

The Farm Between Earth and Cosmos

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How does the farmer reconcile freedom of action with the demands of nature?

These days, farmers and gardeners feel they have no freedom, no room for maneuver. Globalization, biotechnology, the internationalization of legislative frameworks and production oriented to the world market force the producer into total spiritual, legal and economic dependence. Is there a way out of this?

If we refer to anthroposophy and the Agricultural Course, then the way out of our plight is clearly marked, but only if we are determined to clear it ourselves. This resolve to clear the way ourselves is an impulse out of our freedom, which is a fundamental part of biodynamic cultivation. This becomes evident when we look at the relationship

between earth and cosmos and how the farm, managed by the farmer, sits in this polarity. What is the farmer's task and what opportunities open up for free action? The answer to these questions releases the power of new ideas and the forces of courage, for which there are no more barriers, no insurmountable obstacles or hard necessities.

Earth and cosmos

Let us first of all look at our conventional concept of the earth and the cosmos. Astronomy and modern astrophysics present a scale from sobering to devastating. Since the discovery of spectral analysis by Kirchhoff and Bunsen in 1859, this earth cosmos polarity, as seen by the casual observer, disappears. Spectral analysis has created the foundation for the only currently accepted view: that the cosmos is nothing other than a continuum of physical matter. Viewed from the earth, the cosmos is an extension of the earth – matter in varying degrees of denseness. Viewed from the cosmos, the earth is a speck of dust among many

others in the universe. This means that we cannot talk of an earth cosmos polarity in the continuum of matter. However, human consciousness had to reach this dead end in order for man, in his individual struggle for knowledge, to find a new approach to the earth and the cosmos.

Human consciousness has evolved from the time of the Mysteries, when mankind felt itself within another polarity, the polarity of macrocosm-microcosm. Anthroposophy gives a new insight into this. The idea of the macrocosm embraced everything, heaven and earth as a unity. In contrast to this, they were persuaded that the human being is a microcosm because he draws together into himself all that the macrocosm contains. Thus, the human being stands as a microcosm between heaven and earth. He draws both together in his being, and through his microcosmic self knowledge can develop the faculty to break through to a macrocosmic knowledge of the world. Spiritual science provides the results of such knowledge of the world. It shows how the earth cosmos polarity has only developed in the course of human evolution.

As farmers, if we place our work into this cosmos earth polarity and work creatively with it, then what task falls to us now and in the future? Are we only creatures of this polarity, like stones, plants and animals, or can we be creators at the same time? What is the path from creature to creator? How can we become aware of our position as creators? These are the questions I would like to focus on next.

Let us try to get closer to the earth cosmos polarity. Nowhere do we see the earth or the cosmos on its own; we always see the result of the interweaving of the two. Nature around us is cosmic and earthly at the same time in all its forms and appearances. However, what the earth is, what the cosmos is, is not evident. Nonetheless, with everything that our sight presents to our soul via the senses, we may ask, what is an expression of the working of the cosmos, and what is an expression of the working of the earth?

Rudolf Steiner draws our attention to this approach in the Agricultural Course. He does not describe the cosmos as cosmos in contrast to the earth as earth. He challenges us to recognize the appearances: what points towards the working of the cosmos and what points to the working of the earth. A crucial sentence in the second lecture of the Agricultural Course runs, "This is the ABC of the matter: that you can always say, what aspect of a plant is cosmic, what aspect is terrestrial, earthly?"

The sun

The peculiar thing is that we can have the most intense feeling of the pure cosmic element when the sun is not in the sky, when we look up into the heavens at night, sown as they

are with stars. Then we may feel as if we are removed from the earth. During the daytime, when the sun is in the sky, we feel that we are far removed from the cosmos and are most intensely connected with the earth. The sun blinds us when we look up at it and extinguishes the whole starry firmament with its light. It points us towards the earth, and our gaze falls especially on the plant world. This is situated right in the middle, between the mineral realm, which tends more towards the earth, and the animal realm, which carries the cosmic element as its soul nature on the earth. The animals, according to Rudolf Steiner, are guests from the cosmos on the earth. In the plant realm in contrast, the constantly changing relationship in the interplay of the cosmic and earthly forces reveals itself in a unique way. This is demonstrated through the most elementary example of a seed that lies in the earth, whose roots grow vertically down into the darkness of the depths of the earth and whose shoot, on the other hand, grows vertically upwards towards the sun's rays.

Therefore, if we look at the plants in this way, we may say the cosmos is represented through the central star, the sun, in its position vis-à-vis the earth. If we speak of the cosmos, we speak of the sun; in the sun everything is gathered together, be it the workings of the wandering stars or those of the zodiac, the fixed stars. When we look at the plant world, the earth sun relationship is manifested in the purest form. This is the path of knowledge which Zarathustra first pointed out in the Old Persian epoch, when we see the origins of agriculture. This path has been followed up by Rudolf Steiner in the Agricultural Course in a way fitted to the present times as a result of the metamorphosis of consciousness through history.

Fourfold sun

First sun force

So with the plants, where can we find the workings of the sun, and where the workings of the earth? If we first look at the workings of the sun, we can see that there is not one kind of working of the sun but rather a fourfold working. The first elementary working of the sun is that everything around us is bright, the sun is closer to us where it shines than up in the sky. The sun makes things visible, yet we cannot see the sun itself: only its effect in the earthly realm. It radiates through the colors into the corporeal, the physical material element of the earth. On this elementary level of the working of the sun, sunlight floods over all of life in the world; on the one hand, it makes visible the border areas between earth and cosmos, e.g., the surface or the shape of a leaf. On the other hand, it allows us to recognize, in the abundance of forms, how everything is interconnected.

We have these connections immediately before our very eyes, when we look across a field of crops, when we stand at the edge of a forest or follow a swallow's flight through the air, or see a bumblebee disappear in the clover blossom.

If we take in these impressions as our own inner experience, then we notice that the picture we make is drawn from perceptions and thoughts; a picture in which cosmos and earth are united in an act of microcosmic cognition. This picture arises through a creative inner process in which earthly perceptions are illuminated cosmically through the light of our thoughts. Through becoming aware of this experience of an inner picture we can now understand why the sun is so close in the place where it shines. What appears to our eyes has an immediate relationship with what lights up as a thought in our consciousness. It reveals an endless weaving of interconnections in the light of thought, seen as it is in the mirror of the world drenched in sunlight. This experience will then lend a concrete meaning to the concept of 'wisdom', a concept that nowadays has become so devoid of content. Wisdom has hardened into forms and has spread out in space. The experience of wisdom in human consciousness is illuminated in our thoughts by sunlight.

Second sun force

There is also a cosmic life producing force living in the light of the sun. Wherever the sun shines, its light falls on the plant, it brightens it up and warms it. It vanishes into the leaves, allowing the leaves to change their shape and new leaves to come forth in the rhythm of day and night. The plant grows to fill out its proper shape. Something lives in this **second way of the sun's working** which not only makes visible the wisdom-filled order, the adornment and the beauty of the created world. In creating this order, it combines various substances according to the harmonies of the spheres in such a way that they become able to sustain life. In this there is a living wisdom, which manifests itself as time. Through rhythms, wisdom allows life to appear as a process of time and time to appear as a process of life. Wisdom allows each organ of the plant to unfold in a measured way in relation to the whole and to transform itself. This 'second sun' will also reveal itself to our contemplation. By its very nature it is intrinsically related to the thought that lives in the looking.

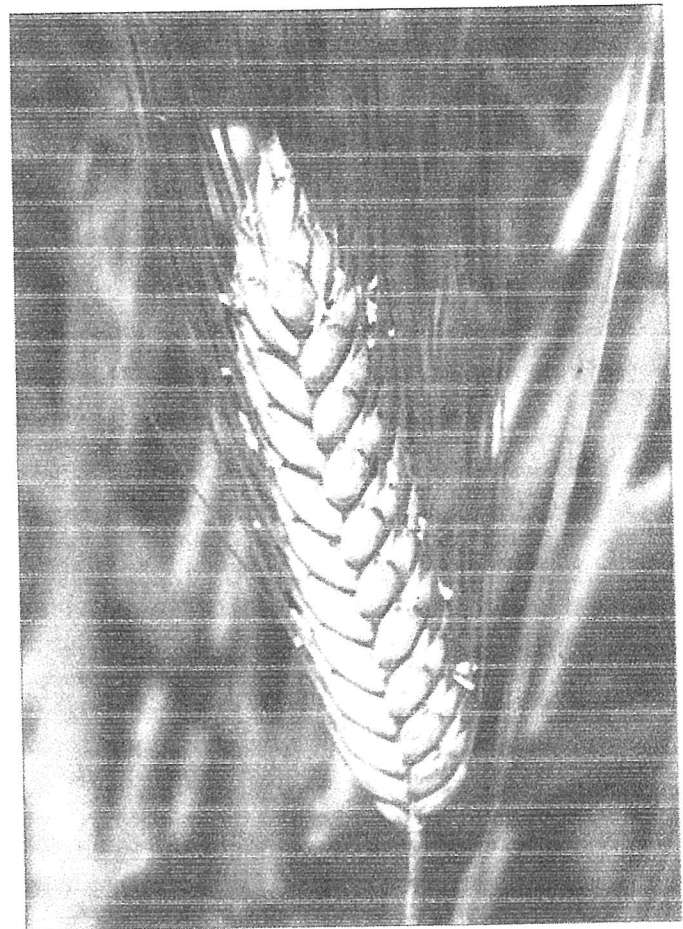
Third sun force

There is a **third kind of sun** at work on the earth, a still higher principle, which works creatively, removed from view. It touches our soul experience, our feeling life, in an immediate way. There are the colors, for example. The

green of the leaves is an expression of the sun's working. The red, the white, the yellow and the blue of the blossoms are an expression of the working of the outer planets, Mars, Jupiter, Saturn, whose rays the sun sucks in and which then work down on the earth, united in each of the sun's rays. Something lives in this third sun in a hidden way and radiates right through the whole plant, giving the leaves their form and shape: the form of a yarrow leaf or stinging nettle leaf, bringing about the ordering of the leaves and their metamorphosis or, for instance, the specific shaping of the root. The totality of the plant organism develops under these life shaping forces of the third sun. In the same way as with the colors, the third sun manifests itself through the scent of the blossom, the taste of the fruit. Here too wisdom comes to life in the picture of the plant that reveals itself to contemplation and thus to immediate experience.

Fourth sun force

The working of the 'fourth sun' makes the plant into an earth sun plant in the real sense. That power of the sun encompasses the earth and the cosmos in a macrocosmic way. Through it the root strives vertically towards the center of



the earth and the shoot grows up vertically towards the center of the sun. That all encompassing power of the sun goes right down into the tip of the root and right up into the seed. This is the highest, the most hidden working of the sun. It has its origin in a sun quality that has been connected macrocosmically with the earth since the beginnings of time, connected with the working of the center of the earth. It lives as the plant's power to raise itself in the vertical. The working of this 'fourth sun', which contains the essence of the plant within it, intermingles with the workings of the 'third sun'. Both kinds of workings of the sun stream from below, out of the earth through the root up into the vertical shoot as the 'cosmic upward stream' of the plant which Rudolf Steiner speaks about in the Agricultural Course. From this viewpoint we can understand why the root is the cosmic pole of the plant, whereas the blossom is the earthly pole. In the blossom the plant exhausts its possibilities of earthly formation. This most hidden existence of the 'fourth sun' can reveal itself in a picture. We can look beyond the vertical shoot to the gesture with which it takes its place in the world. We look at the snowdrop, for example, which strives skyward towards the sun with its stem, and its blossom inclines once more to the winter sun which radiates up from the earth, or at the hanging or upright ear of wheat. The power of the plant to rise up into the vertical allows us to have an inkling of the hidden working of the 'fourth sun' in its purest and most immediate form, which unites earth and cosmos as something higher still.

This fourfold working of the sun pours out its strength in every sunbeam and brings together all the cosmic working of the planets and the fixed stars in the periphery. In contrast is the working of the earthly, of the earth itself. This too manifests itself in the image of the plant, likewise in a fourfold way, corresponding to the fourfold working of the sun. The working of the four representatives of the earthly element is evident in the life and growth of the plants: humus, lime, silica and clay. The manner in which these four appear determine the soil type: humus soil, the prime example of which is the black soil (*chernozem*); lime soil, the *rendzinas* for example; silica, e.g., sandy soil; and clay soil. Things and beings appear in space through the working of the earthly realm. The earthly realm constitutes space. This manifests itself as form filled with matter, as spatial bodies, whose place no other spatial body can occupy. In space there is a juxtaposition of earthly matter which has run and then set. One grain of sand lies next to the other. The spatial forms, be they of grains of sand, leaves or cows, can be measured according to their length, breadth and depth, they can be counted and weighed. Thus you can grasp the purely earthly physical aspect. A further property

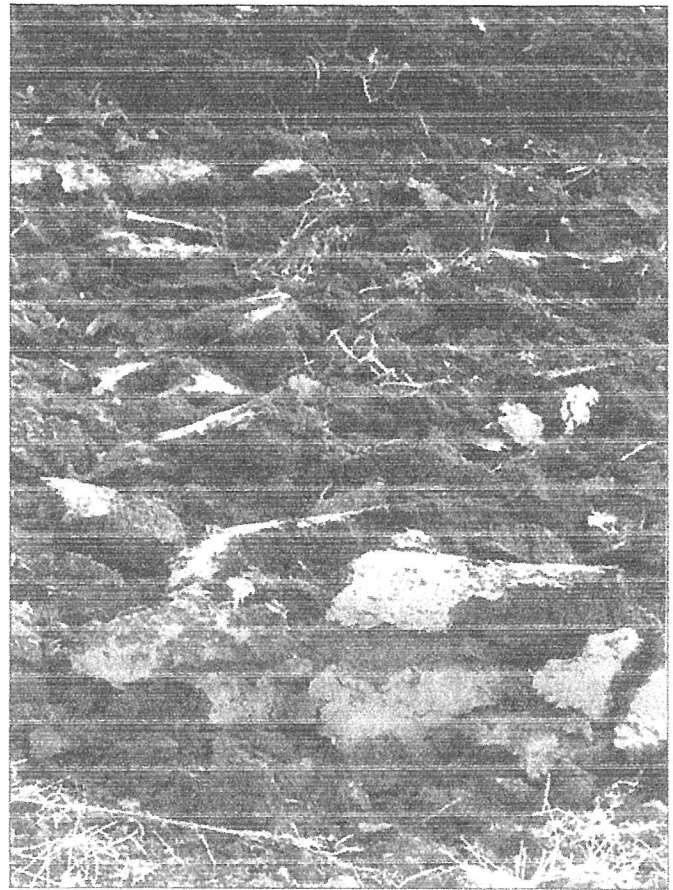
of the earthly element is its fragmentation, its isolation, its manifoldness that goes to immeasurable lengths and the fact that each grain of sand has its own center of gravity. The earthly realm accords specific properties to the world of spatial bodies, for example, to a chemical element, which let themselves be defined exactly and drawn up into the laws of nature.

Fourfold earth

The fourfold working of the sun relates to the earthly realm in that the sprouting seed can develop into the fully formed earthly plant that is filled with matter. The cosmic forces relate to humus, lime, silica and clay in different ways. This means that it is possible to discern a fourfold working of the earthly forces in the picture of the plant. This will now be briefly sketched in its correspondence to the fourfold working of the sun.

First Earth force

The **humus**, this dark, blackish, crumbling substance of the soil, forms out of plant remains partly on top of the soil, partly in the soil, from what did not progress to seed formation: namely root, stem, leaf and blossom. It develops



from the parts of the plant which have become completely earthly as form and matter. This returns to the earth as earth forces in an intensified form. The humus is, as Rudolf Steiner expresses it, "the earth in the earth", it is the earthly element in the most general sense; it forms the topsoil, and corresponds to the first working of the sun which moves everything into the realm of visibility with its light. However, the humus, which with its dark coloration most decidedly distinguishes the earth from the cosmos, thus demonstrates that it "turns the cosmos away". Rudolf Steiner's further indication in the Agricultural Course also becomes easier to understand when he says, "Humus produces effects without light." Humus is built up from the same substances as protein, carbohydrates, fats; its presence in the soil guarantees that the plant fills its leaves, fruits, etc., with material substances, that it can become an earthly plant in a form filled with matter, and retain its cosmic plant nature at the same time.

Second Earth force

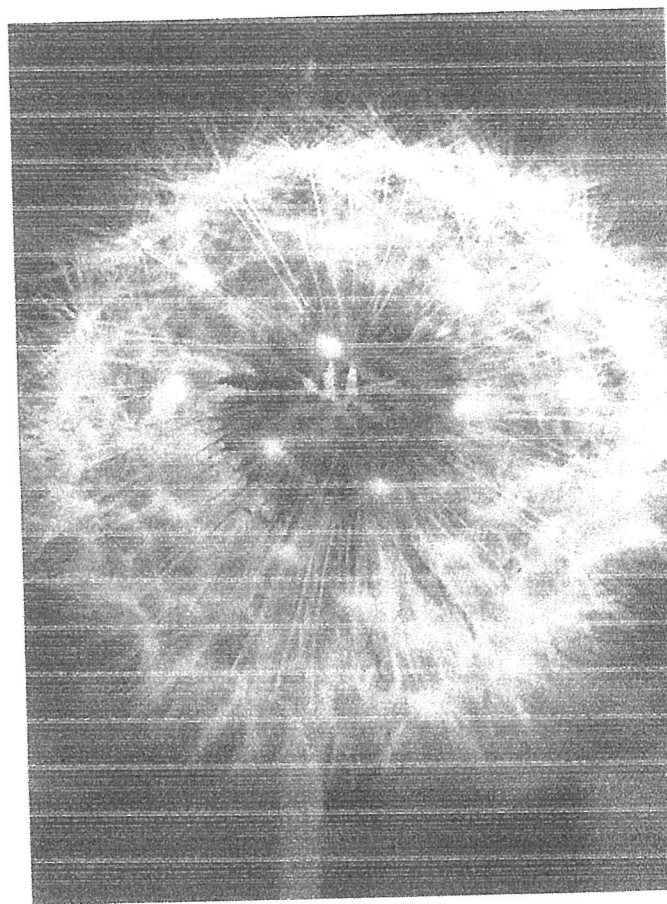
A second earth principle becomes active in the transformation of humus matter into plant matter. This is lime, which stands for the whole group of alkali and earth alkali substances. Its working contrasts with that of the second sun, which creates life in the process of growth. That working of the sun bundles together the forces of the inner planets: the moon, Mercury and Venus, and brings about their activity above the earth in air that is permeated with warmth and moisture, stimulating a kind of outer process of digestion. This process of digestion is related to the light metabolism of the plant, to the absorption of carbon dioxide through the leaves and the expulsion of oxygen, to the expulsion of warmth in the blossom as well as to the transformation of humus and the processes of mineralization in the layer of topsoil near the air, and especially the associated release of nitrogen. In this process, forces connected with the working of the inner planets become active, to which lime has a special affinity. Rudolf Steiner portrays it as "the outward aspect of desire in the earthly realm", as "a fellow with cravings." As such it draws these forces of the inner planetary working down to the earth; it snatches them towards itself. The clay removes the forces that are concentrated in the lime and transfers them to the root. They give the plant the earthly formative forces. Physiologically, potassium is active in the differentiation of protein and in the formation of a structure. With grain this process is especially evident in spring with the formation of the top parts of the roots, which spread horizontally in the top layer of humus and from there carry the humus-lime process upwards in the building up of the stalk.

Third Earth force

A third earthly principle, which corresponds to the 'third sun', is the silica principle: in Rudolf Steiner's words, "the outward sense in the earthly realm." In contrast to lime, "which snatches everything for itself", it is "the fine gentleman who does not want anything." Silica or sandy loam reflects the irradiations of the outer planets, Mars, Jupiter, and Saturn, which are bundled together in the rays of the third sun, back into the earth. This reflected irradiation is passed on in turn by the clay of the plant root. This explains once more why the root is the cosmic pole of the plant. The irradiation into the earth of the third sun, which is reflected back by the silica, is joined together with the activity of lime in the root into the "cosmic upward stream", which is referred to by Rudolf Steiner. Then the plant, which is becoming more and more earthly in its formation right up to its blossom, has cosmic formative forces in its coloring, scent and taste.

Fourth Earth force

The working of clay comes into consideration as the fourth earthly principle. Clay is a silicate layer mediating between the opposites, silica and lime soil. At the same time, it is



closely connected to the plant root, which grows together with the clay minerals to form a unity via the root hairs. The clay links together the combined workings of the outer planets that have been reflected back by the silica and of the inner planets which have been wrenched away from the lime and gone through an outer process of digestion, and carries them to the plant root.. It is also related to the humus, a relationship which is expressed in the formation of the clay humus complexes. The clay unifies in itself the whole set of earthly happenings in the soil, just as the sun unifies the happenings of the cosmic surroundings. Against this background and the fact of the vertically directed "cosmic upward streaming" which clay sets off, we can say that clay is the terrestrial agent for the working of the 'fourth sun', which macrocosmically bears the archetype of the plant nature within itself.

Wisdom and Love

What can we gain from this contrasting of the cosmic and the earthly in the image of the plant? We learn how, with every ray of the sun, the wisdom of the cosmos spreads itself out in the picture of the plant that we have before our eyes; this is accessible to our contemplation. We encounter a world that has been wisely ordered by a creator; Goethe called it "divine nature." In this wisdom the cosmos is present on the earth; all forms of being issue forth from it. This wisdom is spread out before us in the plant realm, holds sway in the mineral realm and is embodied in the animal kingdom. If we make it our own inner wisdom, we shall gradually develop the faculty to shape our farms as well rounded organisms. They will be organisms in which the forces of the cosmos and the forces of the depths of the earth connect to form a unity that is raised up above the level of nature, to what Rudolf Steiner terms "a kind of individuality." This is possible because we have the ability to grasp this cosmic wisdom in our thinking; thinking is related to light, to the heavens. If we carry this wisdom that we have grasped in our thinking down into our will, we carry it into our work, then this wisdom will become deed, earthly deed, for our will activity is related to the forces of the depths of the earth. In our will we are not consciously aware; this is why it is so dark, just as the earthly working of the silica, of lime, of clay and humus is carried out in the darkness under the earth. In the inner picture of the plant the forces of the heights and those of the depths penetrate one another, light and darkness. In the reality of human work something of like nature is brought about in the mutual penetration of thinking and willing.

The wisdom that we can wrest for ourselves on earth from the observation of the cosmos is deepened in an un-

dreamt-of way through anthroposophy. It deciphers the secret of the wisdom dwelling in man, it points out to man the way to self-knowledge and instructs him through this self-knowledge, enabling him to understand in greater depth the cosmic wisdom which is poured out into the world. The Agricultural Course gives us farmers, gardeners and fruitgrowers this way of deepening our understanding of the wisdom filled connection between the cosmos and the earth. Anthroposophical spiritual science reveals how this links up directly with the knowledge we can gain from seeing the cosmos at work on the earth. The observation and contemplation of these two elements comes to life in us as thought pictures, and these penetrate our will, bringing light and warmth into it. In the brightness of this light our consciousness awakens the way to transform the will. The wisdom we gain from anthroposophy does not simply point our will in the right direction. It also melts down and removes the selfishness, the self interest, the hidden forms of egoism from our will, which is where our ego lives. The wisdom that we draw from anthroposophy can have a purifying effect on our will, bringing light into the dark part of ourselves. It can transform the will into what we call spiritual love. One learns to work out of love. Self interest, the mere wish for success, for power, vanishes into thin air.

The inspiration of the will out of the knowledge of the cosmic background is one aspect. From the other side, what is done in love, out of the depths of the will, creates a completely new reality from below, something that has never been there before at all, that only comes about through this act of love; it is the reality of wisdom born of love. Here we touch upon the sacrament of transubstantiation, in which the human being can progress from being a creature to a creator out of the hard won impulses of freedom; this is where the cosmos can find its future through man in the transformation of wisdom into love and of love into wisdom.

Biodynamic preparations

All of this appears to be so far ahead of us, yet, in Goethe's words, "Look, the Good is so close at hand!" The Agricultural Course is practical cosmology. I would like to illustrate this matter briefly using the example of the production and application of the horn manure preparation and the horn silica preparation. With the production of the field preparations, our goal is the production of new earthly substances, which in the course of nature do not exist at all. The starting points are the substances that exist in the created world as 'created substances', that is to say, as earthly substances.



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Horn manure

In the case of the **horn manure preparation** these are the cow manure, which is permeated with cosmic forces of the animal, and, at the opposite pole, the cow horn, which was active in the cow as an organ for the irradiation and concentration of cosmic forces. With the former, we are dealing with an amorphous substance, a product of the metabolic system, which would end up in the outer humus, in the most accomplished form of an earthly product. In the latter case, we are dealing with horn, the most earthly form of all, originating in the nerve sense pole of the animal. Between these two poles the active human being steps in and fills the manure into the horn; by doing so, he turns the natural process inside out. The manure would become humus

in the natural process. However, now, by our burying the horns in the winter earth, the manure in the horn, which acts as a concentrating organ, becomes receptive for the cosmic forces, which work in the earth most intensely in winter. These are crystallizing forces from the peripheral fixed stars and from the spheres of the planets furthest from the sun: forces, therefore, that represent the working of the third sun. When we take out the horns in the spring, we have a new substance in our hands, a small mass of earthly substance, which is configured in such a way that it is the bearer of an enormous potential of cosmic forces. In this sense, Rudolf Steiner succinctly terms the horn manure “a spiritual manure.”

Horn silica

With the horn silica preparation the method of production is the other way around. Here, quartz crystal, whose natural way of working is to reflect back the cosmic forces, is alienated from its crystalline nature through being smashed and ground into the finest meal. Through this fracturing it is brought close to the earthly pole. This quartz meal, which no longer fulfills its natural purpose, is filled into cow horns in reverse of the natural process. We compound this by burying them in the summer soil, in the time when the earth is completely given up to the inner planetary working of the moon, Venus and Mercury; that is, completely given up to the working of the second sun. Once again we gain a small quantity of a new substance, a bearer of a mighty potential of specific cosmic forces. These two preparations are in a solid state. Before we apply them we turn them into liquid form by stirring each preparation separately by hand for an hour, changing over rhythmically and thus imprinting our ego rhythm ($\frac{1}{2}$ of a day rhythm) into the water being stirred. Then we vaporize the liquid into drops in the air. In the case of the horn manure the drops fall on the ground for the seed and in the case of the horn silica on to the developing plant. There they work on the combination of sun and earth through the element of warmth in a harmonizing and energizing way; it is through their supersensible reality that the plant grows into its outer sensory form. The inversion of the natural process turns the horn manure preparation into 'a fertilizer for the sensory processes' for the plant root. It turns into a 'head fertilizer' for the sensory processes of the agricultural individuality under the earth, through which we can manage the winter forces as we like throughout the year. In the other case, the horn silica preparation, the quartz (which is the outer sensory organ in the earthly realm) turns into a metabolic fertilizer for the growing and ripening plant on top of the earth in the belly of the agricultural individuality, through which we can manage the summer forces in plant growth as we like, according to the needs of the crops cultivated.

With every transition from one step to the next in the preparation making process we give a new direction to the natural process, a direction that has its origin in cosmic wisdom. We acquire this wisdom in our thoughts, ideas out of the spiritual research of Rudolf Steiner. In every step of the preparation work this cosmic wisdom only becomes an earthly reality when we absorb it into our will and let it thus become a spiritually directed deed. In this, we have free will, for no outward reason compels us to do so. Through this freedom we pass from being creatures to being creators, where wisdom from the depths of the will can be transformed into the power of love.

The wisdom guiding our actions is transformed into love and this new thing we have created, the preparation. If we apply this substance, then wisdom borne by love sets to work in the whole realm of nature, wisdom which we have given birth to in ourselves. Both these actions born of love and knowledge gained through love transform us and transform the world. We create the new out of love. If we seek to recognize the new through the way it works, then we can understand how a new kind of cosmic wisdom can arise out of human love. This wisdom is born out of man's creative acts. This wisdom is no longer simply laid down macro-cosmically. It is not wisdom that is transformed into love on its way from above down to below, but wisdom that grows out of this love that strives upward from below and becomes wisdom which points the way to the cosmos. In my view, this will gradually lead to a real, new understanding of the earth and the cosmos, and to an understanding of how to shape our farm organisms so that the cosmos and the earth can work together in harmony. Finally, this will develop into an inkling of what Rudolf Steiner means when he speaks of an agricultural individuality "as one that progresses in the course of time."

There is a wonderful saying by Dante, uttered at the turn of the fourteenth century, that runs, "Love is the power that moves the sun and the stars." He expressed this insight before the beginning of the Renaissance. It makes man the key factor to tip the scales on the journey to a new development of the earth and cosmos. At that time it was prophetic, today it can be put into practice. In the steps of making the preparations the source of this power of love lies hidden in the depths of the will. If we open up this source 'in unconditional work', then this love, following the course of the working of the preparations, has the ability to become a general force of nature, a force which has the power to sow seeds everywhere for a new development of the earth and cosmos.

Manfred Klett was formerly head of the Biodynamic Agricultural Section at Dornach in Switzerland. This transcript was translated from the German by John Weedon with further editing help from Jane Cobbald. Horn photograph copyright by and courtesy of Parker Forsell; other text photographs copyright by and courtesy of Richard Swann.