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Do we become what we eat?

The importance of biodynamic agriculture for nutrition

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Do we become what we eat?

The ultimate consequences of materialism

In 1850 the philosopher L. Feuerbach coined the phrase, 'We are what we eat.' If we overlook the irony of the statement, its truth can be tested nowadays according to whether we eat healthy or unhealthy food. We can nourish ourselves in such a way as to 'keep body and soul together': the body then becomes the servant of our soul-spiritual development. Properly nourished, we can raise ourselves above the natural, bodily level.

Alternatively, food can subject us to the power of what we eat so that the body becomes ill or - related to this state – dominates our soul and spirit and compels them to experience life in a merely nature-bound way. Then we become subject to the 'circulation of our fluids' (J.G. Fichte). If we are what we eat, this means that we remain in a chronically sick state. The properties of food today are such that humanity is well on the way to eating itself into a kind of general infirmity.

Agriculture has the task of producing human foodstuffs. Growing such produce in turn requires other substances to be moved back and forth and brought into mutual interplay – for instance during soil cultivation, manuring, feeding animals and so on. According to Henry Ford, 'Farming is a reluctant transportation business'. The science of substances, materials and their technological use is, indeed, a characteristic of the modern age. Seeing the alpha and omega of all existence in terms of matter became the prevailing outlook – that of materialism. It gave rise to huge triumphs in the mastery and exploitation of the earth and thus also in food production, which itself further confirmed and sustained the materialistic worldview. In scarcely any other field has materialism celebrated greater successes than in agriculture. But if we think this worldview through to its conclusion, the world's whole existence is an empty void where all is dictated by the laws of matter. The human being, and with him all of nature with animals, plants and rocks, along with the whole cosmos, consists merely of diverse accumulations of atoms and molecules. Are there any reasonable grounds, therefore, preventing us from intervening at will in the material world's given structures? Any changes we introduce will, after all, unfold only in the realm of laws we believe, in this view, to be intrinsic to matter. Thus genetic engineering justifies itself as an unassailable consequence of materialism. The latter tolerates no other point of view – which would immediately cast doubts on its fundamental tenets.

They don't know what they are doing

But matter as materialism conceives it is not what nourishes us – not even in the sense that we become what we eat. We would simply perish if it were so. Food must be taken from living nature. Here, though, we immediately come up against the limits of materialism. This worldview offers us no concept of living things, nor therefore an ethical approach to engaging with life. We intervene in living contexts without knowing what we are doing. Leading molecular biologists in fact admit that they do not know what a gene is. They know its material structure, its place within the genome and the chain reactions it triggers in protein synthesis. But the connection of its material composition and local relationships with its function of invoking certain properties in the DNA of a living and ensouled organism, is beyond our knowledge. Thus we cannot know what we are doing

when we use gene technology interventions. It lies in the very nature of the materialistic worldview that there can be no valid criteria for risk assessment, since there are no concepts available of what the risk might involve.

The flood tide of gene technology is carrying all before it. For living nature it represents what nuclear technology is for the inorganic world. There too we do not understand the nature of substances and forces we are dealing with. Only in retrospect do the full destructive consequences become apparent in the whole fabric of nature. Nuclear technology – we can see already – faces the insuperable problem of waste disposal. Gene technology will fail for the same reasons – although, like radio-active material, it cannot in fact be 'disposed' of at all. Like the metastases of a cancer tumour, both penetrate the biosphere and continue to take effect over time.

Food design

Our food is increasingly constructed in line with the materialistic model – and called *food design* nowadays. We conceive an idea, manufacture it, and then eat what has been conceived. This is so-called *novel food* that we consume as *fast foods*. These developments are still in their infancy at present.

Protein is not all the same

If we trace the progress of a food plant from cultivation through processing of the harvested produce to consumption, we find a long road of gradual denaturing. This begins with the sowing of, for instance, hybrid or, more recently, gene-manipulated and often pre-treated seeds, into a soil adapted to a high nutrient level of mineral salts, primarily nitrogen, and treated against competing weeds with herbicides. As plants grow, fungicides and insecticides follow and, sometimes to ease harvesting, total herbicides are used to kill off crop growth. Long transportation routes and central storage depend on extensive use of preservatives. Then, in the further processing of food, there are almost no bounds to the additives used: emulsifiers, stabilisers, thinning agents, colours, flavours, vitamins, taste improvers and so on. In the USA there are close to 2,700 food additives that do not even have to be mentioned on the label.

The materialistic hypothesis leads to the conclusion that 'substance is just substance'. In other words, nitrogen in your lettuce is the same as in milk. Mad Cow Disease (BSE) is just one indicator that this idea is heavily based on reductionist thinking. The infection route of this disease remains unexplained. It has been blamed on so-called prions – that is, proteins that appear in brain cells and which clearly destroy them, even if it is the form of the prion that alters and not molecular structure itself. Substance is not all the same. This disease arose from feeding animal proteins to cattle – a diet that is entirely at odds with the nature of this herbivore and ruminant. Animal protein is not the same as plant protein. BSE is a dispositional disease – in other words, the animal's physical constitution has been so weakened by wrong feeding that the organising force inherent in the nature of cattle can no longer govern catabolic processes in the nervous system. Is it any different for human beings? Today we are seeing a huge increase in chronic diseases and allergies. In Germany, a quarter of the health budget (around a hundred billion dollars) is currently being spent on diet-related illnesses. As gene technology continues its inexorable advance, we are very likely to see ongoing constitutional weakening and with it a general infirmity that will be very hard to diagnose.

Such developments are very threatening. However, they can give us the impetus to consciously address the question of nutrition. We can no longer just search the supermarket aisles for palate-pleasers. This would mean making our humanity subservient to our stomachs. So how can the food we offer our bodies promote and sustain soul-spiritual development? Here we need to start from our true nutritional needs.

Our threefold nutritional needs

We need three types of nutritition (see diagram) since we have a body, soul and spirit. The metabolic organs and the limbs are the physical foundation of the body in the narrower sense. The soul is centred in the chest, with the rhythmically breathing lungs and pulsing heart. The focus of the spirit is the head, where the nerve system and sense organs are concentrated. These three bodily domains need different kinds of nourishment in accordance with their diverse nature and activity. We must therefore distinguish three types of nutrition: via the digestive system, via breathing and through the senses. Our metabolic-limb realm is nourished by solid and fluid foods that we eat at meals.

[diagram text:]

	Physical foundation	
Nourishment via the senses	Spirit	nerve-sense system
Nourishment via breathing	Soul	rhythmic system
Nourishment via digestion	Body	metabolic-limb system

These foods are not just substances but ‘victuals’ (derived from the Latin word for ‘life’). Substances alone scarcely nourish our metabolic-limb realm. They are important primarily for regeneration of the nerve-sense system and are stored up in the head realm – which naturally penetrates the whole body through the nerves. What nourishes us, above all, are the forces which compose substances into a particular configuration as living food. In the carrot, for instance - a root crop – the forces active in configuring substances into food are different from those that work in grain, which is a seed crop. We need these forces to activate our will. If we wish to harness the will to work more in the head, in thinking, root crops are particularly beneficial, for they retain the mineral character of substance more strongly. If we want to work more with our limbs, in contrast, seed crops (grains) are helpful. Wheat grain, baked into bread, lends us will forces. When horses were still harnessed to the plough, an old farmer’s saying held that ‘oats give them a kick’.

Our rhythmic aspect is nourished through breathing. When we breathe in, air rich in oxygen is absorbed from the outer atmosphere and refreshes the blood in the lungs. From there it streams through the pulsating heart into the peripheral blood vessels, absorbing carbon dioxide released from organic activities, which then, via the venous blood stream in the lung, is expelled at exhalation. Soul sensibility is closely related to this rhythmic activity in lung and heart.

A third type of nutrition is the one we receive through the senses, also known as 'cosmic nutrition'. We perceive the world through our senses. For instance, warmth penetrates the skin, where the sense of touch and warmth are active. Light streams into the eye, and tones into the ear and so forth. An imponderable substantiality is configured through the power of warmth, light, tone etc into the pictorial content of perception. This substantiality, which conveys our sensory impressions, enters the body through all the gateways of the senses and is concentrated there in the substance of the metabolic-limb system, the muscles, skin and so forth, while the configuring forces themselves are reflected to the thinking spirit as pictorial content of thinking. Thus nutrition via the senses is polar opposite to that which occurs through absorption of the physical substances and forces in foods. Nutrition via the breathing mediates between these contrasting and complementary modes of nourishment.

What is the nature of a food that really nourishes us?

But how do we relate to the world that gives us this threefold nourishment, forming our body in three diverse ways? What trust can we have in our food if – as recently announced in a newspaper advert – around eighty different chemical residues were found in a soya sample in the USA? Or if, as has been shown, drinking water is contaminated with pesticides and above all herbicides, albeit below so-called 'safe limits'? What can we think of the air we breathe if it leads to the death of forests and exponential increases in bronchial diseases? What, finally, are we asking our senses to cope with if we malnourish them through virtual, computer-mediate worlds; or simultaneously overstimulate and deaden them with multimedia or, in food nutrition, through a cunning sequence of psychologically coordinated taste enhancers? No wonder that humanity is becoming increasingly dependent on the drug of this artificial, self-created world. Ultimately, surely, we are making true the untrue statement by Karl Marx, that 'being determines consciousness'; or Auerbach's bald statement: 'We are what we eat.'

If we have such power to wilfully disfigure the world that nourishes us in this threefold way, then there ought also to be a means, by contrast, to acquire the free capacity to advance the evolution of the earth and its creatures. This path is inseparably linked with producing the food we need if we ourselves are to progress further in our own evolution.

The starting point for all three forms of nourishment is the production of living food, of earthly nutrition, with which we will be concerned below. What must the nature of food be if it is really to nourish us? What ensures that foods are *victuals*? The forces of life cannot be grasped by the senses although they come to expression, certainly, in the forms and configurations of plants and animals. Life manifests when it absorbs the physical and mineral substances of the earth. Its activity does not itself become visible, but the way this activity works on earthly substances becomes apparent to our eyes. To act and manifest, life needs physical-mineral nature, but it also needs something else – the forces that reveal themselves as qualities of soul being. The dandelion flower, for instance, into whose form the life of this plant dies away is, in its shape, colour and fragrance, the reflection of a soul quality which touches into it as though from without. When we gaze upon this blossom, it awakens in us all kinds of feelings of pleasure, joy and so forth. Can our soul be touched by something that does not itself come from a soul

realm? To grow, a food needs living, active forces that configure earthly substances into the form of plants that truly reflect archetypes in the world of soul.

What is an organism?

To produce food that is fitting for human beings, we need to interrelate the physical-mineral realm with living forces and soul qualities at a higher level than present in a merely natural state. The farmer shapes nature, as do we all – but what thoughts and what picture does he bring to bear as he does so? Are there principles which can guide us on this path? The prerequisite for the development of a truly nourishing and living food must be the same as for the growth and flourishing of an organism: it must combine physical, life and soul forces if this organism is to be sustained and supported through the food it consumes.

In the relatively new discipline of ecology, the term *organism* was often used in the early days to characterise the tangible fabric of interrelationships between a community of many separate living creatures – for instance in a pond. Nowadays people prefer to avoid this term and speak instead of linked bio-*systems*. A system is open, is a multiplicity, whereas an organism is largely closed and self-contained, an integrated whole. The system can be conceived in causal and additive terms. But how can we conceive the entirety of the organism? This is precisely the task faced by the farmer if he wishes to shape his farm in an earth- and human-friendly way. Rudolf Steiner described an organism as follows: 'An organism is a soul entity that outwardly delimits itself into form and inwardly structures itself into organs.' What gives the organism its entirety is therefore not its physical or living organisation but its soul entity, which is outside of space and time. Biodynamic agriculture derives its approach and activity from this understanding of the term 'organism'. Every farm should as far as possible become a self-enclosed organism; or even, to take this a step further, develop a kind of 'agricultural individuality'. The principles at work in farm operations should be founded on insight into the nature of the human being. 'The human being provides the basis and foundation' (Rudolf Steiner). As human beings we have the most evolved organism, which, through the being indwelling each of us, comes to expression as individuality.

The totality of the agricultural organism…

We can think of the agricultural organism, or the agricultural individuality we are trying to configure, in terms of the threefold nature of the human being. Then we align the fertile soil, expressing its nature in rhythmic processes, vertically with the forces active above the earth (metabolic pole) and below the earth (head pole). Below we will also look at the agricultural organism from the perspective of the fourfold human entity, consisting of a physical organisation, life organisation, soul organisation and I organisation, with their physical and functional basis in, respectively, the skeleton (among other things), the glandular system, the nervous system and the blood and immune system (see diagram).

…in its physical organisation

Seen from this perspective, the farm's physical organisation (see diagram) is represented by the geological nature of the subsoil, and by groundwater, precipitation, atmospheric and warmth conditions. This interplay of the four elements in physical conditions comes

to expression most forcefully in the type of soil. Every locality has its own natural 'gifts' due to its particular soil conditions. Just as our body is the individual expression and instrument of our innate capacities, so every farm has a certain, entirely individual natural gift and disposition based on its physical organisation. This is a predisposition given it from ancient times of earth's evolution, but human hands can to a certain extent develop and enhance it – primarily by the art of soil cultivation through terracing, watering and drainage etc.

… in its life organisation

The farm organism also possess a life organisation, manifesting in its plants, meadows and fields, in richly diverse farmland, in gardens and fruit orchards, in field and pathway margins, hedges, hedgerows, copse and woodland. The farmer needs an artistic sense of his farm's living totality. For the sake of this wholeness, for example, he may plant a tree here, a hedge there, and ensure that from spring to autumn something is always blossoming in his fields. Here we need to invoke our inner sculptor, who brings into mutual interplay the greatest possible diversity of plants, forming them together into the farm's living entity. The more diverse this is, the healthier.

[diagram text:]

Human being

	Organic foundation
I organisation	Blood, immune system
Soul organisation	Nerves, senses
Life organisation	Glands
Physical organisation	Skeleton

[diagram text:]

Agricultural organism

Human community
I organism

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Animal realm
Soul organism

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Plant realm
Life organisation

—

Mineral realm
warmth air physical organism earth water

…in its soul organisation

The farm's soul organisation reveals itself firstly in its animals. In former times, the human soul was regarded as a compendium of the soul qualities of all animal species. Each species of animal, in its bodily specialisation, can be seen as one fragment of the human soul. The way in which a farm's complement of diverse animals can contribute to its inner completeness, its 'soul atmosphere', can offer us new access to this ancient view. What, after all, is accomplished by the animals, the worms in the soil, the insects and birds in the air? Through the specific nature of each, embodied entirely in highly evolved physical functions, they create interrelationships – for instance the bee, by carrying pollen from one flower to another and thereby accomplishing pollination. Nature is permeated by such relationship-creating animal activity, and the more diverse the fauna, the more this occurs. In animals' activities lives a prevailing wisdom as emanation of their soul qualities. Domestic animals occupy a special position in this respect, especially herds of cows, as the beating heart of the farm, the centre of its soul organisation.

What does a cud-chewing herd of cows do? Of course, from an external point of view, cows produce milk by means of their distinctive metabolism, and thus serve human nutrition. But what is their more inward contribution to the functioning of the farm organism? The living rhythms of the cow herd make it a rhythm-generating organ in the life of the farm. In pictorial terms, each year the herd consumes the farm's physical and life organisation in the form of grass and hay, which have developed in the blossoms, leaves and stalks of plant cover. As cows digest this they raise it to the level of their soul organisation, their body-bound soul perception. Chewing the cud, and in the further course of digestion, they 'ruminate' on what they eat up, uniting it with their soul being. In chewing the cud the cow accomplishes a 'cosmic-qualitative analysis' (Rudolf Steiner) of the life substances of the plant world. She gains soul strength in this activity but cannot hold fast to the results of this inner substance analysis. She could do so if she had an 'I' like we do, a thinking spirit. But since she remains at the animal level, in other words, the level of body-bound soul, she has to excrete the product of her inner processing. The excretion is expelled from the soul level of this highly evolved domestic animal, and as outcome of this 'cosmic-qualitative' analysis it contains an organising energy potential. This in turn gives cow dung its unique fertilising potency. It is less a material than a force-awakening fertiliser. The cow is very much a being of renunciation. Via her dung she bestows soul and life forces on the inner nature of the farm organism and thus, like no other animal, ensures its functional enclosure and self-containment.

…in its I organisation

The fourth 'body' of the farm, as it were its I organisation, is the human community surrounding it. The picture that this community makes of the farm, of its necessary self-containment and of the goal of a growing, agricultural individuality, is realised through human work and thus shapes the natural diversity of the farm into a whole. The human spirit ultimately, through its idea-governed work, implants into nature the conception of the organism and individuality.

…and the nutritional value of food

This fourfold entirety of a farm, in the image of the human being's own fourfold entirety, is the only thing that can give rise to a true nourishment that helps form and sustain the human body. The material content of food is not the primary thing but the forces that interrelate substances in a specific manner in each food – in other words, the composition of substances. Ideally this composition should bring to expression the four energy qualities by means of which the four aspects of the agricultural organism are imprinted into food from sowing to harvest. What nourishes us are not the separate substances in a food but their totality. Angelus Silesius formulates this in the words:

> It's not the bread that feeds us [mere substance]
> What feeds us in the bread
> Is God's eternal Word
> Is spirit and is life.

We can also say that what feeds us are the substance-configuring forces of physical, life, soul and spirit realms, individualised in the totality of a farm organism to produce a food's specific quality. We do not eat separate substances but composed substances – that is, carrots, lettuce, grains and so forth. A musical work is composed of tones, and the artwork of a food is composed of substances. The quality of a food and its composition must be seen as one and the same thing. Thus for example we should regard it as a failed composition and harmful to nutrition if there are nitrate residues in grain. The wholesome, nourishing composition of grains excludes nitrate. In the beetroot, a root crop, on the other hand, nitrate is a compositional constituent. The context in which a substance appears determines its significance in terms of nutritional physiology.

If we consider the importance of the 'farm as organism' principle to the nutritional value of foods, this alone already requires local or regional markets. Globalisation of the agricultural market will lead in the longer term to irreversible devastation of the earth and to bodily degeneration of human beings.

Protein nutrition, for instance

What has been described here in relation to the agricultural context in general can be illustrated with a specific example. When we test a food's nutritional value we first distinguish four chief substance groups: carbohydrates, fats, proteins and minerals. In addition, of course, there are vitamins and other valuable constituents. Protein nutrition and digestion probably show most clearly what is involved in the question of a food's material composition. Original protein formation takes place in the plant realm. Wherever a plant sprouts and grows, and finally culminates in seed formation, protein formation is

in the foreground. Human beings and animals are unable to synthesise their own protein without first having received it through their diet.

In human digestion in stomach and intestinal tract, dietary protein is completely broken down so that all life is driven out of it. The highly structured protein bodies are broken down into certain basic elements, so-called amino acids. Only once this deadening and mineralising process has occurred can the body's own protein be built up. Why are humans and likewise animals dependent on protein nutrition when in fact all protein is first thoroughly destroyed by digestion? Rudolf Steiner explains this by comparison with a clock. Assume someone wants to make a clock. Merely staring at a clock that already existed would never enable him to do this. The external appearance of the clock tells us nothing about its inner construction. If he takes the clock apart it will no longer work. But if, as he disassembles it, he attends carefully to the principle that enabled it to function, he will understand its blueprint, and based on this he can construct any clock he likes. Something similar occurs in protein digestion: the breakdown process is decisive rather than the end product. The model according to which the carbohydrate framework of the protein is structured, the blueprint, must be perceived. This is done by the liver, which is an organ of perception for this breakdown process in the unconscious realm of metabolism. Only through active breakdown in the intestine and through this engaged perception by the liver, is the body able to build up its own unique protein. Thus origin, growing conditions and further processing of food determine the protein's 'model quality'. Animal protein is already 'pre-informed' by an ensouled being and therefore easier to digest. The liver's sensory activity is required less here, and grows lazy. Plant protein is, by contrast, more 'exemplary': digestive forces must be far more active to reveal the model of this pristine protein untouched by a soul being's interior life. Thus the liver grows stronger in its sensing function.

Explosives – the use of violence

This gives rise to the question as to how we can produce 'exemplary' protein. What conditions must we create in plant cultivation to ensure this? In today's industrialised agriculture we mainly grow monocultures and keep animals penned in battery conditions, disregarding the 'organism' principle in our farms. Commercial success is ensured by bought-in resources such as fertiliser, pesticides and so on. Large quantities of fodder for animals come from the developing world. For instance Holland would have to be several times its actual size if it grew all the fodder for the large number of its farm animals.

[diagram text:]

Reproduction	Nutritional value
Seed	Fruit
Massive growth	Physiological immaturity
Nitrogen salts	
	Seed

Monocultures and battery farming are only possible through mineral nitrogen fertilisers. Without nitrogen salts there would be no explosives and thus no weapons such as bombs and grenades for imposing military might. Nitrogen fertilising is also a kind of violence to enforce commercial success in agriculture. It triggers an explosive sequence of events which alienate plant growth from earthly and cosmic forces. What is the effect of this alienation on our crops and cultivated plants? The developmental process of wild and cultivated plants starts with seed germination. Roots, stalk, leaves and blossom form during growth. As the seed forms, growth is intensified into reproduction. In this developmental stream the impetus in the original seed is revealed in the final form of the plant. Added to this developmental stream is a second in cultivated crops, which leads to fruit or produce formation (diagram). This second developmental stream points beyond the unfolding and fulfilment of the plant's species-specific form, since it exists for the sake of human nutrition. The 'fruit' of a crop can be in its root (carrot), stalk (kohlrabi), leaf (spinach), buds (Brussels sprouts) or seed (grains). Guiding and holding back life processes to create a nourishing fruit is the great cultural achievement of prehistoric times, and today remains the great, unsolved riddle. Modern plant breeding is spending this 'living capital' from the past with great profligacy, and shows no reluctance to profit by patenting its genetic interventions.

The consequences of the compulsion for never-ending growth and reproduction
Growth and reproduction are based on the protein process. And, since protein contains nitrogen, this process is in turn is activated by nitrogen fertiliser. Consequently the plant is compelled to never-ending growth and reproduction. This can, for instance, lead to the need to 'kill off' potatoes with pesticide before harvesting. The second developmental stream – of fruit formation and thus food production - is also exposed to this growth compulsion. Nitrogen fertiliser makes the fruits grow larger and more bulky. In grain cultivation, farmers aim to produce yields three to four times higher than was the case at the start of the 20th century. This pumping up of root, stalk, leaf and seed crops comes at a great cost. The crops are forced to keep on growing even when they appear outwardly ripe. In fact they remain physiologically unripe. They never ripen fully – in other words the physiological processes never come fully to rest. In the crop, protein remains in a reproductive state and cannot develop as an 'exemplary model'. In digestion the liver does not find the ideal blueprint of plant protein's carbohydrate framework for its own protein synthesis. Weakness of will, immune deficiency, allergies and chronic illnesses result. Once one has grasped the concept of physiological maturity or immaturity in fruit formation, then chemical analysis of substance states during growth towards ripeness, and likewise sensory examination and picture-forming methods (such as chromatography), can be a great help in assessing nutritional value. Like seed formation that culminates in stasis in the seed, the forming of fully ripe fruit that has come to rest physiologically is an expression of a higher principle that penetrates and orders living things. We can call this the archetype of each cultivated crop. The effect of nitrogen fertiliser can be seen in the fact that this ordering spiritual principle, which is reflected in the composition of substances, cannot come to full fruition.

Instead of nitrogen fertiliser…
How do we create an 'exemplary model' in substance composition? By fertilising with substances which themselves originate in the living realm and, through appropriate care, are maintained in a living state. We can distinguish three levels in fertilising of this kind. Corresponding to their efficacy, the 'archetype' can, similarly, come to enhanced expression in a threefold way in the plant's form of appearance.

Fertilising through enlivened nature
First level: fertilising through the enlivened nature of the plant realm. Everything in the 'farm's life organisation' that has not become seed or produce – i.e. root, stalk, leaf and blossom crops – is excreted inwards into the farm organism during the course of the year. Plant residues form into humus in the soil, or this happens artificially by human hand in the compost heap. Just as the seed preserves the individual nature of the plant, its species as spiritual form, so humus preserves 'general plant nature' as living substance. 'Individual seed' and humus as 'universal seed' are the beginning and end of plant development through the cycle of the year. Humus/compost is an absolute wonder-medicine for plant health. It is a real universal fertiliser that maintains the right equilibrium between the developmental stream that leads to reproduction in seed formation and that which leads to nourishment in fruit formation.

Fertilising through ensouled nature
Second level: fertilising through the ensouled nature of the animal realm. Everything excreted by the 'farm's soul organisation', the entirety of its animals, is at a higher organising and fertilising level than plant fertiliser. This 'excretion' does not just refer to manure from animal metabolism but also includes the activity by means of which each species of animal or creature contributes to the agricultural organism – for instance the worms in the soil, the amphibians and fish in a stream, the birds in the trees and hedgerows, the insects flying through the warmed atmosphere. The immaterial also fertilises, and in fact is precisely what does so – for instance the fluting of a nightingale who hymns her territorial boundaries. She too contributes to the holistic nature of the farm. The greatest and most effective fertilising power in nature is provided by the domesticated animals. The most valuable fertiliser, however, is that provided by ruminants and, among these, unequalled in its harmonising effect, that of cattle. In former times, when people were not so clever but all the wiser, cow dung was rightly called the 'farmer's gold'. Composted manure is a fertiliser for crop/fruit formation. It allows crops to ripen fully, makes them keep well, and invokes in them the full, distinctive taste of each variety. Plants adhere more clearly to the vertical earth-sun axis. The root forms a finer root network and delves deeper, the shoot becomes more expressive of the supersensible energy form (archetype). Even if we did not use cows as source of milk and meat, their absorption of leguminous-rich fodder and the manure they give back would make them indispensable for the intact wholeness of the farm organism and the development of crops.

Fertilising through the human spirit
Third level: fertilising through the human spirit. What we ourselves excrete cannot be used as fertiliser. During human digestion, the substance-composing forces of foods are

entirely used up and absorbed. The fertilising power we can bring to bear in the agricultural organism is, instead, our thought-governed work. We spiritually encompass the totality of the farm organism that we configure, and through our work impress this upon the given natural conditions. The farmer's conscientious activity has a fertilising effect.

Fertilising with biodynamic preparations

In biodynamic agriculture, however, consideration is given to a far more important 'excretion' of the human spirit into the inner agricultural organism. This is fertilising by so-called biodynamic preparations. Ideas about their substance composition come from anthroposophic spiritual science. These preparations establish relationships in the cycle of the seasons between the substances and forces of nature - between physical properties, living attributes and ensouled qualities. Such interrelationships cannot be derived by mere empiricism from the natural realms themselves. For instance, the yarrow preparation, one of the six compost or fertilising preparations, is made by inserting the flower heads of the yarrow into the bladder of a red deer and then, through the course of the year, exposing them to the physical forces of air and warmth in summer and water and earth in winter. The connection between plant blossom and animal organ can be understood through the medicinal effect which yarrow has as blood-cleansing remedy on kidney and bladder processes in humans and animals. By preparing these constituents in this way, a substance composition is created in a living realm which nature cannot produce without the active involvement of the human spirit. It is the product not of a finished but of an evolving nature: a fertiliser whose substances are composed in such a way that they mediate to the soil an excess of living forces, and there serve to enliven 'the solid nature of earth itself' (Rudolf Steiner). In using this preparation, therefore, the quantity of fertilising substance is not important. Only tiny amounts are needed, comparable to a homeopathic remedy. The other preparations are made in the same or a similar way, each one in reference to a different 'context of meaning'. Two of them are spraying preparations, one sprayed on cultivated soil at sowing (horn manure preparation) and the other on growing and ripening plants (horn silica preparation). The compost preparations, in their humus-like form, are added to plant compost and the manure heap in the smallest quantities.

The biodynamic preparations crown the work of fertilising. Nothing in the living continuity of soil and plants remains unaffected by their influence. They support the specific effect of plant- and animal-derived fertilisers, and ameliorate one-sided tendencies of growth conditions to create a locality-appropriate optimum. Their intrinsic task however is a dual one: firstly they promote the development of localised, long-term fertility in connection with a farm organism configured in as diverse a way as possible, which in consequence develops progressively into a kind of 'agricultural individuality'. As force-activating fertilisers the biodynamic preparations fertilise 'temporal processes' – or in other words living continuities which concentrate as actively functioning and living organs in the totality of the farm organism. Secondly the action of fertiliser preparations focuses on individualising the substance composition of food crops in harmony with local growth conditions. In this way each farm produces food with qualities that pertain to it alone. The preparations, within the totality of the self-contained 'agricultural individuality', are fertilisers that serve the true growing and breeding of crops. That is,

they enable the plant's localised, temporal growth to become open and sensitive to the active powers of its archetype. As such the biodynamic preparations directly serve the enhancement of nutritional value, nurturing the 'exemplary model' of substance composition and in turn the nutritional needs of everyone who strives for soul-spiritual development.

Serving the nutritional needs of all who strive for soul-spiritual development – the universal cultural task

Thus the biodynamic gardener and farmer feels a duty towards all three modes of human nutrition referred to here:

Firstly, bodily nutrition as described above.

Secondly, nourishment via the breathing: regeneration of the air by nurturing the life of the soil and healthy, diverse plant growth.

Thirdly, nourishment through the senses: by enabling the cultivated landscape to grow in beauty and harmony from its originating germ, the agricultural organism.

These three intrinsically connected functions of agriculture, which serve the evolution of the earth and the human being, must be seen as a universal cultural task that concerns all people. It is quite impossible for this to be accomplished by the few who are still working in agriculture today. In future this cultural task will require many perceptive hearts and willing hands. In view of the runaway speed of our civilisation's dubious 'progress', we are all needed to fulfil this cultural task. There is such a concentrated power of intellect in science and industry standing behind conventional, industrialised agriculture! Huge sums are invested to respond immediately to every problem with a highly efficient counter-measure. The result of this is that we do indeed become what we eat – that is, we are eating ourselves sick. Yet what is the spiritual momentum on which a biodynamic farmer can draw? May this question stand as an urgent appeal to all who, with their own capacities and spiritual power of initiative, wish to strengthen and promote a form of agriculture which seeks to produce truly nourishing food; and which therefore enables the soul and spirit to be master of the body, and develop beyond being a mere product of what we eat.