



bio-logos

Center for organic thinking and acting

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**From
mechanistic to
organic
thinking and
acting**

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From mechanistic to organic thinking and acting

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What will the consequences of genetically changed food in the future be? What effects will the decoding of the human genome have? What does it mean to clone a human being in the embryonic state in order to exploit it as an producer of organs? How can the threat of new diseases and epidemics be mastered?

Questions about recognising and understanding the living and about dealing with the resulting knowledge - these are the burning scientific questions of today!

However, can these questions generally be solved with the present scientific thinking derived from mechanics? Is it perhaps necessary to create an entirely new scientific approach appropriate to the observation of the living?

Today's established scientific way of thinking basically originated in the 16th century. During this period, great physicists and astronomers such as Galileo Galilei challenged the supremacy of the Church's power in regard to scientific questions with their own researching and thinking. For their knowledge, derived by logic from observations and experiments and partially standing in contradiction to the ecclesiastical doctrine, they often had to justify themselves before an inquisition process and sometimes they even had to pay with their lives. These scientists were usually not aware that they were only examining a limited aspect of reality, although at the same time they suffered from the loss of a bigger, spiritual perception of the world. Their world of research had depleted to material bodies and their movement. The cosmos had become a cold, yawning emptiness, in which material bodies moved in predictable orbits. Later matter itself was also thought of as being constructed from the smallest moving corpuscles.

After Descartes and others had supported this position philosophically, it prevailed not only in physics, but also in all other scientific fields and started to increasingly dominate the entire world view. Even living beings were now dissected like something dead in the same manner derived from researching dead mechanics and were analysed down to the last atom. So an enormous detailed knowledge regarding material aspects of the living body could be

acquired, which however hardly could be used to find the traces of the living itself.

In the beginning of the last century this materialistic-mechanistic world view started to stagger: In the expanse of the universe as well as in the depths of the atom, phenomena within the area of light and matter appeared, which could not to be described by the mechanics. It was necessary to develop a new quantum mechanics theory and a new theory of motion, the theory of relativity. The fact that the strict principle of causality, which forms the basis of classical mechanics, had to be overcome and the fact that matter dissolves in fields, waves and energy could not penetrate into the general thinking.

Today it is basically clear to many leading scientists and philosophers: the materialistic-mechanistic view of the world has reached its technical zenith. However, seen from the epistemological position it has come to an end. The question now being - what next? Though some scientists point urgently to the fact that another kind of thinking is necessary and argue that biology should become the leading science, replacing physics, which performed this role since Galileo, the established sciences on the universities and within other institutes hardly take up such appeals. Institutes generally do not like to put their own world views into question and are usually too slow for revolutionary change. Moreover, they can appeal rightly to many scientific and technical achievements won with the help of the analytic-material thinking and which partly really serve the welfare and progress of society.

Conventional science is seated firmly in the saddle, as firmly as the ecclesiastical power was in the 16th century, when it dominated the world. At that time everything that did not correspond to the catechism of the church was condemned or switched off by inquisition. Today the inquisition looks different: Everything that is not explained strictly causally in the materialist-mechanistic sense is considered to be unscientific and is therefore scientifically indisputable. At the very most such thinking is expected to renounce any kind of scientific claim and withdraw into the mystic-religious corner. However, as in the 16th century mechanistic scientific thinking and research sprouted over and over and asserted itself against the ecclesiastical power, today organic thinking, appropriate to the living, has also developed into many small and tender little plants. More and more people do not feel satisfied by strictly causal-mechanistic explanations to their questions to life. They suspect that a new further-reaching thinking is required. A new scientific revolution is necessary!

New approaches

Especially during the last years approaches to developing methods of organic thinking have arisen in many areas more and more frequently. Some of them have even found attention. However overall, they have not yet been able to establish themselves in science or even cause a revolutionary change in general thinking. They all have in common that they overcome the linear causality of mechanistic thinking.



Goethe may well be regarded as the forefather of organic thinking. With great intensity he worked on a life-appropriate scientific methodology. For a long time his ideas were taken up marginally. Rudolf Steiner, whose efforts in this area must be considered foremost, worked on the publication of Goethe's scientific writings and enhanced his methodology in many ways from 1884 to 1897. His research of Goethe's approach has been applied to many areas and has been published in numerous articles and books. Nevertheless, these

efforts have only been able to influence established science very little up till now.

New impetus to the development of theories and models adequate to the living arose at the end of the seventies of the last century. Various system theories, whose principles were derived from living systems, were designed. Models of self-organisation of physical and living systems are being discussed frequently in recent times. The mathematical basis of these new attempts to the understanding the living is often probability calculation and the newly formed theory of nonlinear dynamics (chaos theory).

Most of these theoretical models do not reach Goethe's much more revolutionary and more concrete perception and thinking. However, they are developed on the basis of materialistic scientific development and can perhaps therefore have rather more influence on the general thinking.

An important contemporary representative of this scientific renewal is the biologist Rupert Sheldrake, whose research can be associated, in a way, with Goethe's ideas, which will be shown in the following.

Goethe's organic view of nature

*"He who wants to recognise what is alive and describe it,
seeks first to drive the spirit out of it.
Then, he holds the parts in his hands,
but, he is missing the spirit's band. "*

The immense limitations of conventional natural science concerning the living is shown here mockingly by the figure of Goethe's Mephistopheles in his novel „Faust“. Only the material parts are examined without considering the organising aspects of the living. The essence of what distinguishes a living organism from a dead one, is not respected or it is in fact ignored. With pleasure, science limits itself to the material level of organisms. As a consequence, it should have been named matter sciences instead of natural sciences. Nature is, however, much richer and includes much more than just matter. There also are herbal life processes and growing organisms, animal behaviour processes and feeling beings, human consciousness processes and spiritual beings. Vitality, feelings, spiritual activity, these all are levels which are unknown and suspicious to a mechanistic point of view.

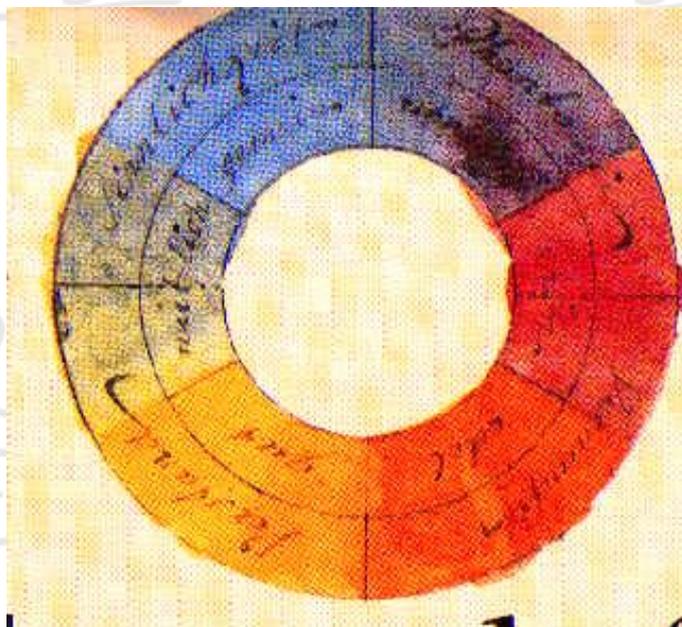
Goethe made the effort to come to a comprehensive organic approach to all areas, which would not be limited to the material. This is done in his scientific, but also in his literary works.

The core of his different approach is that he really tries to perceive and think the living as something, which is within a process. The present appearance of an organism is recognised in relationship with its earlier or later states.

Changes, developments and metamorphoses become important.

In the botanical field, he developed the concept of the archetypal plant. In order to make the procedural character clearer one could also say the concept of the archetypal herbal. He regarded every singular part of the plant as a metamorphosis of structural design or the „idea“ of the leaf. Leaf, sepal, petal, stamen - everywhere he detects an expanding and a conglomerating of the same creative forces: "From top to bottom a plant is all leaf, united so inseparably with the future bud that one cannot be imagined without the other". A very dynamic and creative thinking is necessary to understand such vital processes. How much easier it is to handle with numbers, measurements and rigid laws! But it is exactly the feedback of the scientific approach on people which was extremely important for Goethe. He repeatedly warns about the results of rigid mechanical thinking in respect to human beings. In his opinion, this thinking is developed far too little on concrete, observable phenomena. The usual science changes too rapidly from concrete observing to abstract models based on conceptions which are reduced only to a few factors. Thus one receives laws which do not grasp the whole experienced reality, but limit themselves only to the part managed purely intellectually.

In the physical area Goethe shows especially in his theory of colours, to which he dedicated a large part of his life, how an understanding of optical appearances and colours, which is connected to the subjective perception of the individual researcher, can be developed purely from the phenomena of light and darkness.



Vehemently, Goethe attacks Isaac Newton, who describes colours and light in a highly abstract way, detached from the human feelings, with a mechanistic model. Nevertheless, Newton asserted himself. Therefore, today only abstract wavelengths of electromagnetic waves are allowed to explain colour and light. This can hardly connect to our actual experience of colour, light and darkness.

Both approaches have their truth and justification. Without doubt, they lead people in very different directions of thinking and experience, which in its turn affects the whole of cultural development. Up to the end of his life Goethe had great fear concerning the development of science in a mechanistic way: *"The alarming increase in machines torments and frightens me, they are rolling down upon us like a thunderstorm, slowly, slowly, but they are on their way, they will come upon us."*

It becomes especially frightening if this "alarming increase in machines" also dominates the research of living beings.

Goethe's judgment through intuitive perception

Goethe tries to oppose this development by his new science, which he called in the realm of living morphology. By this he meant the "doctrine of the shape of formation and transformation of organic bodies". For him organic forms cannot be explained by the interaction of matter, but result from living designing forces which are inherent to the living being. The perception of these forces, which correspond to the whole life expression of the living beings and are captured in a temporal process, is similar to the recognition of gestures or forms of artistic expressions. As well as with an abstract sculpture streaming, everting, contracting, condensing, flowing out, resolving and even more forces can be felt and understood. With a living organism winding up, expanding, dissolving, airing, separating and other forces can be perceived. One has to become involved in these creative forces which are active within a plant with one's own internal vitality - to be touched by one's own mental sense and feel these forces acting within one's own internal replicating. After intensive study one can finally experience a differentiated overall gesture of the sculpture or organism.



Such an experiencing recognising of these creative powers is absolutely comprehensible to every person who is skilled in this way and it is thereby communicable like materialistic scientific research. However, it requires an empathetic connection with the perceived living being, a great internal activity, which has been detached from personal patterns of perceptions, and a keen perception of the own internal activity. The result is unlike the mechanistic approach of understanding a concept, the finding of a linear-causal relationship or a mathematically defined law, but entails the emergence of a judgment through intuitive perception, as Goethe called it.

Sheldrake's morphogenetic fields

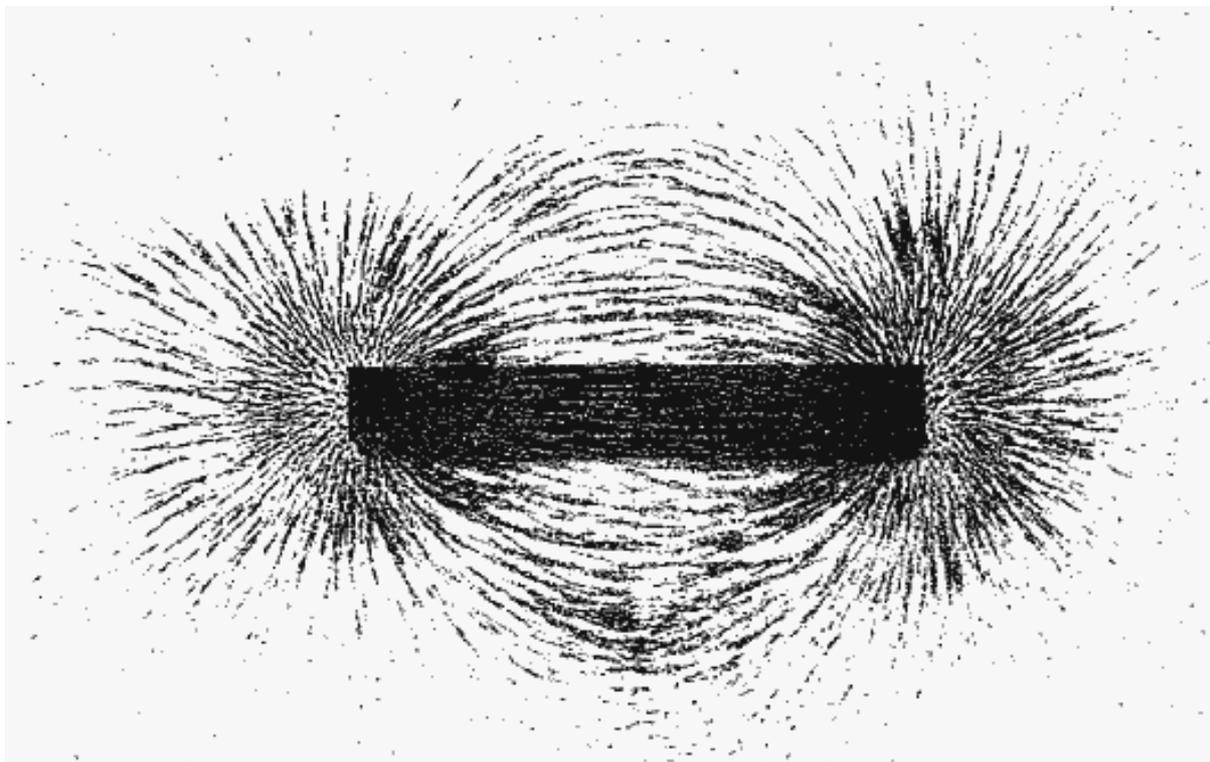
Following up on Goethe's morphology most strongly in contemporary research are the ideas of the biologist Rupert Sheldrake, who describes in his autobiography how an essay on Goethe's scientific considerations gave him the decisive impulse for the development of his ideas.



Sheldrake, born in 1942, certainly is one of the most revolutionary and controversially discussed scientific thinkers of our time. Publicly and with a clear scientific claim he leaves the level of the purely material and the present matter- science. In doing so he connects to the concept of the field, which is approved in many physical areas. In the biological area this concept already has a longer tradition. It was used, among others, by the Russian biologist Alexander Gurwitsch in 1920 to develop an explanation of growth and differentiation of cells in living organisms.

A field describes the particular state of a space, where at every place an effect of a force occurs. So there are no selective forces, which set in at one point and act linear, but they work within the whole space. Mechanistically thought, you can prove the effects of this force in the space of an endless amount of points. If thinking becomes a little more fluid, you can speak of the flow of power (e.g. magnetic flux). One then comes to views that are similar to the phenomena of pressure in liquids or gases. A field therefore has to be thought of as an immaterial fluid of force. Fields work independent of the material also in a vacuum. When dealing with fields, whether magnetic, electromagnetic or gravitational fields, movement occurs in an area of force which can have an effect on matter, though it is immaterial itself.

The effect of such fields of force on matter can sometimes produce impressive ordinal structures as, for example, can be seen in the detection of the structure of magnetic fields with iron filings. How long would it take to lay down by hand every little iron filing chip to build this structure and how immediately the matter is arranged in a magnetic field!



In the physical area the concept of the field is continually turning out to be very helpful in a growing number of areas and is showing itself to be more comprehensive and useful than the mechanistic view of point-by-point singular forces. The principle of separated objects emphasised by atomism is increasingly being substituted by the principle of linked objects arising with the concept of the field.

Sheldrake is now transferring the concept of the field to forces shaping the living. These also act holistically and comprehensively. Here matter can also structure itself all of a sudden according to the requirements of the living organism. How difficult it would be for example to explain the ordinal structure of DNA or the process of DNA duplication purely through the interaction of matter and how easily and suddenly matter could be arranged according to a form-giving field, called the morphogenetic field of the organism. - The superiority of the field theory becomes impressively clear.

Based on the morphogenetic field of a single organism Sheldrake also transmits his concept of the field to the organisation of colony-building insects. The mysterious phenomena in a beehive or a termite colony can be easily explained by colony-wide organising fields. The collective behaviour of living beings of the same kind can also be explained by habit-defining fields.

One can come to a very general and enlarged concept of the field: everything that is related in terms of force can be explained by linking fields. A stone "knows" where it has to fall. In some way it must therefore have a connection to earth. This is described by a gravitational field. One might as well explain the general relationship between two objects or two beings that are in interaction, whether plants, animals or human beings by a connecting field. The empty space between two objects, which is the only thing the mechanistic approach can see, would be filled with dynamic fields of the most different kind, which

are not hypothetical, but have the same right to reality as the objects or beings themselves. This approach, having its fundament in the observation of relationships, in which everything exists only through its relationship with others could lead to a new dimension of attachment to the world in human experience. A revolutionarily changed attitude towards life, linked to the great spiritual impulses of humankind, would now be scientifically justified.

Goethe's morphology and Sheldrake's morphic fields

Shape formation, -transformation and -development - that is the way in which Goethe and Sheldrake approach the living. Not the analytical decomposition into single components and their mechanistic interaction is examined, but a higher level than the physical one, the level of the formative forces of the living, is considered. For the description of these holistically working formative forces the academically approved concept of the field is obvious to Sheldrake. The acceptance of this very reasonable theory, adequate to the living and obtained through research enables living sciences to enter the realm of immaterial forces and processes. The step is small but, nevertheless, of immense importance.

Goethe's approach is less abstract: *"Let us not seek for something beyond the phenomena – they themselves are the theory."* He rejects any ideas of models because they are just mental crutches and distract the subject from the internal experiencing knowledge-act, which is necessary for grasping living processes. Rather he expects from the researcher an intensive, quasi artistic mental agility, that goes far beyond the causal logic of the existing science.

"The form is immediately transformed again, and, if we wish to achieve a contemplation of nature that is somewhat alive, we must see that we remain as mobile and plastic as the example nature provides us."

Goethe thus creates no new models of explanation, but requires quite a new methodology: The forces working in the living are experienced and recognised by activating internal forces within the observer and his perception. This leads to judgments through intuitive perception.

Sheldrake's ideas, however, despite their new nature, are more accessible to the current methods of natural science. They are still a revolutionary step to a new level, the world of living formative forces. Even if they remain at the physical level from the aspect of perception, they lead to an enlarged holistic approach and overcome the narrow-mindedness of looking only at material causal relationships.

Goethe's direct perception of creative forces, which form external objects, has its source in the perception of the own inner experience of the observer. Only those, who practice this themselves, will come to an experiencing recognition of living gestures and qualities. The experienced can definitely be articulated as knowledge. Through this it however already becomes something other than the actual experience of the active forces and qualities. In order to understand an observation, it could be helpful to have knowledge of the morphogenetic fields theory.

One will never be able to grasp the forces of the living, or with Sheldrake's term the morphogenetic fields, with measuring instruments. The living can only be perceived through one's own vital forces. Nevertheless, objectivity and comparability of the results can definitely be reached with this new scientific methodology by skilled scientists, as they will come to the same or similar inner experiences and to the same judgments.

From mechanistic acting to organic activity

Mechanistic thinking has prevailed above all because it has brought enormous technical achievements, advantages and power. An organic thinking will only arise if it is accompanied by organic acting and if it is obvious that organic acting is far superior to a mechanistic acting, which is purely derived from the experience of the physical world.

Mechanistic acting

In action, humans move more or less targeted and result-oriented within the physical world. Although we are completely active in the physical world, this action still cannot really be called mechanistic, because action always carries an intention arising from a larger, more holistic context. Yet human action can have mechanistic features, if resulting from a limited, short-term point of view. Short-term success and quick results are being pursued today in many areas. Larger temporal and spatial relationships are not considered enough. Occasionally, even violent actions are done to the surroundings in order to achieve personal success. There is a strong fixation on what manifests itself in the moment.

If one deals with the area of the living, such as plants, animals or even social interactions with other people, such mechanistic stamped actions are absolutely inappropriate, often unsuccessful and they mostly lead to bad results which last only briefly and are not supported by the surroundings.

Organic development

Significant aspects of life can be seen in the development of plants. First of all, these aspects shall be considered here independently of the ideas of Goethe and Sheldrake:

On one hand a plant needs an internal organising principle, on the other hand, it requires certain environmental conditions which enable its development. These conditions can be natural or they can be optimised by human intervention according to intentions. In any case, they need not be exactly defined, because a plant can adapt to different conditions. Its gesture or its own way to express itself in the world, which can be recognised by judgment through intuitive perception, stays the same according to the type of the plant, although varying in its individual manifestation according to environmental

conditions. In addition, subtle changes of nuances in its shape, regardless of individual internal and external conditions, may be different. This being different of an individual is a clear sign for its vitality. For example, a field with absolutely uniform plants, as it is demanded for machines adapted to conventional agriculture, can certainly not be called vigorous or vital.

Because of loosely defined environmental conditions and individual possibilities for form, the plant loses the strictly causal predictability of the mechanical area. One criteria of the living is in fact that there is no absolute predictability. A moment of freedom emerges. How a plant will develop, whether a seed germinates, how much fruit it brings, all this can only be predicted with a certain probability. In principle the living cannot be calculated precisely. No wonder then that the effects of genetic engineering cannot be predicted exactly by anyone.

Another important difference of the living from the mechanical is the need for development and transformation. These processes do not appear in mechanical operations at all.

In plant and animal life and especially with humans, dynamic development takes place. Birth, growth, maturity and death characterise this development. There are certain phases of intense transformation which are not always as evident as the transformation of the seed to the sprout, or the caterpillar to the butterfly.



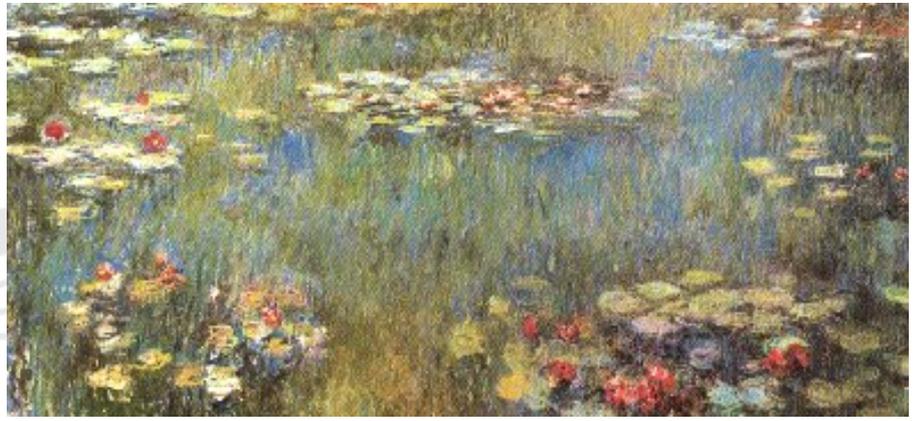
Another characteristic feature of the living is the continual and above all rhythmical exchange with its environment. An organism must be an open system, performing respiratory and metabolic processes with the environment. Without these exchange processes the organism will die. The rhythmic, breathing nature of living processes is significantly different from the isolated, linear mode of the mechanical operations.

The aspects of life shown below will make it easier to understand organic activity.

Organic activity

Like all living beings a plant can only develop in multiple relationships with its environment. These relationships, however, cannot be regarded as a linear connection between two points. That would be considered too mechanistic. The plant is just part of a larger whole. It is part of the environment and is itself the environment for others. This is important for an understanding of a general organic activity.

**„ When the lake
was there,**



**the swans also
came“**

– this Asian wisdom shows what is essential for organic activity: the work on the conditions and the environment is crucial. It is not that something is just picketed somewhere, as in a mechanical action, but conditions are created in such a way that the desired can develop. Sometimes a seed is necessary, sometimes this appears even in a miraculous way by itself, like the swans in the above example.

Then like a plant the developing must be accompanied with care by the acting person according to its respective level of development. It develops, however, by its own laws and its own forces of live which can not be calculated entirely. Acting people have to be careful not to accelerate this development nor to manipulate it according to their own ideas and wishes by use of force. As the success of their efforts is not immediately visible, patience and confidence are necessary. One also has to accept that the processes at work does not lay completely in one´s own hand.

If problems appear, it does not make sense to analyse the developing in isolation. Wide perspectives must be considered, without fixing too much on the single problem. The conditions must be examined and must be worked on, as far as this is possible. Sometimes this is not possible any more. Then maybe just a mechanical emergency operation can be made or it can only be learned from this for the future.

Overall one has to get away from a selective temporal and spatial approach. The consciousness must perceive in empathetic and attentive devotion the environment and its development over time. With this kind of change in perception, actions will also change gradually. Then, when dealing with the

living, which also includes social interaction, the consciousness will slowly get used to not proceeding in a dualistic and analytical manner, but to open for a switching between empathy and reason.

This way of viewing and acting can not only be used for dealing with plants, animals and humans. Every process and every project in everyday life, can be looked at in an organic way and handled accordingly. In time, confidence in developments will arise, perhaps even an understanding of transformations. Single phenomena are not looked at isolated as something ready, but are perceived as externalised suggestions and manifesting symptoms of larger temporal and spatial interrelationships. One increasingly works in and with the forces of the surroundings and feels embedded and carried. It may be surprising to experience how help comes from outside one's self, problems are solved by themselves or situations arise which only have to be seized. That all is quite different from passivity, but on the contrary requires an intense and not only physical dynamic power. Of course, direct physical activities are always necessary, however you can experience this in a larger context. This can lead to calmness, confidence and patience. The love to an action increases and the intention which is only oriented on a result decreases.

Reference to Goethe and Sheldrake

Goethe's and Sheldrake's central concern is to come to an attitude of understanding adequate to the living and then from this understanding to a changed manner of acting results.

It has already been shown, how Rupert Sheldrake's morphogenetic fields lead away from a selective approach. Among other things, he shows how every being lives in its relationships, conceivable through the active reality of a connecting field. The dual subject-object relationship is transformed into the totality of a field which includes the subject and object as polarities. At first this is very difficult to think. If, however, this turns out to be scientifically reasonable and if it continually asserts itself in the general consciousness, it will certainly lead to a change in perception, behaviour and acting. Not objects and manifestations, which appear at the moment, but a flow of changing living relationships, connectedness and interdependency will constitute our existence and determine our acting.

It was most important for Goethe to show how the way we look at the world affects ourselves. This was the reason why he was so afraid of the increasing mechanistic view of the world with its analytically separating approach. An organic view and acting, which perceives and handles everything in temporal and spatial contexts can lead to the perceiving, feeling and acting person not regarding himself so much as egocentric but can expand his consciousness and learning to perceive his current situation as an interaction with his environment and in connection to his biographic development. Goethe's judgment through intuitive perception requires mindfulness,

empathy, internal perception, and the overcoming of one's own fixed patterns of perception. This will enable us quite practically to acquire new skills which will also change our acting.

Current affairs and outlook

Thinking and acting organically can not only help develop a new kind of environmental awareness, it also creates a new kind of social connectedness. Continual exchange with the surroundings, a mutual nurturing and animating in social contexts can be experienced in doing so, without one side would have to give up its own individuality.

In case of a conflict, we all too easily fall back to a mechanistic way of viewing and acting and are dominated by the attitude of dualistic separation. This applies not only to individuals but also to entire societies and cultures. In the age of global awareness and global acting the aspect of interconnectedness should actually increase and help deal with crisis. It should be increasingly clear that the welfare of others also helps and is advantageous to oneself. This knowledge arising today is an absolute requirement for a positive and fair globalisation and seems to have to pass its crucial test in the present events of today. Capitalism and various forms of fundamentalism dominate the world and often are imposed by violence. Organic thinking and acting is free of these ideologies which actually belong to the past. Like the present science it spans cultures. It is helpful, while respecting different cultural approaches, in strengthening insight into our mutual responsibility and towards developing a common perspective for our world in dialogue with each other.