site where the horns were buried, the farmers were wondering what the results would be. So you can imagine that when they returned to dig up the horns six months later, there was a very high level of expectation in the air. Now we would see the result and of course there was great excitement to find out what had happened to the coca cola bottle. We began by digging up the normal horns. The first thing is then to smell the preparation and know how such a prepara-





Working group



Fungi on the preparations

tion should smell. It is a very particular smell – like tobacco, vanilla or red berries... Everyone perceived this smell. Then they looked at the bull horn preparation and saw that it hadn't fermented properly. It wasn't the same.

Then came the great moment of excitement – the coca cola bottle. As organic substance it was OK. It was very black, it had also broken down well, but there was an important detail: It had no smell whatsoever. We could not smell anything. And these farmers smelled it too and said that it wasn't good enough and shouldn't be used. I didn't need to say anything further and was amazed myself. Later on, we entered into conversation about it and asked: What did we discover? We came to realise in the end that the active agent of the preparation, that which really fertilises clearly, originates in the material, organic substances, but that the actual manuring effect occurs through its smell. And so we could understand why Rudolf Steiner spoke about 'clair-sentience' in relation to smell. What really serves to fertilise the soil in the preparation is its perfume, its smell.

In the beginning, it was difficult to produce some of the preparations – where could we for example obtain a stag's bladder? It was a problem to begin with, but it was then solved by simply importing them from Europe. How could the bovine organs be obtained? Simply by working with the abattoirs. During a course on one farm we had an animal slaughtered and so could look at the organs and try to understand the various layers of skin and discover what a wonderful being the cow is. It is very important for instance when making the oak bark preparation, that really fresh brain skin is used so that it can work more strongly against disease. We had a special experience with stinging nettle in Mendoza in the Argentine Andes. We had decided to take dried nettle with us so that we could begin making the preparation there. We made the preparation and then suddenly found that on the site where it had been buried stinging nettles began to grow. That was very interesting

and taught us a lot. We had always thought that the preparations needed the plants, but now we saw that the plants also need the preparations.

Working with the preparations on the equator

Here in the southern hemisphere the preparations are made during the appropriate seasons which are opposite to those in the northern hemisphere. The line of the equator is quite marked – one side is north, the other south. We had a very nice experience with the preparations in Ecuador. In the north of Ecuador, in Esmeraldas, we prepared 400–500 horns. We buried them for six months in the northern hemisphere. Six months later we dug them out and then went quickly to the south of Ecuador and buried them again, this time in the southern hemisphere. That was very special. We also did it with the horn silica preparation.

The appearance of fungi

Something else we discovered not immediately but after 20 years, concerns the appearance of fungi on the preparations. We noticed that these fungi reflect the quality of the preparations. I would like to make very clear that it is not the fertilising effect of the fungi but that when the quality of the preparations is good, the fungi appear. They did not appear in the first ten years, but since then during the course of the last twenty years, they have appeared regularly. It was not a form of biological transfer, they appeared on the preparations. Where did these fungi come from? I was recently in the Amazon, in a very large area that had been burnt in a fire. Nothing could be seen but the black and charred soil. And then I saw again and again wonderful mushrooms growing on the blackened earth. Where did they come from and what is the power that leads to such fungal growth? Rudolf Steiner spoke about these beings which unite themselves with the moon forces. Perhaps these good fungi accompany and support us today in order



A hut for the preparations



Preparation making with joy

to help us enliven the soil. I really like these fungi. In Brazil at the university we are in the process of identifying and researching these fungi.

Stirring and spraying

In the beginning and for a long time afterwards we stirred by hand, but later on we used a machine. We had to begin using a machine because a big problem in the biodynamic movement – and I say this as an advisor – is that we don't spray enough. It is a question of will power. So we began developing a particular machine. Some people in Brazil and Argentina who have a deep understanding of biodynamic agriculture, developed this machine. It is very important for the machine to be correctly calibrated. The kind of movement is of course very important. But we also felt that the sound made by the machine should be similar to that made when a person stirs by hand. Just as we discovered that it is really the smell that fertilises, so now we found out that the sounds heard during the stirring process can strengthen the manuring effect still further. Spraying out is either done manually or with machines, motorbikes or in various other ways. On very large areas such as for example in the Dominican Republic it is done with aeroplanes. And in Chile we have started using drones.

A little hut or a palace

When storing we always try to keep the preparations in earthenware or glass containers surrounded by peat. It is very important that the store remains moist so as to retain the scent. Sometimes the containers are artistically designed with particular forms and patterns. The pots are very beautiful. The place where they are kept is also important. The concept of a biodynamic 'hut' has emerged – the place where all the preparations are stored. Each place develops its own very specific and unique form of hut. Each person has a house, the animals have a stall and even the trac-

tor has a garage. Why then shouldn't the preparations also have their own house? There are some who also go over the top and create real biodynamic palaces!

Preparation making with joy

We once had a very nice experience in Ecuador. There were no shovels available for mixing the barrel preparation. No one uses a shovel in the rain forest, only a machete. OK then we said, we will work the preparation with our feet. Everyone wore wellingtons and so that's how it began. One day in Brazil on a beautiful sunny day we thought let's take off our boots and do it barefoot. Making barrel preparation is a process almost like making bread. At the Latin American gathering in Costa Rica, there were hundreds of people, who worked hundreds of kilos of barrel preparation to the sound of music and drums.

We always try to have great fun when working with the preparations. There are around 300 farms and roughly 7,000 families who feel connected and engage enthusiastically with the making of the preparations. One way of overcoming scepticism is to make the preparations together and in the process, change oneself. In working with the preparations we develop a 'sense memory' or a 'thinking heart organ' and that helps to develop the preparations. Miguel Hernández, a Latin American poet, said: "I approach my affairs from my heart", with that he meant "I go with my heart towards that which I intend doing". And if we work with the biodynamic preparations in this way, we make it possible for agriculture to really become a force of renewal for the earth. Thank you!



René Piamonte (Argentina): Advisor and trainer for Latin America and the Caribbean, Publisher of the South American Planting calendar

Preparations as a bridge between medicine and agriculture

Georg Soldner

Brain and horn

It has only been during the course of the last 10 years that conventional medicine has become aware of the importance of the intestinal flora through articles in various publications – even though Rudolf Steiner drew attention to it in a very precise way as early as 1920. The link which Steiner indicated is also gaining attention namely that life in our intestines has got something to do with our consciousness. A new axis – the microbiome-gut-brain axis – is referred to. It has been recognised that the evolutionary development of the brain has depended to a very great extent on the intestines and their intestinal flora. It follows that food substances exist in the first place, to sustain and enliven our digestive processes, which in turn form the basis of our conscious life. This however depends primarily on the process, the composition of the intestinal flora, their inner vitality and – most importantly for the brain – the substances which the human being can create through these digestive processes and which are not the same as those which have been consumed. Finally, we develop our consciousness using the same forces that originally enabled our organism to grow, with living, etheric forces. This transformation of growth forces into forces of consciousness was described by Rudolf Steiner as being of the “greatest importance” for both medicine and education. It is however equally important for agriculture and to understand the basis of nutrition. The forces of growth are being continually changed by the human being into the inner light of consciousness. We draw light out of our inner 'manure pile', we want to develop light from it. While food is being destroyed in our digestive tract, a new, enriched inner life is being born. Nothing is being simply burned here, substances are being changed into living forces.

And human nutrition must be approached in such a way that people are no longer stuffed full of substances which they are increasingly unable to absorb – think of how pervasive diabetes and obesity has become – but instead food that stimulates inner activity, independent thinking and individual initiative, food that does not cause lethargy but fires up the will.

While the human being unlike all animals has developed a fore brain and a characteristic forehead that rises above the eyes (our frontal bone also has a hollow space in it), the cow develops horns in the area of the frontal bone. On the one hand, they grow out of the skin and on the other, they are formed with a partially air-filled bony core. The cow's sinus cavities extend into the horn and receive

the gases as they stream out from the rumen. They also discharge gases and are intensively permeated with blood. We know that in grass feeding ruminants the process of horn formation is closely connected with that of the digestive tract which reflects the remarkable metabolic capacity of the cow. We also know that her horns and brain represent the mirror image of the digestive tract which she must continually master with all its mighty gaseous tensions and inner movements. And if it is our fore brain that enables the human I to gain a foothold and to take control of the metabolic-limb system thereby achieving full consciousness and freedom, then it is perhaps the horns which enable the cow to breathe, smell, experience and control her inner metabolic life. We can then be justified in believing that the cow's soul life is intimately connected with her horns. We also know that a cow with horns requires significantly more soul space than one that is hornless. The horns have as much significance for the cow as the fore brain has for the human being.

Potentisation using the example of silica

Rudolf Steiner described the process of potentisation in the following way: *“If I were to say a substance has certain properties and were to reduce the amount of it down to ever smaller quantities, then as it approached the point of zero, it would take on the other characteristic, its earlier capacity for radiating out into its surroundings and begin to stimulate the material that I am treating (the solvent) in the corresponding way.”* These words touch in a deep way the law of 'dying and becoming'. Rudolf Steiner originally observed this potentising process in the human organism where substances like silicic acid are made effective in a finely diluted form. This occurs most strongly during embryonic development when a transparent 'silicic acid skin' grows around the amnion – its ash is 22% silicic acid. The younger the growing organism, the more important is the silicic acid. The organ sheaths and especially those of the embryo, are able to release the radiant qualities of these finely diluted substances, each sheath in its own way. The organism can itself potentise substances – homeopathy has been learnt from the organism – and the aim of the potentising process (such as the stirring of horn silica) is to thoroughly permeate the medium in which the substance is to be dissolved using a suitably intense process of movement so that the dissolved substance can radiate through it. The human and animal organism is suffused with substances of a highly refined nature with a strong effect – like that



“The warmth mantle of the earth” taken from a painting by Johannes Onneken

of the thyroid glands. Our sense of smell is specially responsive to the finest of traces. We need to stop thinking in terms of a substance that must 'do' something (like an antibiotic that kills bacteria) and instead of a substance that can unleash a response within a living context like the effect of a mother's smell on her baby. We are all familiar with how a fine and delicate smell can change our life processes and so perhaps we can now understand how a fine mist of horn silica can speak to the growing plant.

The warmth mantle of the earth

“We can readily understand that if the earth is conceived of as a living organism – which it must be – then it will be subject to a breathing process...” Rudolf Steiner speaks about the formation of light in the earth's atmosphere, its importance for the biochemical processes on the earth and finally about the 'earth's warmth mantle'. The statements made in 1920 about the warmth conditions of the earth's outer atmosphere have since been fully confirmed. And we know today that the optimum temperatures in the history of the earth have over the last few millennia been linked with agriculture. The clearing of many forests, the creation of agricultural land, the metabolism of animals have already for thousands of years had an influence on the warmth of the earth, initially as a stabilisation of warmth.

We know as a result of modern scientific thinking and the industrialisation that has arisen from it and which has ultimately led to the industrialisation of pharmacies, agriculture and medicine, that there has been a seismic shift which has put this warmth mantle of the earth in danger. We also know that we as human beings, as mankind are responsible for the future life of the earth. The earth is no longer young and has a fever today. And if we don't change the way we do things, we could face a catastrophe, a mass extinction, a collapse of the earth's atmosphere and as a consequence, life threatening extremes. We are responsible for the atmosphere on every farm, in every meeting.

And we ourselves are responsible for it. Rudolf Steiner taught us to take physiological facts far more seriously and deeply. For it cannot be denied that maintaining for the human organism the regulation of warmth is the highest level of physiological regulation. We are able to regulate our warmth very precisely so that we can live and act consciously in our body. The surface of our body is quite different from that of all the animals – no fur, no feathers, no scales. With this naked skin we are able to regulate warmth to quite an exceptional degree and keep it steady even when running a marathon. Our brain as the most warmth sensitive organ, depends on this.

Rudolf Steiner draws our attention to the deep connection between this warmth and our spiritual nature. We are



Pictures: Wikipedia

now not only called upon to know our own body but the whole earth as well. The wonderful, life-sustaining mantle of the earth that grants us life is dependent on us and most particularly on the way we work, the way we farm. And only when we can really grasp that the earth is a living being with its own mantle, is transparent to sun and cosmos and protects and shields at the same time, keeps us warm – the earth is 33° warmer than it would be without an atmosphere – and distributes the warmth; only when we can understand all this like the sheath around an unborn child, like our skin; only when we are understanding that everything that lives can only develop within a suitable mantle, only then will we be able to overcome our environmental crisis. This environmental crisis is fundamentally a crisis of our own self-knowledge. Only when we can meet the earth as a big 'you', as a being, and we acknowledge its life and all its layers with conscious reverence, can we as mankind proceed along the path of our own development.

We need a completely new spirit, a completely new way of thinking, one that inspires and gives us direction if the earth is not to die and humanity is to complete its evolution on the earth. Rudolf Steiner clearly had this in his mind and today all of us will become increasingly conscious of it. At this moment in time, we are in need of a healing spirit for the earth has grown very sick and ever larger numbers of people are getting chronically ill. We need the spirit known among Christians as the Holy Spirit, the one who gives each one of us the possibility of working together in brotherhood for the community in a healing way.

There is no doubt that with these preparations Rudolf Steiner wanted to set in train a mighty therapeutic deed namely to work on the healing of the earth which today is so severely threatened by industrial agriculture and the way we think and act. It is about enabling a healing spirit

to connect itself with the earth through the preparations in a very concrete and practical way.

Stag and cow

Human beings and animals process and retain nitrogen – which comes originally from the air – in far greater quantities than plants in order to produce for example muscular protein. Protein is made up of 16% nitrogen. The inner mobility of the animal is connected with nitrogen and therefore also to the activity of kidney and bladder. Without the processes of kidney and bladder we would not be able to manage the nitrogen, our astral body could not exist and be active within us. When an animal like the stag engages so intensively and sensitively with its environment and the cosmos beyond, and its antlers extend out into it like antennae, inner sensations are called forth in the body that mould the character of the organs. The stag as an antler bearing ruminant lives outwardly far more strongly in these sense impressions and movements than the cow. The antlers are given form from outside and are discarded each year; the horn of a cow is penetrated from inside with blood and it breathes, the cow lives much more in its grazing and ruminating activity, at peace and inwardly orientated. In comparison to the cow we may even refer to a 'nervous stag', as Rudolf Steiner describes it. Inner soul movements – such as the way that we take in food –, the world of emotions and our sensations, mirror themselves in an organ like the bladder. We know from our own experience that the bladder reacts more strongly to our soul mood than the liver. And if an animal is bound up with its environment in such an intense and far reaching way as is the case with the stag, its bladder will almost become 'an image of the cosmos'. This demonstrates that the bladder is an organ which is very closely connected with the astral body and that a correspondingly different dynamic devel-

ops with the stag and the cow. We can see how closely Rudolf Steiner observes an organ or a plant, what process it is engaged in, what process it is serving and yes, what spiritual impulse is living in this organ, this plant and also in the humus of the earth. In principle, the same thing applies to the small intestine and to the nerve fibre and blood cell rich mesentery or alternatively the encasing, mobile, metabolically active and liquid absorbing omentum. Rudolf Steiner makes it clear from the outset in relation to the cow horn that it must be a female animal. The secret of the female organism is that it can bring about internal order, take back strength from the limbs and – have the power to produce milk and be the foundation for new life. The cow therefore has a very special place. We are impressed by the cow's enormous vitality and astrality and the way she can produce the highly effective microbial culture in her rumen and stomachs – if we let her to do so. Impressive too is her mastery of her inner atmosphere, her control of gases and her rumination of foodstuffs as a form of organic concentration, reflection and meditation. She who seeks peace in the sunshine, is not disturbed by rain and who can spring surprisingly lightly across a meadow if given the opportunity. She who lives in her metabolism, provides milk and manure and furthers life, who gives far more than she takes.

If we meditate on and can understand the cow in this way, if we can once again respect our cows as animals through whom the spirit of creation speaks, the true spirit of healing speaks, if we learn to respect her in the same way as we must learn to respect the earth as a whole then we will be able from the organs of the cow, to obtain the sheaths for making a medicine needed in agriculture and gain access to a form of astrality which is wholly dedicated to the processes of life. It is the specific astral quality of the cow that concerns us here as well as the powerful etheric forces that develop in her organism and which manifest most strongly in her excretions, in the milk that we directly consume on the one hand as well as the cow's manure. In Koberwitz, Rudolf Steiner then described the way in which this powerful force can be yet further enhanced by potentising it. He also referred to it as form of additional manuring. We can, from an anthroposophical-medical point of view, describe it as a typical medicine.

The preparations as a generic remedy

In the foundational book on anthroposophical medicine published in 1925*, Rudolf Steiner and Ita Wegman said that a medicine should not only address the illness, but must also “give support to the declining vitality”. “In cases of more serious illness, the organism is not able to generate sufficient vitality from the food it is processing. It will then be necessary to arrange the therapeutic treatment in

such a way that the organism receives support in this regard. This is certainly the case with the remedies typically given out by clinics and therapeutic institutions.” (GA 27, XIX, 99) And that is the problem we start out with today namely that we are not working with a normal living and responsive soil but one which has lost much of its vitality. Rudolf Steiner developed generic medicines for the anthroposophical pharmacy. To give an organism the vitality it needs it is often necessary to create compounds that bring together two polar opposite qualities. This is the case with Hepadoron, the liver remedy which is made from vine leaves and wild strawberry leaves. Here we meet a similar polarity to that between horn manure and horn silica. This concept of the generic remedy is precisely what we find applied in the agricultural preparations – remedies which can be used on virtually every farm.

To sum up, in the Agriculture Course Rudolf Steiner sought a connection to the future, to the healing spirit that comes from the future. He created the picture of an agriculture that would no longer exploit the earth ever more ruthlessly, but instead would contribute positively towards its protection and further development. It is an image of agriculture that is oriented towards life, the living and ultimately the nutrition of human beings. He was concerned to create protected habitats, he saw great value in the farm's internal cycle. He saw it as a living being and emphasised how important it is that nothing – the soil, waste materials, manure – falls out of the living realm but that on the contrary, the whole farm area is revitalised and surrounded with a skin that is open to the cosmos.

It was for a healing, living agriculture that he developed this new approach to fertilisation and created the preparations. The principles from which he developed his 'supplementary manure' – horn manure and especially horn silica – and from which the preparations arose, were originally developed for the anthroposophical pharmacy. What Pierre Masson described is therefore correct namely that in making the preparations the farmer becomes a pharmacist. The main objective of anthroposophical pharmacy is to stimulate the organism's own activity and not to replace or suppress it. The preparations also have this aim and mode of operation. Their effectiveness is enhanced through various potentising techniques that enable them to 'radiate' their qualities ever more strongly as inner light working to support and bring order to life in its surroundings, just as the sun does in combination with the forces of the planets.



Georg Soldner (Germany), Pediatric doctor, since 2016 co-director of the Medical Section at the Goetheanum

* Steiner, R. and Wegman, I. (2000). Extending Practical Medicine: Fundamental Principles Based on the Science of the Spirit. GA 27. 5th Ed. Rudolf Steiner Press, Forest Row.

Sovereignty and the preparations

Ueli Hurter

Preparation making as a craft

Without our hands there would be no preparations. If we do not make them, we cannot speak about them for they would not exist. They are not natural phenomena but cultural creations. How to make and use them can be learnt just as we can learn every craft. That is important. We gain sovereignty through our hands. Let us take this quite literally. Stroking a loved one cannot be delegated either. So I would like to call upon you to use your hands and make the preparations or at least the horn manure and then to stir it by hand for at least some of the time. Why this is so important is because the will flowing through our hands goes far deeper than our thoughts. The will is what is most intimate, most individual. It is connected with our destiny. To engage our will means making a commitment on the highest level. And it is through the will that we can connect ourselves in a deep, direct and individual way with what is happening on the farm and also with the processes of production and the food that leaves the farm. In our will we are asleep and the skills we practice over many years and perhaps decades shed light on the will. Peter Blaser said of this: *"The only truly appropriate way of engaging with the preparations is that of 'doing', i.e. making and applying them, working with them with a personal, present attitude."* This makes clear how closely the inner and outer aspects are connected, especially in relation to the will.

In summer we have our own cows at the Goetheanum. We make horn manure with our own cow manure. The horns are now buried in the winter earth. What is happening now in winter? The horn is no longer attached to the cow but is connected to the organism of the earth. The earth meditates in winter, she is awake, cosmically awake. This frosty-crystalline wakefulness radiates into the horn, penetrates its manure content and it becomes horn manure. What happens is something universal, but it is also something individual to each place from which the manure is taken. We can in this way create places, new power places, real places. Let us make the possible possible. It is important to bring sovereignty to the soil, to ground the impulse. To put the idea into action and to carry out the action as a deed.

Preparation making as an art

When should I spray horn silica? Seasons, crop development and star constellations can and should be considered when deciding the time to spray the silica preparation. But within this time dimension there is also individual freedom and independent sovereignty. Every time the preparations are applied, this is a new artistic creation occurs. It is a creation out of nothing. Rudolf Steiner summed this up in the form of a verse: *"The Stars once spoke to Man; It is World Destiny that they are silent now; To become aware of this Silence*

Can become Pain for Earthly Man; But in the deepening Silence there grows and ripens what Man speaks to the stars. To become aware of this Speaking can become Strength for Spirit Humanity". Being sovereign means that we can and should contribute. As a sovereign being I say: Yes, I can stand upright, I am reliant on myself. Transferring this to the farm context: Here is real place on the surface of the earth, it is the source of agricultural products, a place of primary production. Over time, such sovereignty becomes self-movement. In the sequence of seasons, during the stages of plant growth and in the circling of the planets, the one who is capable of self-movement can and should be able to respond.

Preparation making as inner work

The inner sceptic asks: Do the preparations work? How do they work? Scientific investigation can provide results. Practical experience from my farm and my own understanding can give me certainty. In concomitant spiritual scientific work, I can direct my precise, awake attention in an open way towards the preparations, each one and all of them, and allow the inner eye, the inner feeling, and the inner hearing concentrate on the preparations as on an archetypal phenomenon, as referred to by Goethe.

We can take for example the compost preparations. They are at first sight only tiny portions of substance placed in the compost pile. If we try to understand their role in the compost, we find that they are capacity builders. These capacities do far more than merely add substances. They can respond to the needs of a given situation – with 'reason' (stinging nettle preparation) or draw in missing substances from the terrestrial and cosmic surroundings (dandelion preparation) – What are all these an expression of?

They are the expression of an authoritative entity with capacities for learning and recalling what they have learnt. The ego is such an authority. An ego is able to produce something out of its own independent spiritual nature. An entity of this kind is sovereign. The preparations work to bring about a kind of 'ego-isation' in cultivated nature but also in human beings when they eat food.

We could say that on this level the preparations are concerned not only with fighting against the ecological pollution of planet earth, not only about producing healthy food, but also about fighting against the pollution of the 'I', against the paralysis of the 'I', against the hardening of the 'I'. Here the 'I' appears as the relationship between centre and periphery.

The preparations as a dynamic fertiliser

Sovereignty as it is described above means: I co-create. My place is a real place. My time is real time. The farm individuality becomes a reality. The products are inwardly buoyant



Blackboard drawing by Ueli Hurter

and allow me to be individual, free and engaged. These high, far reaching, culturally creative dimensions are contained within the preparations. It is hard to understand. They – the preparations – are hard to grasp. That is we try to compare them with other similar phenomena, where the relationship between the substance and its effect is equally astounding. And if we say that the preparations are like medicines, does that redeem the fact that I can hardly grasp them as manure, fertiliser or as preparations? Whole worlds open up when we declare them to be medicines and that it is also about healing the earth and human beings. Entering into dialogue with doctors and pharmacists can also be very fruitful.

We can also take a further step and see the preparations as sacraments. As substance compositions that serve to sanctify the earth and mankind. In some places that we travel to we experience the link between the preparations and religious traditions quite concretely. This reflects a need in many of us. This priestly, religious dimension to the preparations can also open new horizons.

But nonetheless I believe that the preparations are connected deeply with agriculture. Indeed there is perhaps nothing so deeply agricultural as the preparations – mineral, plant, animal aspects and the seasons are so mutually connected, they inter-penetrate and are brought together in one composition so that primary production takes place, products arise. In other words that they mature and emerge in a healthy way from the processes of agriculture.

As I see it, the medical and healing aspect is included, it is integrated in the preparation as a dynamic fertiliser. The healing of the earth is not an addition but is integral to the manuring aspect, it is part and parcel of it. The sanctification of the earth and her fruits, that is of the products we produce with the help of the preparations and sell as Demeter products on the one

hand and buy on the other, is not a cultural addition, but an integral part and consequence of using the preparations.

The simple work with the simple preparations, this kind of dynamic manuring which is totally integrated within the normal work on the farm – including collecting manure, picking dandelions, stirring silica – is a modern form of spiritually guided work. My experience is that this simple way of working with the preparations 'prepares' the flow of work through the year. Manuring is about much more than supplying nutrients. It also means more than enlivening in an organic sense. In the light of the preparations, manuring means cultivating, raising the entire stream of productive substances and forces to a higher level. To a level on which we can begin to work creatively out of our I-forces into the created world. The level which in earlier times was addressed separately with holy and sacred rites can today, with the help of the preparations, be more and more integrated into the daily work. This counteracts the increasingly monotonous routine work, by joining into it the element of a sacred act. Sovereignty, self-determination and independence originated in agricultural activity which is now penetrated by the preparations. As a result we can remain physically on the farms, because the work makes sense and nourishes us. We can return to the farms because there are moments when free artistic expression is possible. We can found new farms because the preparations throw into our daily agricultural work a ray of understanding and knowledge from the future.



Ueli Hurter (Switzerland): Co-leader of the Section for Agriculture at the Goetheanum; Farmer on the Ferme de L'Aubier. www.aubier.ch



Dandelion. Picture: Jean-Michel Florin

Memory and Conscience – Work on the Michael letter

René Becker and Jean-Michel Florin

Rudolf Steiner makes us aware of two special human capacities – memory, which is formed from the unseen traces that every sense perception leaves behind in the life body; and conscience, which arises from our unconscious and permeates us with moral content. It reveals itself in our wakeful state as the voice of conscience. How can such an understanding of the human microcosm lead to an understanding of the macrocosm of the earth? Does the agricultural organism have a memory and conscience like the human being? Can we help the agricultural organism to develop a rhythmic system?

The middle realm in agriculture

Unlike the human being which has its own middle or rhythmic system (breathing and circulation), the agricultural organism, according to Rudolf Steiner, has no true middle. It would seem though that the development of this middle realm is an important element for transforming an organism into an individuality. It should be noted that the rhythmic system of the human being is the result of continuous dynamic movement. We never stop breathing, never cease inhaling and exhaling etc. This system on a soul level is the foundation of our feeling life. It enables us to sense and weigh up whether something is right or wrong.

Is it not the task of the farmer in guiding the process of humus formation and applying the preparations to so enliven the diaphragm of the agricultural organism that a free and dynamic interchange becomes possible, that an independent middle realm comes into existence?

It is, to borrow a concept from Pierre Masson, our task to 'create a new earth'. Not only by bringing together a lot of organic material, but also by encouraging living and astral forces in the soil. The soil is in danger from two directions. It can become too 'head like' and sclerotic or there can be too much 'belly' when transformation processes take over, insufficient stable humus is formed and over-rampant growth occurs. The first scenario occurs when organic matter turns to peat instead of humus. Peat conserves all memories. Remnants of 10,000 year old pollen grains have been found in it. But new possibilities for the future cannot be found in peat. In the second scenario, the organic matter is too fresh, it holds no memories from previous years and rapidly becomes mineralised.

Biodynamic compost helps to bring an active middle realm into existence through the compost preparations. They allow polarities to arise. Chamomile for example as a metabolism-calcium preparation and dandelion as silica preparation, 'ambassador from heaven'. Or yarrow in polarity to



Dandelion harvest. Pictures: Charlotte Fischer

oak bark. Or again stinging nettle as middle, as rhythm preparation in polarity to Valerian as a periphery preparation. These polarities in the preparations can help to form a dynamic middle realm in the compost and then in the soil.

The middle realm in human beings

We generally think that good and evil exist as a duality. Steiner makes us aware that we are actually living between two polar forces which left to themselves lead to evil. There is also the good, the dynamic – continuously active, creative – middle realm between the two poles. These two powers that live in our human soul life are called by Steiner Ahriman and Lucifer. Ahriman is the one who seeks to cut us off from the past and declares that everything can be solved through reason. It leads to everything being calculated, standardised and mechanised. Over against this we have Lucifer who declares that in the past everything was better, that we as human beings could live in a beautiful holy world ... It means that on a social level we also move forward from a duality where one person is right and the other wrong to a dynamic search for truth and goodness in which the various tendencies can be integrated.

This polarity can also be experienced quite concretely in the production and application of the preparations. There is a tendency on the one hand for work with the preparations to be rationalised and standardised and to define very precisely how to make the best preparations. The danger here is that everything becomes rigid, fixed and cannot develop any further. On the other side there is Lucifer who says to us that if we have a great idea, all we need to do is to wish strongly enough for it without having to practically implement it. The preparations will work regardless of how they are made and applied or even if they are only thought of. The danger is that everything becomes arbitrary.

How can we take these two aspects and integrate them on a higher level into our work with the preparations? Steiner provides some help with the two capacities we can practice and develop for our work on the earth and with the preparations:

1. Strengthen memory. A good exercise is to do a 'Rückschau' (review of the day) each evening or once a week. Or in winter during the time when the earth is most crystalline. In doing this, we connect ourselves strongly to the past. On the farm, we will then be able to live more strongly within the stream of time, be more present and be able to sense what needs to happen next.

2. Learn to listen to the voice of conscience. This tiny voice can be heard best early in the morning. It can tell me what the agricultural organism is longing for, what the soil, plants and animals need. The best and most innovative ideas come in the early morning. That is how we can open ourselves to the future.

We can therefore say that the earth humanises us when we work on it and that we can humanise the earth when we work on it. The separation between nature and the human being will therefore be overcome by working for the future of the earth which is also our future.



René Becker (France): Biodynamic trainer, President of «Terre de Lien», General Secretary of the Anthroposophical Society in France.



Jean-Michel Florin (France): Co-Leader of the Section for Agriculture at the Goetheanum and coordinator and course leader for the Biodynamic Association in France.

Themed session on wine production

Jean-Michel Florin

During this forum on grape cultivation introduced by four keynote contributions, we collected future working themes together for the International Wine Producers Group.

Georg Meissner, a scientist, first of all shared some impressive results from his research in Geisenheim about the preparations and their effects. He found for example that if horn silica is applied correctly and intensively, it can regulate the vegetative forces of the vine (the shoots etc. are shorter) and this has a direct effect on the health of the vine. Adriano Zago, consultant from Italy, focused particularly on the moral attitude of the advisor when accompanying the vine grower. The advisor needs to awaken enthusiasm in his clients, leave them completely free as to how they work with the preparations and at the same time help them to really experience them. Exact recipes for using the preparations should be avoided.

Peter Jakob Kühn, wine producer from Germany, gave a lively report on his connection to the preparations. He said: *"After I had gained an initial understanding of biodynamics, I sought through my work with the preparations to take this connection a bit further. The preparations were the means for achieving this. It was something that also worked in a practical sense. I wanted my relationship with biodynamics to not only be a beautiful thought but something that I could work with. My aim was not only to apply the preparations, but to come a step closer to them through the process of my own activity. The hour spent stirring the barrel with a broom allowed everything else to fall away. The longer this rhythm of spiralling and breaking apart continued, the more I felt myself drawing closer. It is a closeness that we can feel ourselves and which we can help our vineyards to feel. And not only through our thoughts but through our physical work and energy, too. Finding this moment to breathe out, finding a moment of stillness has become important to me. Each person must find their own way to reach this closeness. But it is important to find it for only then can something happen"*.

Patrick Meyer, a wine grower from Alsace, reported on his research into the potentiation of substances for agriculture. Wine growers use a lot of sulphur whether on the vine against mildew or when making wine. Patrick Meyer found his inspiration through an intensive study of Rudolf Steiner's Agriculture Course as well as 'Agriculture of Tomorrow', the book by Eugen and Lili Kolisko. He then set up a series of trials with potentised sulphur – from C1 to C60. He discovered when making wine that with a potency of C4 and C5 the wine kept better but becomes broader and more or-

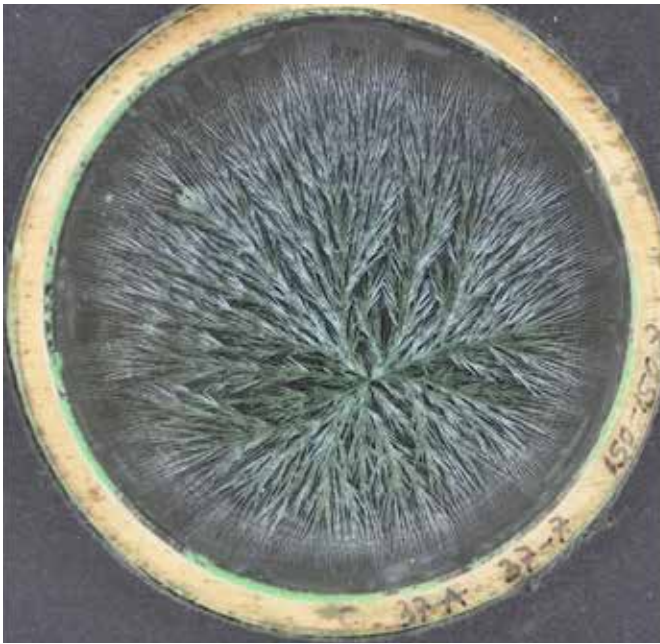


ganic when it is tasted. The wine gets harder with C27. But only with a dilution of C41 is the full specific quality of the wine retained. These results were also tested and confirmed by Jürgen Fritz using sensitive crystallisation. Patrick Meyer would like to encourage his colleagues to try out some dilutions too, for example potentised sulphur and copper to control fungal diseases. A lot of research is needed, and wine growers can also do a lot of research themselves.

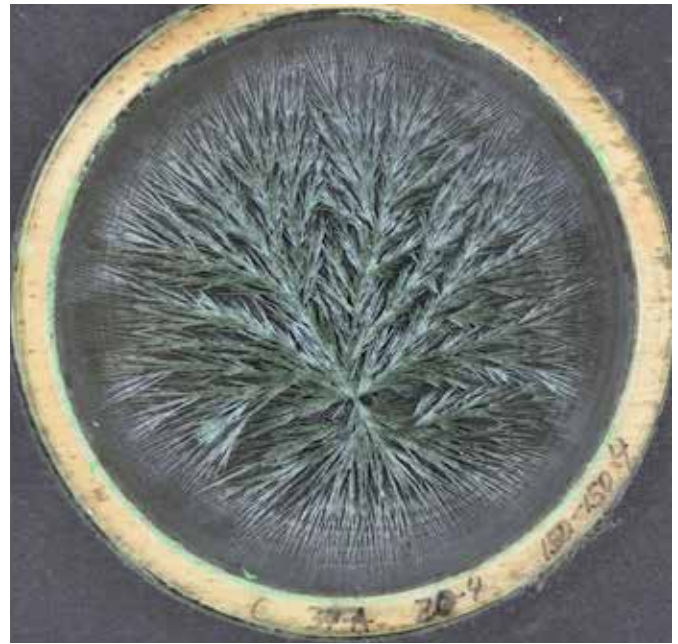
The main themes taken up by the International Wine Producers Group are:

- Nutritional quality
- Quality of the preparations
- Questions of landscape design and the inclusion of animals in vineyards
- How can the results of biodynamic agriculture be more easily perceived?
- How can the essentials of biodynamics be cared for so that it is not merely a technique?
- How can the anthroposophical aspects be deepened?
- Development of personal connections and individual capacities
- How should biodynamic agriculture be communicated?

Whoever is interested in working with the International Wine Producers Group should contact the Section.



Winter wheat with preparations



Winter wheat without preparations. Pictures: Gaby Mergardt

Themed session – the effect of preparations on food

Jasmin Peschke

The effects of the biodynamic preparations were described in many different ways during the conference. Yet how can we measure these dynamic cosmic-spiritual qualities in food products? The well-known English cook Wendy Cook says: "We are living in a world that grows ever more virtual. How can we have confidence in our ability to distinguish between what is true and what is false? For me it requires a continual effort to train and refine my powers of perception."

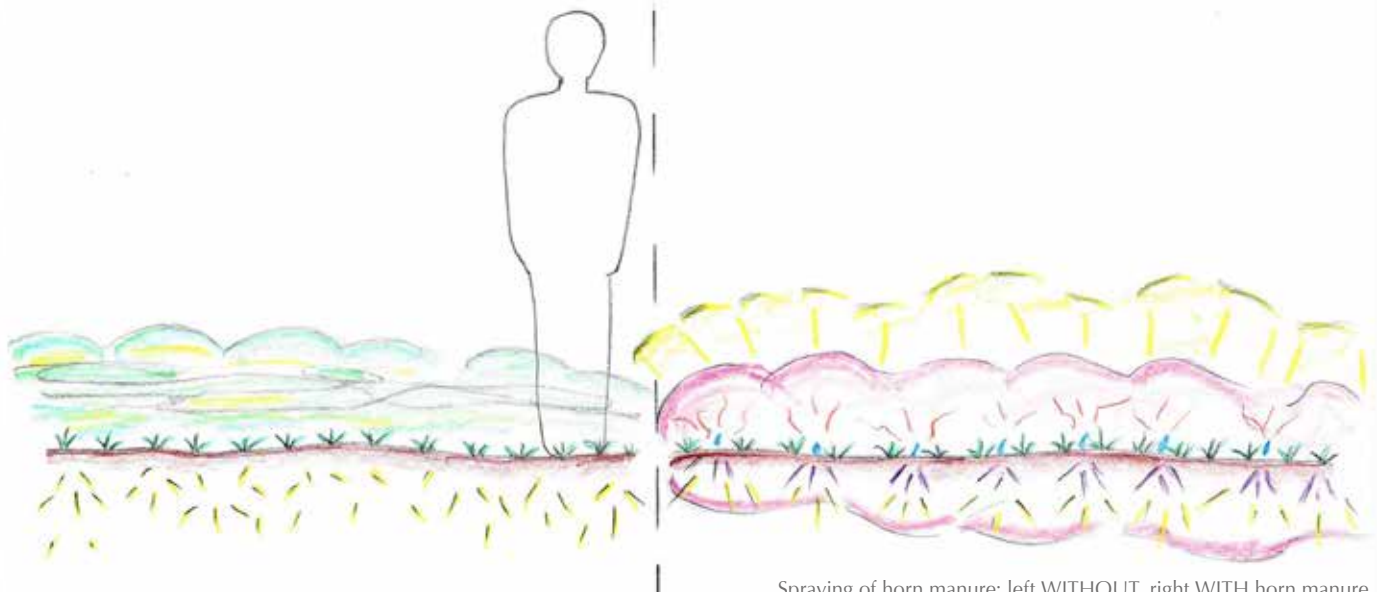
It is about perceiving the full quality of food. Beyond the analysis of desired (e.g. secondary plant compounds) and undesired (pesticides, toxins etc.) substances is the investigation of vitality using for example picture building methods, an overview of which was given by Richard Swann. Gaby Mergardt from Kultursaat e.V. showed how only by broadening the analytical approach and considering the wider context, will it be possible to evaluate the copper chloride crystallisation pictures in a true way, just as we cannot recognise a word by simply looking at the individual letters. In the Kwalis Laboratory in Germany, Dr. Peter Stolz and Dr. Jenifer Wohlers are able to distinguish different qualities in blind trials using the biophoton technique. Wheat as well as calendula seeds show greater maturity in the biodynamic samples while the conventional samples

emphasise the growth process. And according to Jenifer Wohlers' own results, "horns have a measurable effect on milk". When comparing different poultry management systems, the eggs from Demeter hens can be clearly recognised.

Hermann Spindler, a chef in a clinic, asks three questions to his patients: What does the food look like? How does it taste? How does it affect me? This exercise in awareness raising is the first step towards healing problems such as overweight and allergic reactions. This brings us full circle. Training the capacity to observe is the key to gaining a comprehensive understanding of a product, its quality and its effect. Other methods such as sensory observation, formative forces research or perceiving substances which don't need tools, were not considered during this afternoon but certainly belong to the theme.



Jasmin Peschke (Switzerland): Diploma in home economics/nutrition science. Involved with anthroposophy and nutrition for more than 30 years. Develops the Coordination Centre for Nutrition within the Section for Agriculture at the Goetheanum



Spraying of horn manure: left WITHOUT, right WITH horn manure
(Markus Buchmann)

Themed session

The effect of preparations on soil fertility

Ueli Hurter

Drawing on the long-term fertilisation trials in Darmstadt, Meike Oltmanns gave a picture of the complex nature of this question. What was most noticeable to the eye and clear to all those participating, was the much darker coloration of the soil in the biodynamic plots. The scientific formulation of this result reads: "The application of composted manure and biodynamic preparations leads to increased the yields under unfavourable conditions as well as a more finely distributed root system."

Manfred Kränzler gave a richly illustrated and enthusiastic report about his experiences with the preparations on his mainly arable farm in southern Germany. Despite the land being split into many small plots with some fields a fair distance away, the preparations are used intensively on this small farm. Referring to one of the corn fields that he had treated with the preparations, the farmer spoke of a definite 'vertical force'. That the soil is able to transform its fertility into a crop of grain and straw is facilitated by the preparations.

Markus Buchmann described experiences from his formative forces research. Horn manure in storage shows little force activity. Only when it is stirred it does awaken, open up and connect with the elemental forces in its surroundings. As soon as the first sprayed droplets reach the ground a whole tapestry of living forces appears (see drawing). This effect grows and increases in depth and height during the succeeding hours. By the next day, the etheric aura of the treated field appears totally transformed. "The skies above the field appear to imaginative vision as a cathedral of light out of which forces from the cosmos stream deep into the soil giving it a renewed structure".

"Research into subtle influences in the agricultural individuality" was the title of the contribution from Cornelius Sträßer. This methodological question is very pertinent to the preparations because experience shows that unlike the more ob-

vious effects, subtle influences are very difficult to assess in the context of agricultural research. Apart from this, there is the question of how the experiences made within the context of the farm and of the farmer, can be reflected within more systematic research. We can all too often experience how the results of precise trials diverge strongly or even oppose one another and that means values lack relevance. This could be connected with the fact that the 'agricultural individuality' needs to be taken very seriously. This is why the individual farms do not respond to the subtleties of the preparations in a uniform way but instead display a certain freedom in their reactions, just as human beings react in a differentiated way to homeopathic medicines. How is it possible in the face of such individual differentiation to produce credible results in a systematic way? The solution could be to look at individual case studies in relation to a specific research question (for example the effect of the preparations on soil fertility) and create a scale of relevant parameters against which to compare. According to the given situation on each individual farm, a value is allocated that determines the position of each farm on that scale. The allocated value can then be correlated with the results of a particular measure (for instance preparation applications). It would then mean that a clear statement could be made even when in relation to the preparations contradictory results appear. This approach drawn from the 'logic of individuality' would need testing in practice. To this end a research programme was sketched out for implementation by many researchers and practitioners.

A concluding discussion involving both field experts and researchers demonstrated very clearly that the question of how the preparations affect soil fertility has occupied the lives of many for decades and that how even the smallest of answers received in relation to the big questions provide stimulation for new applications and new research.



Picture: Michèle Pantalacci

Themed session

Biodynamic herb production and the preparations

Michaela Spaar and Bettina Billmann

This professional forum was formed by the international working group on herbs and medicinal plant production that was founded in 2017. Its aim is to provide a platform on which the various projects concerned with the biodynamic production of herbs and medicinal plants can meet. Each of the three contributions to this forum addressed the question of herb quality.

Torsten Arncken, who is engaged in medicinal plant research at the Goetheanum, took the example of Herb Bennet (*Geum urbanum*), a common weed in many gardens, to show the qualitative differences that occur when it is under the influence of calcium or silica – in the sense of the principles described in the Agriculture Course. The unique quality of this fever dampening medicinal herb is found in its root which smells strongly of cloves. The approximately 80 participants could immediately detect the differences from samples of root.

Out in nature Herb Bennet likes to grow in the half-shade on compacted soil. In this situation it typically develops small roots and a strong aroma. Just a few meters away on a cultivated field, it will develop much larger roots but its scent will be very weak. In its natural habitat the calcium quality dominates while on the field there is a silica quality. If the latter is encouraged, the calcium quality declines – it means the yield is greater, but the medicinal effect is weaker. In crop cultivation it is therefore worth weighing up which qualities are desired. One's own sense perceptions play an important role in coming to the right judgement.

Michael Straub, who manages Weleda's medicinal plant garden near Schwäbisch-Gmünd (Germany), described his experiences of biodynamic medicinal plant production. He indicated how, when growing medicinal plants, the aim is not the highest yield but to ensure that it grows true to its own

nature – it should not be 'driven' by excess nitrogen. This – and the application of preparations – generally ensures that more of the essential therapeutic qualities of the plant are developed. This is true particularly for the wild plants which are increasingly being taken into cultivation. It has become more and more difficult in recent years to obtain high quality material for the pharmacy through the wild harvesting of herbs. The kind of effect which the preparations – and especially horn silica – can have on the biodynamic production of medicinal herbs, was demonstrated by Michèle Pantalacci, a herb and etheric oil producer from Corsica using the example of *Helichrysum italicum* (Curry plant). In a trial he divided a plot of curry plants into two sections. One half received repeated applications of both horn manure and horn silica preparations, the other half only horn manure. All the plants were then harvested on the same day and separately distilled. Some 30 people then assessed the qualitative differences between the two in terms of their scent. The two variants showed significant differences: The scent of those without horn silica felt heavier, shallower and more uniform. Those which had received horn silica were finer, more differentiated and more airy. The quality of the etheric oil could be significantly enhanced by using horn silica. The section of the field to which horn silica had been applied also appeared more healthy, the plants grew more upright and more directly orientated towards the sun – as if they had become more receptive to the light. From Pantalacci's perspective, the preparations had brought the plants closer to their true nature. During the small group discussions after the lectures, participants were asked to collect their research questions. These will then be evaluated by the working group. It became very clear that a lot more research into medicinal herb production is needed.



Working with biodynamic preparations in an urban food growing context

Peter Kearney and Bastiaan Frich

Reflecting the global nature of the conference, people from 6 countries attended our workshop and one participant very kindly did translations. The workshop had two facilitators, Peter Kearney from Brisbane, Australia and Bastiaan Frich from Basel, Switzerland. A lengthy experience of urban agriculture came together with a deep understanding of biodynamics.

The World Cafe approach used in our workshops soon proved its effectiveness in opening the hearts and minds of participants. We started with a very open question on the first day: “How do we feel about working with biodynamics in an urban food growing context?” We broke into groups and worked through this question and allowed everyone to express what came to them in that moment. Next day we went in pairs on a “dialogue walk” for 30 minutes. By the third session, a pattern had developed and some very clear conclusions had emerged around inner attitudes and practical approaches. These can be summarised as follows:

Individuality

Working with the individuality of a garden or farm in an urban setting requires a different understanding of an organ-

ism because many of the required inputs cannot be sourced from within the given growing space and an appropriate balance of animals is very difficult to achieve. Our conclusions were that it is necessary to:

- Extend the boundary of the farm or garden organism to include the neighbourhood or city, by for example using green waste sourced from the neighbourhood to make compost or coffee grounds from the large number of cafes in a city to grow mushrooms.
- Transform external inputs on the garden site using biodynamic preparations – for example by treating externally sourced organic matter with the biodynamic compost preparations.
- Use internal inputs as a resource for food growing and enhance them with biodynamic preparations, by for example turning weeds from the garden into a liquid fertiliser.
- See the gardener as the primary vehicle for the garden individuality and the biodynamic preparations as an ideal conduit for bringing the higher consciousness of the gardener in connection with the earth and the plants.



Pictures: Peter Kearney

- One can work with smaller animals such as chickens, and create habitats where native beneficial insects and wild animals can find a home and be part of a balanced ecosystem.
- Engage in community outreach.

Even though cities are full of people, it was recognised how challenging it can be to draw people out of their busy lives and interest them in growing food enhanced with biodynamic methods. In conclusion we agreed to:

- Create localised groups to support the experience of growing biodynamic food, improve accessibility and develop the cultural impulse of local food.
- Get people practically involved with biodynamic preparations as part of an urban food growing experience, enjoy the experience and then seek knowledge, i.e. start with willing, followed by feeling and then thinking, rather than engaging too soon in the sometimes challenging concepts of biodynamics.
- Tap into green cities movements where urban dwellers are being encouraged to get involved with healing the earth and having healthier cities.
- Create opportunities for the community to link up with commercial scale urban food production where biodynamic preparations are used.
- Develop ways to measure the success of growing biodynamic food in urban environments so that local case studies can be shared and further development be encouraged.

- Engage children through activities and stories that connect biodynamic practice to nature.

Attitude

It was recognised that the consciousness of the gardener or farmer forms a vital part of work with biodynamic preparations. Developing this “inner gardening” attitude means:

- Being open about the consciousness behind biodynamic practice whilst following an accessible approach to biodynamic practice in terms of willing, feeling and thinking.
- Using the biodynamic approach to grow food in cities, was a useful method for healing the soil and oneself, strengthening one's sense of responsibility.
- Recognising the contrast between the intellectual and physically hardening approach of conventional agriculture and the freedom, mystery and love for the earth that arises through biodynamics.
- Developing a heart-centred thinking approach to bring about an appropriate level of sensitivity in biodynamic practice.

Our workshop had a wonderful collection of people from many countries with diverse skills and we shared the same passion of wanting to get biodynamic preparations and biodynamic practice more widely used in the urban context. It was an inspiring experience!

Biodynamic preparations in tropical and arid climates

Angela Hofmann and Andrea D'Angelo

During the first session Andrea described her work with the preparations in Brazil. In the second session, Angela presented SEKEM's approach to the preparations in Egypt. On the third and final session, both shared the social aspects of making and applying the preparations in their respective countries.

Our workshop group was very international with participants coming from 10 different countries, several continents and with diverse climates and soil conditions. We were also mixed as regards age, biodynamic knowledge and many other things.

The two presentations about work with the preparations in Egypt and Brazil, gave a balanced picture of both the success of the work and the challenges that come with it. Such challenges include for example the various animal organs needed for the preparations and whether to use local materials such as water buffalo horns or camel skulls. Another challenge was how to store the preparations in a very dry or very humid environment. It was very interesting to discover that even though the two countries are so very different (e.g. Brazil's annual rainfall can be up to 1,800 mm, while in Egypt it can be as low as 5 mm), there are many similarities as regards the successes and challenges being faced. It was very impressive to learn about the dedicated work being carried out in the two places that are so far away from the geographical origin of anthroposophy and biodynamic agriculture.

In the presentation about the social aspects of working with the preparations, we saw that great efforts are being made to make work with the preparations accessible to as many farmers as possible. In Egypt, SEKEM makes the preparations for its own farms as well as for a wider network of around 130 farmers. In Brazil, the Biodynamic Association is trying to take the making of preparations to the farms by arranging communal preparation-making workshops.

In both places, school students visit the farms on a regular basis to work and learn about the preparations and agricultural practices. The children are very enthusiastic and have great fun joining in. In both countries a lot of effort is also put into educating the farmers. In Egypt, SEKEM offers many courses to uneducated farmers and in Brazil the Biodynamic Association provides a formal learning session after each workshop.



Picture: René Piamonte

It appeared that both places had to find a balance between being true to the biodynamic approach, both technically and socially, with the need to respond to local conditions and qualities. A good example is of growing valerian in both places and having it flower and produce seeds. In Brazil they are researching ways of helping the European variety adjust to the local environment while in Egypt they are investigating whether local plants can be used as substitutes. The workshop leaders Angela and Andrea created a space – between Egypt and Brazil – in which we could all ask questions, make contributions to the discussion and then try to take that knowledge back into our own work at home. The workshop lived between so many polarities – arid and tropical, social hierarchy and equality, success and challenge, enthusiasm and thoughtfulness. And among all these polarities we found our workshop's rhythm.

Written by Revital Takomi from Israel



Chamomile



Yarrow. Pictures: Jean-Michel Florin

Towards an understanding of the preparation plants

Workshop with Jürgen Momsen and Jean-Michel Florin

We have been working with the herbaceous preparation plants – dandelion, chamomile, yarrow, valerian and stinging nettle – and their task on the farm.

On the first day, we began by drawing seedling plants of yarrow and chamomile under the guidance of Torsten Arncken and then experiencing their scent. In a third step, we tried to sketch the various scent impressions using coloured pastels before then describing them. Later on, the scent of the flowers was also transformed into similar sketches. These resulted in quite new and colourful impressions and strong experiences of these well-known medicinal herbs.

On the second day, we formed ourselves into so-called 'expert groups' for the five preparation plants – five groups were created who were charged with the task of understanding the morphology and development of one preparation plant each, using prepared plant material, and then sharing what they had discovered with the other groups. So we presented ourselves and the plants to each other and compared them step by step in terms of their leaves and leaf metamorphosis, shoot and root development, and the development of their flowers and seeds.

On the third day, we sought to arrive at a complete picture of the plant from the various single features: We addressed

dandelion, chamomile, yarrow, valerian and stinging nettle individually and asked what they wished to say to us. We then changed our focus away from the plant itself to the context of their environment and the landscape in which they grow. Where do the preparation plants grow on the farm, which work do they represent? Chamomile occurs on the field and in the garden where intensive soil cultivation is carried out. Dandelion belongs to the meadows and pastures that are well manured and have an intense grazing regime. Yarrow occurs on the open herb-rich grasslands with more extensive grazing. Valerian is found in moist areas with plenty of water available. The oak belongs to the permanent woodland and hedgerows. Wherever there is plenty of humus, adequate moisture and sufficient shade, the stinging nettle will make itself at home and engage in its task of working raw loose humus into the soil. Each one of these 'soil healing plants' therefore has its own specific habitat and allotted task within the farm organism.

Even more exciting questions will arise if we try to introduce the preparation plants into a large farm in the process of conversion or to an old traditional vineyard. What gifts do they wish to bring? What do we need to change and how in order to make it possible?



Stirring equipment, exhibited during the conference. Picture: Dominique Massenet



Preparations exhibited at the conference. Picture: René Becker



From the exhibition, put together by Uli Johannes König. Picture: Verena Wahl



The "preparation-mobile". Picture: René Becker



From the exhibition on biodynamic preparations. Picture: René Becker



Stirring preparations with Walter Stappung. Picture: Heinrich Heer



From the exhibition. Picture: René Becker



Horn manure and silica preparations. Picture: Feuervogel Genossenschaft

The Economy of Agriculture – between farm individuality and global economy

Forming relationships and creating values through biodynamic agriculture

What is the task of agriculture within local, regional and global economic life? What is its task in relation to nature and the resources it uses? What responsibility does it have towards the people it is feeding? Is there a specific biodynamic approach to agricultural economy? “The Economy of Agriculture” is a theme that should challenge us to look more closely at the issues, understand them better and work more collaboratively.

The farm is its own small economy. The biodynamic farm is particularly focused on meeting its own requirements and attaining a certain degree of self-sufficiency. Do we understand clearly enough why the biodynamic farm must necessarily aim to become agriculturally and economically self-sufficient? Where does the sustainable soil productivity of the biodynamic farm come from?

The farm is also embedded in a regional economy. Not every farm is able to store its own grain, mill its own flour and make bread with it, nor can every farm have its own dairy or farm shop. By far the greater portion of all Demeter and organic products reaches the consumer via a production chain that involves the division of labour. Over the last decades numerous ways have been found to enhance cooperation between farms, food processors, wholesalers, retailers and the various voluntary organisations that share similar values. The beginnings of associative working has come about in many different places. Associative economics is a sister impulse of biodynamics. Together they have formed a strong socially formative impulse over the last 30 years which has made a significant impression on the developing organic specialist market.

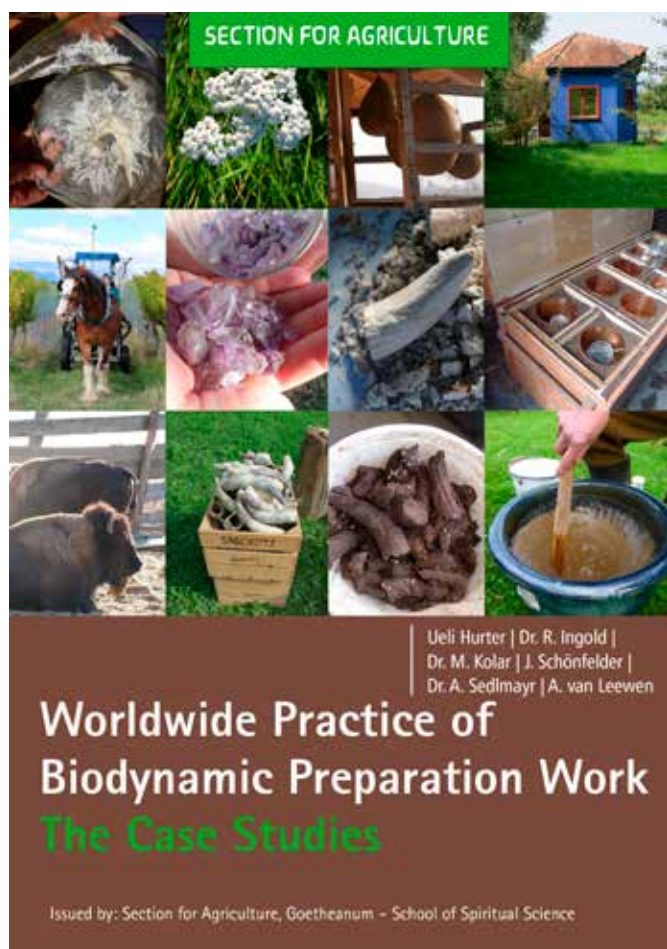
Dramatic developments have occurred in this field over the last three years. Organic and increasingly also Demeter products have found access to commercial trading channels. One speaks of the ‘conventionalisation’ of the organic market. How do we respond to this development? Can we take a further step towards an associative economy through the regional trading of organic and Demeter products? Where

could we begin? What prototypes are there for creating the right price, building a conscious link between producers and consumers, financing enterprise and addressing the question of property ownership?

Various forms of farm processing and direct marketing exist. From the very beginning, a signature of the biodynamic movement has been its conscious and economically necessary engagement with consumers. New approaches including community supported agriculture (CSA) are continually being developed. In this field, many exciting and stimulating stories from all over the world can be told.

The biodynamic approach is universally applicable, can be taken up in all regions, climatic zones and cultural contexts and yet leads to the individualisation of the farm. We are called upon not only to think and act regionally, but also globally. The basis of production is not only one's own farm but the whole earth as a living being. It is not only our own hunger we must satisfy but the hunger of everyone on this earth. What is our contribution to the problem of world hunger? How can we help to reform the world's food system? What needs to be done to ensure that organics provides nourishment to the world rather than simply filling stomachs?

It is becoming increasingly apparent that agriculture is not only about the primary production of food. It also affects our drinking water and the climate. Agriculture has an ecological reach that extends way beyond the specific places where it is practised. How far have we come in implementing the concept of ‘true cost accounting’? It is something that applies not only on an ecological level but on an economic one too – the living organic and biodynamic economy of agriculture serves to counterbalance the resource consuming activity of industry. To measure agriculture only in terms of its contribution to GDP is to misunderstand its overall economic significance. Is it possible to acknowledge and express the contribution that agriculture makes to the whole economic system?



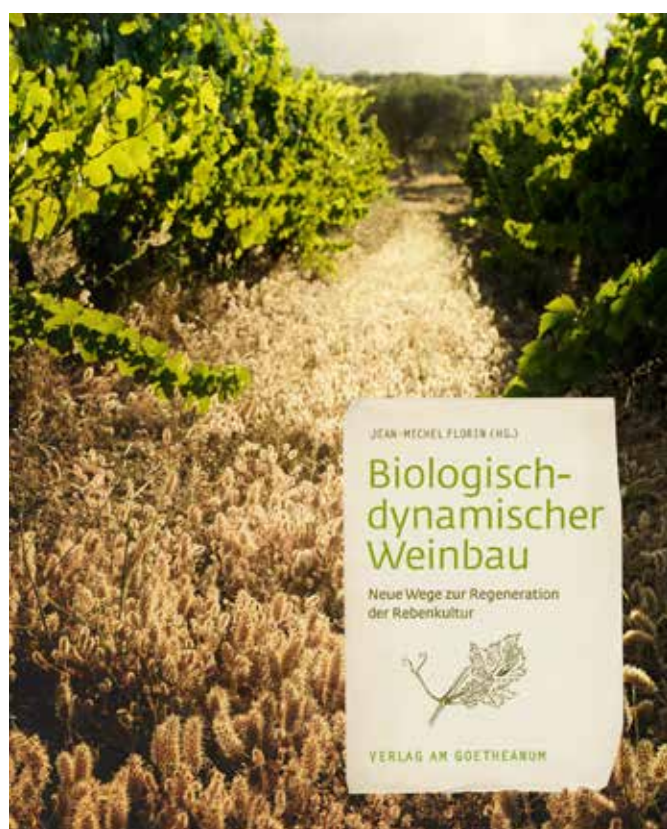
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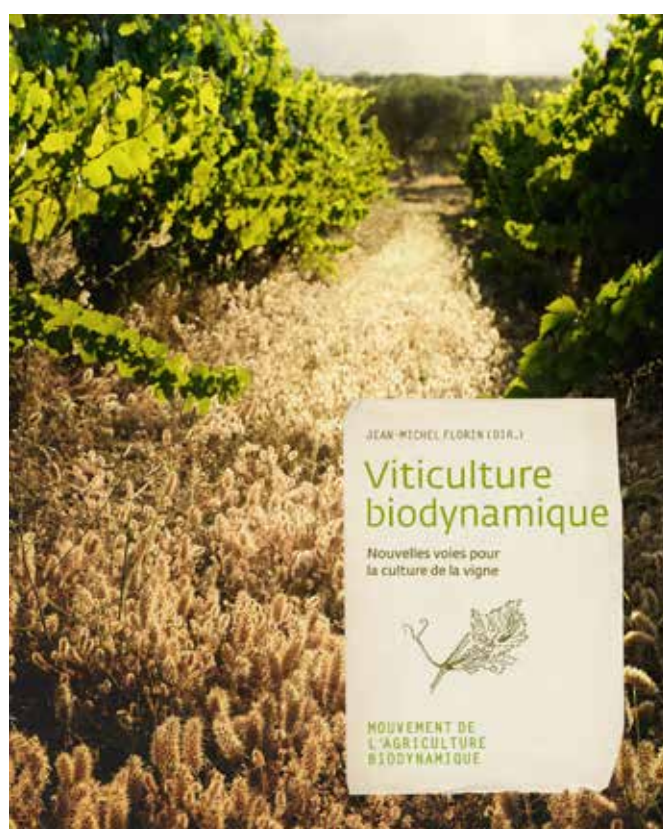
The Economy of Agriculture

What kind of economy does
biodynamic agriculture need?

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