Nature - our Master Teacher
A Framework for a New Paradigm

This paper is dedicated to Martin Heidegger at the occasion of the 50th anniversary of his death.

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The World Today

In his allocation at the of the year 2024/2025, the Secretary General of The United Nations, Antonio Guterres, repeated with emphasis his exhortation to give the highest priority to the overcoming of the ecocrisis. In 1969, his predecessor at that time, U Thant, had used practically the same words. This assessment sheds light on the fact, that in more than 50 years since then very little to nothing had been undertaken.

In the meantime, a nature more and more repelled from our view makes itself felt increasingly by catastrophes to an extent unknown to us so far. Earthquakes, floods, periods of extreme heat and droughts often accompanied by famine, disease and impoverishment menace life in many regions on our planet. Pure air, pure water, and pure soil become a rare good. The overpopulation reinforces this negative development decisively.

In short, we have got into a crisis of global extent: the ecocrisis is the dominant crisis of our time. It comprises all domains of life and puts them in relation with one another. How could this happen? Since several thousand years, our thought and activity is determined by the rationalistic-deterministic worldview (paradigm). Its origin resided in the circumstance, that mankind learned to subject nature to its benefit by the discovery of agriculture and husbandry of animals. This conjuncture mislead it to the belief that it could subdue nature and replace her rule system by its own. This fatal misjudgment encumbers more and more our relation with nature. It is true that the rationalistic-deterministic paradigm led to the acquisitions of modern time, but during the last two centuries it also produced increasingly the menacing effects with which we are now confronted in form of a crisis of global reach. The progress has become a threat.

In the past, we had already the opportunity to break away from this paradigm. In the first half of the 19th century, the poets and philosophers of the Romantics tried to conceive a new nature -oriented worldview. However, this movement was overrun by the rise of the natural sciences and the ensuing development of industrialization. The improvement of the conditions of living seemed to be more important than the preservation of nature. It is true that physics discovered rules like the law of gravitation, the principles of thermodynamics, the Maxwell equations and quantum mechanics which were useful for our provisioning of energy, means of displacement, machines and telecommunication. Yet, the natural sciences did not see what nature really is, her essence, and thus missed the opportunity to meet with her. The consequence is the ecocrisis which determines our present predicament.

Nonetheless, by the discovery of the computer in the second half of the 20th century, the natural sciences succeeded an important step of evolution. The new tool opened the access to fundamental behaviors of nature unknown so far. But again, they are about to commit the same error than a

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century ago. Once again, they are unable to see the reality of nature. They continue to conduct their profession with the same paradigm which they revealed as obsolete. The new findings are withhold from the general public, so that the dialogue, "the particularization of the content (Hegel[1])" cannot take place. The ecocrisis can be seen as an insurgence of nature against the aspiration of humanity to unlimited growth. Nature activates her immune system in order to remind us, that the earth has limited dimensions and resources, that there is a ceiling of reality which we must respect and the observance of which is decisive for the preservation of life on earth. This insight must have priority over all other aspects which determine our thinking and acting; otherwise we are heading to the collapse of the biosphere.

The fact that the endangerment of the biosphere is accompanied by a decline of culture, ethics and human rights, underscores the interrelationship between nature and human acting. The world religions rapidly lose ground and are no longer able to fulfill their commitment to provide the moral-ethical framework against the secularization of society. They lack the capacity for their renewal. They leave behind a human society without a higher spiritual instance. However, without a such, we are extradited to a state of unconsciousness and unholiness.

In other words, it is obvious that our mental equipment for overcoming the crisis has not kept pace with the complexity which our acting has provoked. We have the capacity to assume our responsibility for our future.

It is easy to see, that the we cannot solve the crisis with the paradigm which has lead us into it, and that we must access to a new one, instead, one that is nature oriented. This is the task of the coming generations.

How do we get to a new paradigm?

The ecocrisis is the existential threat of our time. The subject of the crisis is nature. Hence the question "What is nature?" is a question of central importance. Therefore, we must recheck our notion of nature.

What is nature?

For most people nature is a garden of leisure, for some a sporty challenge, for our economy a resource, and finally a hostile environment, if we are hit by a natural catastrophe such as an earthquake or a flood. We speak about the fight against nature. However, in reality, we are the assailant. Since nature is a living organism, she defends herself with her immune system. It is our interest to end this aggression, because we'll come out at the short end. By the way, a peace deal presupposes a realistic perception of the adversary.

How do we get to a perception of nature that corresponds better to reality? It would seem obvious that we must put this question to the natural sciences. However, we have seen that we cannot count on them in this regard. Given their actual weakness, we cannot expect support from the human sciences either, Ifwe cannot expect an answer from the world of today, we must apparently

1. G.W.F. Hegel, *The Phenomenology of the Spirit*, introduction

search in the past. In Appendix A, I present a model[2], which, from my perspective, could be appropriate for the development of a new paradigm.

to Appendix A

Hölderlin‘s model of nature has two components:

- As the all-present, all-creating and all-living, nature is the supreme instance. As such, she is the holy.
- The firm law is her implementing organ.

Thus, Hölderlin has correctly recognized, that a paradigm must comprise both a spiritual shroud and a principle of acting. He also was aware that shroud and principle of acting must complement each other. The spiritual shroud, the essence, must interpret the thinking and control the acting, whereas the firm law must implement the essence in reality.

Heidegger‘s impressive description of the essence of nature is not a scientific description, but perhaps just for this reason, Heidegger enunciates characteristic features of nature, since he is free of the burden of scientific knowledge:

- Since the essence of something is that which permeates it in all its manifestations, the essence of nature permeates all real.
- Openness: Her effective force, φυσιζ, generates the space of the Open, carries into the light of appearance, into presence.
- Mediatedness: The Openness mediates the relations between all real. The real consists exclusively of the mediated.

Permeating is the manner in which the essence of nature is present in all real. It comprises all effects of which the real is capable, in particular forces. It is not obvious that there is a space for the open and the light. Only in this openness interactions between real, i.e. evolution, is possible. The mediation is present in all real. The openness is the immediate, i.e. does not derive from a mediation. Nature as the mediating immediateness is the firm law. If we are acting contrary to the firm law, we lose the protection by the holiness of nature, i.e. we get into unholiness. This condition is accompanied by unconscious-ness, i.e. we no longer know what we do and why we do it (Hannah Arendt: thoughtlessness). Hence, the knowledge of the essence of nature is not a philosophical subtlety, but is rather of real importance for us. Therefore, it is a precondition for overcoming the ecocrisis.

Regarding the firm law, Hölderlin/Heidegger offer us little that is concrete. But Heidegger reminds us: The holy keeps all real together in the unscathed immediateness of the firm law.

What is our place in nature?

If we don‘t have the correct perception of nature, then we cannot have the correct perception of our place in nature. Heidegger portends, that we are a part of nature. Thus our place is within her and not outside or besides her. It is a misconception wanting to subdue nature. As Hölderlin says, nature educates us „by a light embrace“, i.e. without coercion, and she tries to make us accept the firm law. This means that nature is our master teacher. Nature has no alternative but to act

2. Friedrich Hölderlin, „Wie wenn am Feiertage....“, enthalten in Martin Heidegger, Erläuterungen zu Hölderlins Dichtung, Vittorio Klostermann, 1951, S47ff

according to her firm law. If we refuse to adapt to it, we harm our holicity and for this reason we risk to be eliminated, and this, because of the lack of a predator, automatically by self-destruction. As we'll see, the firm law provides us sufficient space to deploy the extraordinary capabilities which nature has given us and which could help us to avoid such an outcome. It is up to us to find out, how.

What about our perception of ourselves?

If we are a part of nature, but are unable to perceive it, then we cannot have the correct perception of ourselves. Since we are a part of nature, the essence of nature should also be present within us and our thinking and acting should be permeated by it. If we, as now, get into conflict with nature, something must be wrong regarding our relation with our essence, i.e. it does not permeate our thinking and acting as it should.

The essence of something permeates it in all its manifestations. Since antiquity, philosophy has defined the essence of man as its being. However the relation between being and nature was not a theme. The being has simply been conceived rationally (metaphysics). Yet a being conceived this way cannot be rooted in the essence of nature. Heidegger was the first philosopher who broke with this concept of being by opposing to an exclusively rational thinking and acting the Being as our essence („Sein"). Our Being must be understood as the essence of nature within us. As such it must permeate our thinking and acting.

The Being is an emergence of our psyche. As the religions, the philosophy never put the question, what it is about this instance of our mind. It has been misunderstood and repres-sed until the beginning of the 20th century when it became the subject of a new field of science, the psychology. It underwent considerable extensions by Freud's successor, C.G. Jung.

Jung extended the concept of unconscious, discovered the archetypes, and added to it the notion of Self as a counterpart to the rational thought, our Ego.

In the second half of the 20th century, psychology received the support of neurophysiology which could clarify the functioning of various parts of the brain using advanced means and methods. The psychologist Anthony Stevens[3] has presented a comprehensive description of the results of this research (see Appendix B).

to Appendix B

As can be seen easily from the exposition of Stevens,

- the couple essence of nature/firm law of Hölderlin-Heidegger
- the model Ego-Self of Jung and
- the Bicameral Mind of Stevens

are equivalent. Hence the functioning of our psyche fits well with the Hölderlin-Heidegger model of nature. Accordingly, the right hemisphere of the brain is identified as the seat of the Self, the left hemisphere as the seat of the Ego with the additional requirement that the two hemispheres must cooperate interactively in order to warrant the permeating of our psyche by the essence of nature. If this cooperation is not maintained, we lose the control of the the older layers of our brain, and the negative influences of the archetypes can gain the control of us. Then we are exposed to the

3. Anthony Stevens, *Archetypes Revisited*, Brunner-Routledge, 2002, chap. 13

condition of hail-lessness which is accompanied by existential anxiety. Existential anxiety provokes the striving for power, domination and accumulation of wealth and our behavioral patterns as cruelty, violence, lies, corruption and betrayal persist.

Due to psychology and neurophysiology, we dispose from now on about the knowledge of these mechanisms which had remained hidden to us before. In principle, they are no longer needed as tools serving in the fight for survival. There is no reason for the further persistence of existential anxiety. With his description of the functioning of the „Bicameral Mind“ and the dealing with it, Anthony Stevens has shown us the way in which we can surmount these destructive mechanisms of our mind, in other words, reach true consciousness and achieve a valid perception of ourselves. The question is just how we can achieve this objective. Certainly not by rationality alone.

The new paradigm - the implementation of the Hölderlin-Heidegger model by man

The implementation of the Hölderlin-Heideggger model confronts us with a double task:

- The exploration and acquisition of the rules of the firm law
- The opening of the access to the essence of nature

This signifies that the new paradigm has two components. The first belongs to the sphere of the rational mind, the latter to the sphere of mental perception. According to the model, they must operate in combination, otherwise the paradigm misses its effect and everything remains unchanged.

The implementation of the firm law by man

With the firm law, nature governs reality. It is the materialization of her essence, her rulebook. Looked at more precisely, these rules turn out to be the ideal or even only possible way of proceeding of an agent deprived of a brain with which he can plan and correct errors. Nature must proceed by trial-and-error. Thus, steps of development which cannot assert themselves in the environment, are eliminated and replaced by more appropriate solutions. This is how evolution functions. We don‘t know how nature got access to her rulebook. We can only try to decode and adopt it.

All living organisms, except man, implement the firm law automatically. In this way, they are always in conformity with the essence of nature. Only man believes, that he is an exception. He lends himself to the illusion, that the special capacities provided to him by nature, allow him to act as he wants and with impunity in an artificial world imagined by him. He believes, that he can get along with the infrastructure of artefacts which he has created.. He forgets that his artificial world stands with its feet on the ground of the reality of nature. He ignores that nature on earth is a whole with limits given by her. This recklessness is frivolous. Instead, we should be interested to align our thinking and acting with the firm law, otherwise we compromise our future. This means that we must explore the rules of the firm law and adopt them.

The firm law is about fundamental behaviors of nature. What have the poet Hölderlin and the philosopher Heidegger to say about it? Not very much. Admittedly, with terms like all-presence, all-creative and all-living *Hölderlin* describes the framework which nature has created for the implementation of her essence, but no rule. Nonetheless:

- All-presence signifies that nature provides the space and the time in which reality can take place.
- All-creative signifies that nature provides the forces which cause the real to interact, so that evolution can take place.
- All-living signifies that nature has endowed the real with a drive to live, by the force of which life could emerge and persist.

Heidegger, for his part, goes one step further. He speaks about openness and mediateness as prerequisites for the unfolding of reality and, respectively evolution. He designates with φυσιζ the urge of nature to evolve and to develop. Thus, one can say that Hölderlin and Heidegger defined the framework in which nature can take place. In this way they opened a view on nature as a whole which we didn't have before. However, concerning the rules of the firm law they leave us without an answer. The urgency to know concretely the rules of the firm law was not as visible for them as it is for us today.

Where do we find the fundamental behaviors and rules of nature? Though the natural sciences have deceived us, because, up to now, they were unable to develop a notion of the essence of nature, their advances especially in the second half of the 20th century, provide us new fundamental insights into the functioning of nature. What is meant are the findings of systems theory. The discovery of systems theory was a significant step forward for the natural sciences[4]. Powerful computers enabled the numerical integration of systems of nonlinear equations with a great number of variables. This allowed for the simulation of complex phenomena. Thus, a number of typical behaviors of complex systems as emergence, nonlinearity, attractors, bifurcation, amplification by feedback and autocatalysis were discovered. It was found that life is a stable state under nonequilibrium conditions. In order to maintain a stable state far from equilibrium, the continuous supply of energy is required. The new possibilities of computation allow for the handling of the complexity not only of natural processes, but also of those generated by man. By this way, the limitations of linearization and of the deterministic paradigm could be overcome.

However, the newly discovered rules should not only remain the privilege of scientists, but also become helpful guidelines of the human community. Therefore they must be brought into a form understandable by everybody. Since several decades some of the results of systems theory are in use in simplified form under the designation of systems thinking, for instance for the planification of architectural or industrial projects. However nowhere the essence of nature as the controlling instance is considered. The rules presented in Appendix C go much further.

to Appendix C

With the rulebook becoming a toolbox for everybody in daily life, our acting would become more conform to nature and the limitations of the rational-deterministic paradigm could be surmounted. It is difficult to foresee how far we will be able to advance regarding the knowledge about the rules of the firm law, but the rulebook will certainly be extended, when we will gain more insight into its functioning by dealing with nature under the influence of the new paradigm.
Though the behaviors of nature revealed by systems theory have each a well defined functionality, they form a holistic ensemble, i.e. they depend on each other and cooperate within a network. Holistic unity means that only in combination with each other they form the firm law and implement the essence of nature in the real world. Let's not forget that the rules are value neutral. They

4. L. von Bertalanffy, *General Systems Theory*, George Braziller, 1969

can be applied in a furthering or destructive way. They are quasi "profane“. In our hands they become rules of the firm law only, if we apply them conform to the spirit of the essence of nature.

The combination of essence of nature and firm law gives rise to some further rules which are not directly related to systems theory, but correspond more to the demands of the essence of nature (see below „The opening of the access to the essence of nature). By the way, it is an interesting question, whether the rules of the firm law can help to find the path to the essence of nature.

The opening of the access to our essence

- **Understanding & listening - Knowledge & Wisdom**

According to the model of Hölderlin&Heidegger which constitutes the basis of this essay, the firm law and the essence of nature must form a unity. This should also be the case with man. The activities of man are directed by his psyche. As we have seen in Appendix B, like nature in general, our psyche has a bipolar structure. The left hemisphere guides our acting. The right hemisphere has the task to control this acting. This means that the right hemisphere must represent the essence of nature, if essence of nature and firm law should form a cooperative feedback loop with the left hemisphere also on the level of man. However, we have neglected the right hemisphere more and more. Thus we have lost control over the negative influences of the archetypes which henceforth can deploy their destructive agency uninhibited. In addition, we deprive us of the wisdom which the bipolar structure of our mind offers us.

As we have seen in Appendice B, the right hemisphere is not rationally accessible. How can we still enter into contact with it? Jung and Stevens left us without reply to this question. When dealing with the left hemisphere we are used to put questions and receiving answers. We cannot impose this kind of communication to the right hemisphere. Rather, the initiative to establish contact must come from the right hemisphere. The appeal must emanate from it. The appeal will happen certainly, because the right hemisphere wants to assert itself. The point is to listen to it. The left hemisphere wants to be understood, the right hemisphere wants to be listened to.

At the beginning, we must reestablish the disposition to listen to the right hemisphere. For this to happen, the right hemisphere must be recognized as an equivalent partner of the left hemisphere, instead of being waved aside as irrational. Thus, the main obstacle for receiving the messages of the right hemisphere would be removed. These messages which appear in our perception as insights, or often as allegories or images, require interpretation. Frequently these messages include the interpretation at their delivery, i.e. on awakening after a dream, it is essential to consecrate the full attention to it. However, the appraisal of the message is the task of the left hemisphere, because it is a rational matter. The corresponding qualification must be acquired by a learning process. In Appendice C we have seen that nature uses knowledge of the psychic and the neurological processes cited in Appendice B. However, there are no fixed rules. Once a first contact with the right hemisphere is connected, it can be expanded by such a learning process in the course of life.

Since the Self is the representative of the essence of nature in our mind, the unity of understanding&perceiving, once established, should bestow us with the capacity to control the destructive influences of our psyche. This capacity determines our long-running survival on this planet. The efficient cooperation between the two hemispheres produces consciousness, real consciousness, i.e. recognition of the real with all its relations within the network of totality. A

consciousness seen in that way forms a meta-level above the plane of the real and provides a worldview which comprises all aspects of the lifeworld. Nature has given us the possibility to attain this kind of consciousness. Jung even advanced the bold hypothesis, that, with human consciousness, nature wanted to create an organ with which she could become conscious of herself. Does nature intend to free herself of the necessity to use the interplay between creation and destruction as drive for her evolution? If this were true, it would imply the obligation for us to realize it. After all, are we able to recognize the essence of nature without having implemented it within us? Do we have another opportunity at all, if we want to avoid a fatal issue of the ecocrisis?

There are many people who received the feedback loop understanding-perceiving as a natural gift. We certify them a sane common sense and they enjoy an easygoing life with it. Others must pass by painful experiences to arrive at that insight. In Jungian psychology this transformation is called individuation.

From the individual understanding-perceiving it is still a long way to reach collective understanding-perceiving. Only when the understanding-perceiving at the individual level has reached a critical mass, the efficient battle against the ecocrisis will pick up speed. Could this transformation be accelerated by an education comprising all classes of age? It would be desirable, because time is running out.

The ideal society would consist of individuals who have realized the cooperation between understanding and perceiving. This capacity would enable them to form a cooperative society which exhibits a diversity of opinions on one side, but the cohesion of which would be ensured by the fact that its Self corresponds with the essence of nature on the other side. In his *Divine Comedy*, Dante has given to this ideal society the name „Candida Rosa".

- **Respecting the measure**

Nature has no psyche which tempts her to transgress the limits imposed by the existent with her new discoveries. Her actions always conform to the measure. Nature undergoes changes, it's true. The alterations of the climate und the retreat of the glaciers have changed the vegetation and caused the disappearance of certain species of animals. But the unicity of the evolution has not been affected thereby. By introducing man, nature imperils her creation for the first time - at least on earth.

By endowing man with the bicameral mind, nature made man self-responsible. However, he did not take notice of this fact. The temptation to be able to improve his conditions of life gained the upper hand over the careful dealing with nature, though it should have been obvious that the limited dimensions of the earth are synonymous with limited resources - a rational understanding for the common sense, one should believe.

The world of artefacts which we have created, has reached a level of complexity with which we no longer cope. In every nook and corner unforeseen side effects surge which require countermeasures which again produce side effects, and so on. We are overwhelmed, but instead of reducing the oversized complexity, we try the flight forward. Thus, we amplify the problem.

How can we do better? The reestablishment of the feedback loop understanding-perceiving is also determining for the point „respecting the measure". If we reestablish the wholeness of our psyche, we have done all what is necessary. From then on, our thinking and acting will become conform to nature. Nature still leaves us sufficient margin for an evolution compliant with her, if we pay attention to develop the new real in conformity with the existent.

- **Soberness**

Nature is not conscious of herself, just as little of her actions as well as of what arises from them. For us, she seems to be indifferent. That is paradoxical because evolution presents herself targeted actively in direction of the development of life.

Which behavior of ours corresponds to this contradiction between restraint and striving forward? Heidegger concludes his elucidation of the poem of Hölderlin with the words:

The cool and shadowy of the soberness corresponds to the holy. This sobriety does not deny the ardor. The sobriety is the always poised basic mood of the readiness for the holy. Sobriety is the union of two contrary behaviors, resolute acting on the one hand, readiness to accept the uncertain issue of this acting on the other hand, at the same time being *in* the matter and *outside* of it, *above* it.

Closing Words

The ecocrisis is the most important danger for the continuity of life on earth and consequently also for humanity. While our attention is captured by conflicts of all kind, it proceeds slowly, but without being perceived by us as an all-encompassing threat.

The ecocrisis is the consequence of our holding onto the rationalistic-deterministic paradigm. This paradigm originated at the transition of the early humans from hunting-gathering to agriculture and livestock breeding. The new man learned to use nature to his advantage. At the latest from the advent of industrialization this paradigm became an attractor.

An attractor is an element of stability, but also a closed domain, from which escape is only possible by the intervention of external aid. As the result of the global extension of the crisis, there remains only one exterior left: our interior.

The overcoming of the ecocrisis presupposes a valid notion of nature. Up to now, such a notion lacks our efforts to save the biosphere. The rational paradigm has alienated us from nature. We have lost the contact with nature. Since the natural sciences persist relying on the old paradigm, we cannot expect from them a convincing notion of nature.

The Hölderlin-Heidegger model appears to me to be a valid notion of nature. It is a bipolar model consisting of a spiritual component, the essence of nature, and a component driving the evolution, the firm law. Thus, it provides the basis for a new nature-oriented paradigm. The spiritual component is the envelope which preserves our acting in the realm of the holy of nature, her essence. The firm law is a rulebook for an acting conform with the essence of nature.

Regarding the firm law, Hölderlin and Heidegger could provide only insufficient information. Hence it was the task of the current essay to fill this gap. The rules of the firm law are accessible to the left hemisphere. During the last hundred years, the natural sciences have discovered many of these rules within the context of systems theory and of biology. However, being prisoner of the attractor „rationality“, they missed a holistic view of nature, its essence.

Apparently, the spiritual component is not a part of the attractor „rationality“. We are indebted to Anthony Stevens for providing us a comprehensive description of the neuropsychological functioning of our mind. The bipolar structure of the Bicameral Mind is not surprising, because it

corresponds to a fundamental rule of the firm law. Spirituality is an emergence of the right hemisphere.

Stevens‘ elucidation shows that the Hölderlin-Heidegger Model with essence of nature and firm law, Jung‘s model of the psyche with Ego and Self, and and the Bicameral mind coincide and confirm themselves mutually. The feedback loop understanding-perceiving is the precondition for consciousness. On heading to this target, it must surmount the negative influences of the shadow which menace the equilibrium of the psyche. Consciousness is the precondition for holistic perceiving of reality.

It requires indeed no further evidence that we have to do it with a new higher level of knowledge and wisdom. It is definitely laid out in man. It corresponds to his position within nature and to the realization of his Self. By reaching this level, man would recover his capacity to confront the ecocrisis and the complexity related to it. If humanity succeeds in realizing collective consciousness by integration of individuals who have accomplished the step to this kind of wisdom then she will access to an unimaginable abundance of new experiences.

Appendix A: The Hölderlin-Heidegger Model of Nature

In his hymn „As when on a holiday...“ Friedrich Hölderlin (1770 - 1843) made the following two statements:

Nature which is older than the ages and above the gods of Occident and Orient...
and
Nature acts according to the “firm law” (“vestes Gesez”).

Further on in the poem, he calls nature the all-present, all-creating and all-living. With these qualifications he reveals nature as being the supreme instance. With the second statement, he establishes, that the all-creating is forming the real with firm rules.

Hölderln‘s words remained unnoticed for more than a century until they were rediscovered by Martin Heidegger (1889 - 1976). Heidegger recognized the signification of Hölderlin‘s statements and wrote the elucidation which is the subject of this essay. The description of nature which is part of it, is breathtaking. It is the best to listen to him:

> *She [nature] is present in everything that is real. Nature comes to presence in human work and in the destiny of peoples, in the stars and in the gods, but also in stones, growing things, and animals, as well as in streams and in thunderstorms. "Wonderful" is the omnipresence of nature. She can never be found somewhere in the midst of the real, like one more isolated actual thing. The all-present is also never the result of combining isolated real things. Even the totality of what is real is at most but the consequence of the all-present. The all-present escapes explanation on the basis of what is real. The all-present cannot even be indicated by something real. Already present, it imperceptibly prevents any particular intrusion on it. When human deeds attempt this intrusion, or when divine activity is directed to it, they only destroy the simplicity of what is so wonderful. The wonderful withdraws from all producing, and nevertheless it passes through everything with its presence. (translation of Hoeller, p. 75)*

…Her omnipresence does not mean a complete, quantitative comprehension of all that is real, but rather the manner of permeating it.... (p. 76)

Φυσιζ, φυειν signifies growth. (p. 79)

Φυσιζ is an emerging and an arising, a self-opening. (p. 79)

Thought as a fundamental word, φυσιζ signifies a rising into the open: the lighting of that clearing into which anything may enter appearing, present itself in its outline, show itself in its "appearance" (ειδοζ, ιδεα) and be present as this or that. (p. 79)

Φυσιζ is what is present in all. (p. 79)

The open mediates the connections between all actual things. These latter are constituted only because of such mediation, and are therefore mediated. What is mediated in that way only is by virtue of mediatedness. Thus, mediatedness must be present in all. The open itself, however, though it first gives the region for all belonging-to and -with each other, does not arise from any mediation. The open itself is the immediate. (p. 83)

Nothing mediated, be it a god or a man, is ever capable of directly attaining the immediate. (p. 83)

"Nature" is the all-mediating mediatedness, is "the law."(p. 84)

Because nature remains prior to everything, the primordial, the originally unshakeable, she is the "firm law." (p. 84)

Hölderlin names nature the holy because she is "older than the ages and above the gods." (p. 82)

Everything that is real is joined together by nature into its main essential lines. (p. 83)

The holy is the essence of nature. (p. 82)

Appendix B: The human psyche

The psyche is the most intimate sphere of each individual. It keeps it secret, for instance to protect himself from being blackmailed by others. This may be the reason, why it became only late a subject of scientific exploration.

The investigation of the psyche started in the beginning of the 20th century with the discovery of the unconscious by Sigmund Freud. The initially as inexact decried field of research received the name psychology. Half a century later the neurophysiology began with new methods to contribute its share to the elucidation of psychic processes.

The models of the psyche of S. Freud und C.G. Jung

The discovery of the unconscious by S. Freud in 1899 is considered being the hour of birth of psychology as a scientific discipline. Freud recognized that unconscious processes play a role within our mental processes. They influence our perception of the real world without being noticed by us. They operate from a domain onto which we have no rational access. Freud considered as contents of this domain thoughts which we repress, and instinctual reactions. Freud was convinced that the psyche was formed by influences from the environment. He remained life-long clinged to the rationalist paradigm and, therefore, saw no reason to admit a spiritual component of psychic processes.

C.G. Jung considerably extended the scope of psychology by the following three enhancements:

- an extension of the concept of unconscious
- the introduction of the concept of archetype
- the discovery of the notion of Self as counterpart to the Ego

The extension of the concept of unconscious - Jung distinguished between personal and collective unconscious. As for Freud, the personal unconscious comprises repressed thoughts and instinctual contents, but also visual, auditory impressions, lived experiences of daily life or our intellectual activities, which we have discarded from our memory as unimportant, as well as the complexes (see below). They are all deposited in the unconscious unnoticed by us. In other words, the unconscious is a huge archive of psychic contents.

The introduction of the notion of archetype - The collective unconscious is the sphere of the archetypes. By comparing myths, fairytales and legends from different cultures, as well as

The five most important archetypes of Jung	
Self	Agent of ordering and structuring of the psyche Holistic unity of the psyche
Shadow	negative elements: archive for repressed thoughts, inferior traits of character positive elements: joy, love, inclination, confidence
Persona	the impression which the individual wants to show to the outside, his mask
Anima	determines the image which a male has of a woman and his behavior towards her
Animus	determines the image which a woman has of a man and her behavior towards him

from dreams from his patients, Jung concluded that there exist psychic structures common to all human beings which he called archetypes. He supposed that they were seated in the older parts of the brain (see below). He supposed that they developed philogenetically in the course of evolution of man. These structures behave as prototypes of thoughts which are filled with real content during the process of life to become complexes. Since archetypes are common to the whole of humanity, they are active also in social systems.

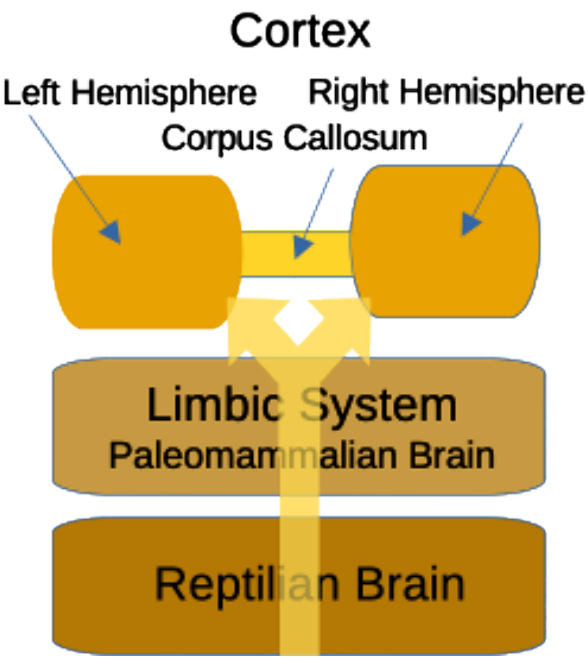
The discovery of the Self - Recurring patterns in myths and fairytales in all cultural circles induced Jung to the conclusion, that there must be a central element of the psyche which played the role of a structuring and ordering principle. Jung called this element the Self. it exerts an attracting force, the striving towards what we really are, towards a holistic unity. It is the ideal that every human being tries to reach somehow.

The Self bears within itself the complete seed of the personality. It is the counterpart of the rational thought, the Ego. The Ego splits off gradually from the Self during childhood[5]. It becomes the representative of the Self in the reality. While the Self represents a principle of tranquility, the Ego is turned towards active life. Jung requested that the two modes of the activity of our mind should be recognized as partners of equal importance and be brought into cooperation (coniunctio oppositorum). The interplay of the two modes is necessary in order that our psyche remains equilibrated and functions holistically (maintenance of the Ego-Self-axis[6]). It is only by the cooperation of Ego and Self that we can develop complete consciousness. „Consciousness consists

5. Edward F. Edinger, *Ego and Archetype*, Shambala, 1992, p. 5
6. idem, p.39

of putting things together", says Anthony Stevens. Thus, we reach the capacity to discern the greater interrelations, i.e. to perceive in holistic fashion.

The contribution of the neurophysiology to the understanding of the human psyche.



In the second half of the 20th century, neurophy-siologists began to explore with modern means of investigation the functioning of the different centers of the brain and the flow of information exchanged between them.

For the better understanding of the following refer to the simplified model of the brain shown in the adjoining figure. The brain comprises the layers of the philogenetically earlier stages of development, i.e. the reptilian brain and the limbic system, as well as as the most recent outer part, the Cortex.

On the one hand the *reptilian brain* has physiological functions like the control of the rhythms of heart beat and breath, on the other hand it is the center of instinctive reactions like anxiety, flight from or defence of attacks or of the sphere of living. Feelings and emotions are still absent at this level.

The *limbic system* appears in evolution together with mammals. It is the sphere of the archetypes, the feelings and the emotions. Feelings like joy, love, but also hate and anger, as well as emotions as enthusiasm for something or mourning arise from then on. Behavior as taking care of the progeny, but also bonding within the family or the surrounding social system (herd mentality, participation mystique) arise during this step of evolution. Thinking is still lacking. The exterior layer, the Cortex, is the most recent of the development. of the brain. It is divided into two halves. Sperry[7] discovered, that they have different functionalities, i.e. that we have in principle two psyches. Sperry could show, that the left hemisphere is the seat of rational and analytical thought, while the right hemisphere is the seat of the unconscious (Bicameral Mind). The right hemisphere is in charge of the synthesis of holistic perceptions from sensory inputs and the contents of the unconscious archive.

Unconscious signifies that the the left hemisphere has no access to the right hemisphere. Hence, the the left hemisphere depends on the right hemisphere getting in touch. This appeal happens certainly, because the right hemisphere cannot „publish" its results and must transmit them to the left hemisphere for this purpose. At that occasion, the left hemisphere may exert a certain censorship, i.e. it has the privilege of a dominant role concerning their cooperation (left-hemispheric imperialism).

The synthesis of the right hemisphere are spontaneous insights or dreams, which are formed during night, when the left hemisphere is at rest and therefore the right hemisphere has the space to herself. The synthesized contents of the right hemisphere are a rich contribution to our psyche and thereby to our quality of life. And how functions the interaction between the two cerebral hemispheres and the older parts of the brain? Apparently it has been much less explored. Stevens

7. Sperry, R.W. (1968), *Hemisphere disconnection and unity in conscious awareness*, American Psychologist, 23, pp. 723–33.

believed that the older layers communicate with right hemisphere, since their contents are unconscious. The neurophysiology, however, tends more to suppose that these contents are transmitted to both hemispheres equally[8]. Does this mean that they are treated by the two hemispheres interactively according to their functionalities? What happens, if the right hemisphere has been neglected? In this case, does the left hemisphere treat them alone and convert them into actions? Or do they bypass the left hemisphere and thus induce us to unconscious actions? At his time, Stevens could not yet provide clear answers to these questions. Yet, answers to them are of crucial importance for our aware-ness of ourselves.

Appendix C: The rulebook of the „firm law“ (Fig. 1).

In the following description of the different elements of the rulebook, it will be distinguished between

- the **function** of the rule **in the nature**
- the **significance** of the rule **for us**

- **Wholeness**

Function in nature

Nature is a holistic entity, i.e. everything is related to everything in a certain manner. Wholeness is the realization of the pervasiveness of the firm law. Each change affects the environment, sometimes until the limits of the system. Evolution takes place, if the changes are in agreement with the environment and fit within the existing without perturbing the interoperation. The existing must be able to bear the change. Therefore, nature works bottom-up. Only after the evolution has been secured on a certain level, will it proceed to the next step. Thus, the measure for a constructive change results. The change may also initiate a deterioration (aging, death). Whatsoever, wholeness allows for perturbations of limited extent, but never for the challenging of the whole.

Examples:

- A tree is growing bottom-up
- Before life could exist on it, earth had to become an autonomous celestial body, get an atmosphere and water.

Nature resorts to self-organization as the model of a process to develop the entirety of of the reality (see Self-organization below). Self-organization converts disorder into order.

Together, wholeness and self-organization lead inevitably to complexity (see Complexity below), In other words wholeness, self-organization and complexity form a triad. For instance, the environment is not only menaced by the crises of the climate, but by numerous other factors, in particular by the overpopulation. It lacks a plan of action which takes into account all these factors together, as well as the will to implement it.

Significance for us

8. Ellen van Maren et al., *Directed cortico-limbic dialogue in the human brain*, Nature Communications, https://doi.org/10.1038/s41467-026-68701-z

Wholeness is the supreme rule of nature. Therefore, it must be the supreme principle of our thought and action. Wholeness signifies proceeding from the linear and causal thinking to the attempt to the understanding of complex relations and to handle them accordingly. Wholeness increases our understanding of reality considerably. Wholeness of thinking is the appropriate attitude in the face of complexity. However, wholeness is the rule which we violate most frequently and regularly. It is true that man is not able to practice wholeness completely, but he should do his best in this respect.

Reasons for for not practicing wholeness completely are:

- Complacency
- The limited capacity of our brain
- Hidden relations which we overlook
- Psychological reasons: we leave aside consciously or unconsciously relations which are against our „interests".

Thus, wholeness requires our honesty versus ourselves. Our psyche may give us good or evil advices (see Anthony Stevens). It is the main disruptive factor regarding our dealing with wholeness, whilst it supersedes unwanted elements, e.g the psyche itself. It manipulates our interaction with wholeness. This means that we must start with surveying ourselves. We must integrate our psyche in our thoughts and actions.

Further remarks:

- Try, as far as possible, to seize all factors which could influence a complex relationship with which you are confronted.
- Test always whether your choice of arguments and their valuation is free of prejudice. Thinking and acting holistically requires to consider the justified interests of fellow human beings, of the social system in which you live and of nature.

Wholeness is the basis for sense of responsibility and of capacity of responsibility.

- **<u>Self-organization</u>**

Nature is a dynamic process driven by an inherent vital force, Heidegger's *φυσιζ*.

Function in nature

Nature is not an engineering office equipped with computers for the planning of her development processes. She must proceed by trial-and-error. Self-organization is the adequate process model for this scenario. Based on this model, nature has transformed the earth into an oasis of life.

- The elements (agents) of a self-organizing system interact with each other by their forces or influences. The interaction is exerted exclusively by the properties of the agents without the intervention of an external instance.
- The agents may exert all the same or each a different force or influence.
- The forces or influences may be fixed or variable in time.
  Fixed forces occur more in inorganic systems (complex systems).
  Variable forces are characteristic for organic systems (adaptability to changes in the environment, life processes, immune systems: complex adaptive systems).
- The interaction between two agents may be unidirectional or bidirectional (feedback loop).

- Feedback loops may form a self-amplifying or self-restricting couple (positive or negative feedback)
- An agent may form a feedback loop with himself (self-reference, autocatalysis, autonomy).
- A feedback loop may be closed across more than one intermediate station (Hypercycle).
- Self-organizing systems may proceed constructively (life) or destructively (degradation, death). Both trends may occur mixed in a process.
- Simulations have shown that systems consisting of a mixture of constructive and destructive agents evolve best, if an equilibrium exists between these two forms. This scenario is called edge-of-chaos: order provides the platform for evolution, disorder is the source for new possibilities (innovation).
- The following properties render a system constructive:
  - The quality of the agents.
  - A high number of agents with constructive properties.
  - The diversity of the properties of the agents.
  - In living systems a small number of destructive agents may be helpful (experience with learning effect, immune system).
- Self-organization processes are characterized by emergence (see below): the spontaneous appearance of new states/agents with properties which are not existing at a previous level of development.
- The self-organization process proceeds by sequences of mutations and selections.
- The role of the number of connections of the agents:
  - Each agent is connected to only one other agent: After a few steps, the system reaches a stable final state (attractor, see below). Attractors confer order to a system.
  - Each agent is connected to several other agents: The system is unstable and fluctuates at random (chaos), because contradictions exist between the forces/influences (paradox).
  - Simulations have shown that a system with a mixture of constructive and destructive agents evolves best, if there is a balance between both kinds of agents. This scenario is called edge-of-chaos. Natural systems strive automatically to this balance. Order is required as a stable platform for further development, disorder is required as source of innovation.
  - Beyond a certain size, self-organization systems subdivide themselves into a hierarchy of layers of subsystems which interact by feedback loops.
- Self-organization has a number of side-effects which are complexity, emergence, non-linearity, and attractors/bifurcations (see below).

Significance for us

Life is a dynamic process and such is the human being physically and mentally. That‘s why it is not indifferent with which process model we shape our person, our life, and our future. The reigning model of human society is the rationalistic-deterministic paradigm. It relies on planning. We define goals to be attained and allocate means in order to meet them. This procedure is considered as sure and reliable. This may be true with a high degree of probability for simple undertakings with a low degree of complexity. However, the rational process model disregards factors which don‘t serve directly the given goals. Sooner or later these factors will come up and cause the process to deviate from its course and run out of control. By applying arbitrary measures we try to recover the control but in doing so we may run only deeper into trouble.

The promised certainty and security of the rational model is an illusion. Therefore, we are well-advised to switch to a new model. Regarding dynamic processes the model adopted by nature for her firm law is self-organization. Learning what self-organization is and how to use it in practice could help us to recover our capacity of action and to master our complexity problem.

The adaptation to the rules of nature requires a human being with a changed worldview and a new toolbox of knowledge and competences. It is obvious that the learning process should be itself a self-organization process. Learning self-organization by using it for the learning process - a typical application of self-organization.

Above, we got to know the basic requirements for a self-organization process:

- A sufficiently high number of agents
- A high quality of the agents
- a high diversity of the agents

What are the equivalents of these requirements in the case of the human individual? In this case, agents are competencies for the practical life.. Man has a certain influence on the course of the process by choosing his competencies. He should acquire a sufficient number of them. They should come from different fields in order to provide diversity, but one of them should be a specialization acquired in depth. The more diverse the competences are, the higher is the quality of our overall competence. Self-organization of a personality signifies bringing these competencies into interaction so that they multiply and diverse themselves by emergence. The overall competence thus acquired is the structure enabling the individual‘s capacity of assuming responsibility, acting accordingly, and become a a valid member of society.

New emergent entities should fulfill the condition of wholeness. It‘s true that it‘s difficult to appraise the value of an agent in advance. We cannot foresee what competencies will be useful in our future life. A rich competence reveals its value particularly in unforeseen situations.

Self-organization is accompanied by bipolarity (see above) and non-linearity (see below). By taking into account these two elements of the firm law, we could avoid countless aberrations with far-reaching consequences. Note that a process fulfills only the conditions of the firm law, if it is pervaded by the essence of nature, i.e. if it obeys the measure of nature (see below).

After having acquired the capacity for responsibility, the individual becomes a valid member of human society. On this basis, it can be expected that the model of self-organization also spreads out to the collective level. Thus, social systems become units of interdisciplinary cooperation which means a further increase of their overall competence. Interdisciplinary cooperation has a number of rules of its own. We have seen, that large systems must be subdivided vertically into layers of subsystems or horizontally into groups in order to avoid an excessive growth of the complexity. This subdivision should not be seen and handled as a rank order. All competences as well as those who contribute them are of equal importance. The flow of information should be bidirectional (no top-down order). The exchange of information should be common practice. Information is not a means to gain superiority. Sharing information presupposes a sort of common language such that each member of the team has a minimum of knowledge of the field of competences of the other members so that an overlapping of knowledge is created and the coordination is improved. The decision-making should be decentralized as much as possible. This implies that each member of the team knows the sense and the objectives of the project and possesses the necessary information

about its actual state as well as the purpose of the current decisions. Each social system needs a guiding principle which assures its coherence.

Some additional remarks concerning self-organization:

- Are you well-equipped enough (information? competences? means?) to start a process?
- If you plan a project in an environment of uncertainty, begin with a seed of trials. Observe what happens. If a seed corn sprouts, i.e shows signs of the capacity to develop itself, then concentrate your engagement on it, but preserve the holistic view and soberness.
- Try to seize the environment in which the steps you intend may have on the environment of your project. Are there negative effects to be expected? What are the paradoxes which may show up?
- Is the environment ready to accept the result of your project?

Note that self-organization, as the firm law as a whole, is value-neutral. It can also be used in a destructive manner and become a pseudo-form of self-organization called „social steering“ (C.G. Jung‘s „participation mystique“): An ideology is created by injecting a germ of opinion into the society and amplifying it by manipulation and use of the media. Social steering is the main „illness“ of human society. Essence of nature is essential as complement of the firm law in order to prevent us from falling into this trap.

- **Bipolarity**

Bipolarity belongs to the basic principles of nature together with wholeness and self-organization. Since nature has no brain, she cannot plan and decide. She must rely on trial-and-error in order to advance. That‘s why she opposes to each emerging new entity another one which challenges her and thus tests her validity, i.e. to prove herself as an enhancement of the whole. In this way, nature proceeds to higher complexity. Hence, from the perspective of nature, the dichotomy is not a negative feature.

There is evidence suggesting that all processes of nature develop bipolarity by self-organization and tend to settle at a zone of equilibrium between both polarities (edge-of-chaos). This zone is the domain of maximum evolutivity. Bipolarity is not only present in organic life but also in social systems and in the human mind (bicameral mind, ego - self, see Appendice B). The list of bipolar couples is endless.

Here some prominent examples:

- order - disorder
- constructive - destructive
- mutation - selection
- stability - instability
- activity - stagnation
- cooperation - confrontation
- rationality - spirituality
- woman - man
- individuum - society
- unity - multiplicity
- identity - difference
- young - old
- closeness - openness
- being - nothingness

Significance for us

For us bipolarity is normally equivalent with dichotomy, conflict, negation or enmity, i.e. is seen negatively. We try to disable bipolarity in order to clear the way for our interests. This seems working until the moment when the discarded elements enter on the stage and change the game.

Beyond a threshold it may be too late to change the course of the events (see non-linearity).

Though bipolarity is a driving force, it is not the final destination of a process. The opposites must be surmounted in a coniunctio oppositorum in order to achieve wholeness. Coniunctio oppositorum is a position above the facts on a meta-level. It is the working of the essence of nature within us. Therefore, it is important for us to seize the essence of nature. Thus, bipolarity and coniunctio oppositorum form a bipolar couple of their own. The coniunctio oppositorum constitutes something like the a headstone of a process of evolution.

Wouldn't it be better for us to adopt the positive view of nature on bipolarity? The resistance of a perspective different to ours may be the reason for us to reassess our position. Our opinion is perhaps not holistic enough or we may have overlooked important aspects. Or the confrontation may result in another solution satisfying both sides.

- **Complexity**

Function in nature

Complexity is the outcome of the combination of wholeness and self-organization. Nature is a complex dynamic system consisting of a network of interacting agents. Each intervention into this network, whether by man or by nature, propagates itself through the surrounding or further environment of the intervention. The provoked change may have constructive or destructive effects on the network.

Complexity increases the functional capacity of the system and its evolutivity.

- The system is called a complex system, if the properties of the agents are fixed.
- The system is called a complex adaptive system, if the agents have the property to adapt to changes of the environment.

Living systems are complex adaptive systems. They have an immune system which can compensate changes in the environment up to a certain threshold. Thus, complex adaptive systems are more robust and have an increased survivability.

Complexity has the following consequences:

- The foreseeability of the dynamic development is limited to a horizon of time. Beyond the horizon the evolution of the system is unpredictable.
- The horizon of chaotic systems is zero. The course of the evolution is uncertain right from the beginning.

As long as the self-organization of a natural system fulfills the condition of wholeness, the system can increase or maintain its complexity. However, the life of natural systems is limited by aging. The agents lose their capacity to maintain their adaptive properties and a destructive self-organization process sets in leading to the collapse of the system and its dissolution into chaos.

Significance for us

The observance of the firm law increases our capacity to handle complex systems.

It can be necessary to live with paradoxes, if coniunctio oppositorum is not attainable.

Beyond a certain threshold, complex systems become chaotic, i.e. they become prone to failures or run out of control.

We are advised to keep the complexity of our artefact infrastructure at a level which is adjusted to our knowledge of the firm law and our maturity regarding the essence of nature. Maturity is a cultural factor. The one-sidedness of our rush to more and more technological gadgets leads to the loss of control.

- **Emergence**

Function in nature

Emergence is the result of a self-organization process. Through self-organization arise entities with new properties which are not laid out in the agents which produce them by their interaction. Systems theoreticians discovered emergence empirically by computer simulations. There is no scientific explanation for it. The phenomenon of Emergence distinguishes decisively the new paradigm from the old one.

Examples:

- The emergence of life by the interaction of higher proteins (Stuart Kauffman[9]).
- The human capacity to think: By their interaction, our neurons bring about our thought, our capacity to recall, our feeling, our emotions. The neurons know nothing about what they think.
- The emergence of consciousness by the interaction of the right and the left hemisphere of our brain.

Complicated systems, for instance a car, cannot produce emergencies. This is the privilege of complex systems. Evolution wouldn't be possible without the phenomenon of emergence.

Significance for us

The rationalistic paradigm arose out of existential anxiety It cultivated the illusion, that everything can be explained logically and that that the right solution can always be found, thus promising security.

Regarding systems theory, emergence is an element of hope as counterpart to the pessimistic uncertainty of complexity. Since certainty is lacking, we must confide in the mechanisms of self-organization. If encouraged by their parents, the self-confidence of the child develops in parallel with the self-organization of standing on his legs, walking and speaking. The getting under way of self-organization produces new possibilities which are self-enhancing, e.g. the pleasure to succeed, or to acquire new competencies. But it can also fail - like under the regime of the old paradigm.

- **Non-linearity**

Function in nature

Non-linear dynamics is an important subject of Systems Theory. Non-linear dynamics is the field of multi-variable equation systems for which an algebraic solution is not available. Therefore, they must be integrated numerically, a procedure which became possible only after the arrival of computers in the middle of the 20th century. All natural dynamical processes are non-linear. Linearization is a simplification which approximates reality only within certain limits. Nonlinearity signifies that the reaction to a force is not proportional to its strength.

9. Stuart A. Kauffman, T*he Origins of Order*, Oxford University Press, 1993

Nonlinear dynamics has provided us with several characteristic features of natural processes which were unknown before.

- Nonlinear behavior of processes by feedback amplification or chain reactions.

  Examples:

  The *greenhouse effect:* The release of CO_2 into the atmosphere causes the global temperature to rise leading to the melting of the permafrost by which methane is liberated which is a 36 times stronger greenhouse gas.
  Addiction: Feedback loop between the psyche and the endocrine system (dopamine).
- Temporal delay between cause and effect:
  Example: the incubation time of virus infections
- Tipping processes: Initially the effect of a force is imperceptible. Then its effect increases suddenly and the system becomes unstable. If a threshold of tipping is transgressed, the change cannot be stopped any longer and proceeds unimpeded (Fig. 2).
  Example: The effects of the rise of the global temperature by the greenhouse effect remained below the threshold of perception during several decades. Now the effects multiply suddenly (excessive heat, forest fires, devastating floods, shortage of water). If no countermeasures are initiated these effects may reach catastrophic dimensions.
- Attractors and bifurcations (see below)

Significance for us

The rational paradigm has accustomed us to think in linear relations. The wanted or unwanted exclusion of side effects which can change the course of a process creates a false feeling of security and entices to carelessness. Fifty years ago, the authors of the study „Limits to Growth“ were the first to explore holistically the development of the modern world society. Their cautions were thrown into the wind so that we see us now confronted with the danger of a tipping process of the biosphere.

In order to avoid the tipping of a system, it is essential to intervene into it as long as it is still far away from the tipping threshold, and not only, when it becomes noticeable. Amplifying elements of the system must be identified early, be controlled and eventually neutralized. The behavior of the system can be tested by introducing small variations and observing the effects. If necessary the process must be stopped and another solution must be sought.

This does not mean that we must renounce completely on any growth. The firm law leaves us enough margins for progress. The question is only, what kind of progress. The creation of the cooperation between the left and the right hemisphere of our mind would be a progress in the sense of the new paradigm.

- **Attractor and Bifurcation**

Function in nature

An attractor is an array of states to which a dynamic system heads for during its temporal evolutioin starting from different initial states, and which it leaves no more. An attractor can be a single fixed state, a series of states which the systems visits cyclically or complex structure of states, e.g. the Lorenz attractor.

Examples:
- The biosphere has been an attractor before the arrival of the rationalistic-deterministic paradigm.
- Each living organism is an attractor.
- The ADN as a building block of the genetic system (exists since several million years).
- Civilizations and cultures are attractors.
- A political system which oscillates between two poles („left“ and „right“).

The states to which a system heads for an attractor during its temporal evolution, its trajectories, form a basin (basin of attraction). No trajectory leaves the basin and no trajectory enters the basin from outside.

On the one hand attractors are required as stable platform for evolution, on the other hand they are restricting and obstructive for further evolution, if they persist for a too long time. Attractors can only be left, if the parameters of the system change. This causes the space of attractors of the system to change so that the system finds itself in another attractor. This event is called bifurcation.

The change of parameters is caused by:
- a change of the environment of the system
  Example: The warming of the atmosphere causes storks to abandon their migration to the south and to hibernate in our latitude.
- a weakening of the internal forces which maintain the system (aging, dissolution of a civilization or culture)

A bifurcation causes the system
- to tip into another attractor
- to return into the former attractor after a momentary excursion
- to decay completely
  Examples: Earth quakes, sliding down of a sandpile, banckruptcy of a company, revolutions

Significance for us

Man is an attractor concerning both his body and his psyche. Regarding the individual, rigid forms of behavior as rites, opinions are attractors. Regarding society, ideologies, laws and constitution are examples of attractors. The „participation mystique“ of C.G, Jung is an attractor: a large crowd accepts uncritically a point of view which is suggested to it by a demagogue or the media. The positive counterpart are people with a strong identity who cooperate while following a common guiding principle.

While nature eliminates attractors automatically, if they are outdated, man is free to eliminate attractors in time or to maintain them beyond their term. Where we take over the position of nature, we are responsible ourselves for the management of the attractors which result from our working. So far, we have not recognized the significance of attractors on all levels of our activity and we lack completely an experience as to how to handle them. It is one of the objectives of the rulebook to overcome this deficiency.

The administration of attractors signifies pondering between stability and dynamics. Conflicts between these two poles are omnipresent. Dealing with attractors requires a a solid capacity of judgment built on a rich treasure of competencies.

The administration of attractors is an important element of our responsibility for the firm law.

The following two rules are not rules of nature - she does not need them - but rules specific for man. They are included into the rulebook, because they are important for our dealing with the firm law.

- **Observing the Measure**

Nature has no psyche which leads her into temptation to transgress the limits which are given by the existent. Her working remains always conform to the measure. Natural changes of things, it is true, as variations of the climate cause the glaciers to melt, vegetation to adapt, and certain animal species to disappear, but the wholeness of the evolution is not put into question. Only by introducing man, nature puts her creation at risk for the first time, at least on the earth.

With the „bicameral mind", nature holds man accountable for himself and his environment. However, he overlooked this fact in the course of time. The temptation to improve his conditions of life prevailed over the appropriate carefulness in dealing with nature. This is surprising, because it could be expected from a rational being to recognize the limited dimensions of earth and, by consequence, of her resources.

Meanwhile, the world of artefacts which we have created, has reached a complexity, which we master no longer. Everywhere appear unforeseen side effects which require countermeasures which again cause side effects, and so on. We are overcharged, but instead of trying to reduce the oversized complexity, we try our chance by the flight forward. Thus, we aggravate our situation.

How can we do better? The restoration of the feedback loop understanding-listening is also determining for the point „Observing the measure". If we restore the wholeness of our psyche we have achieved all that is necessary, because our thinking and acting becomes nature-conform and thus measure-conform by itself. Nature leaves us still enough latitude for further evolution, but probably into another direction.

- **Soberness**

Nature has no consciousness of herself, i.e. of her working as well as of her creations. Seen from our perspective, she seems indifferent. This is paradoxical, because her evolution seems having an objective, i.e. first in the direction of life and then in the direction of consciousness - by coniunctio oppositorum of understanding (with the left hemisphere) and perceiving (with the right hemisphere).

What is our appropriate attitude in view of this contradiction between observing the measure and progressing? Heidegger ends his elucidation of the poem of Hölderlin with the following words:

„The cool and the shadowy of the soberness answers to the holy. This soberness does not deny the enthusiasm. The soberness is the always ready basic mood for the holy". Soberness is the unity of two opposite attitudes: resolute action on the one hand and accepting the uncertain issue of this action on the other hand - being simultaneously in the matter and outside/above the matter.

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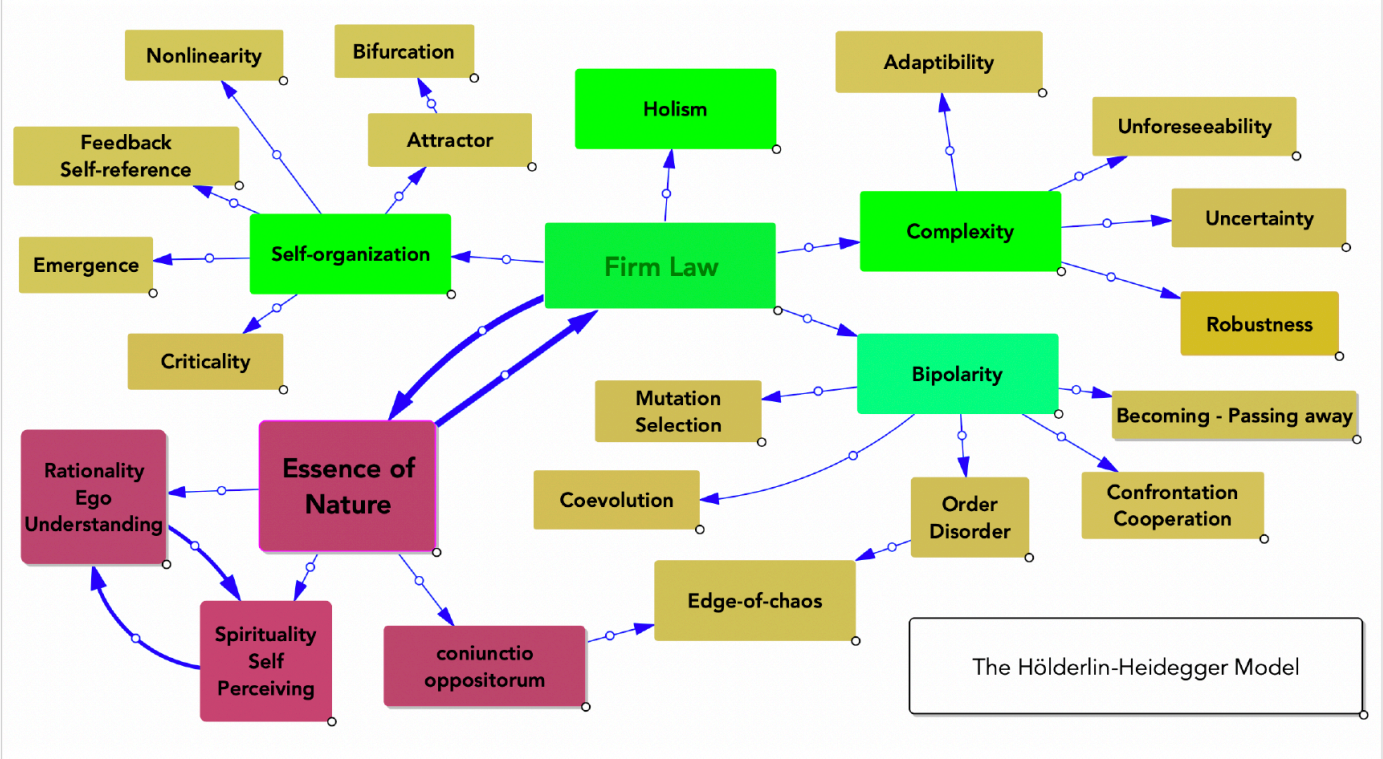

Nonlinearity
Bifurcation
Adaptibility
Holism
Feedback
Self-reference
Attractor
Unforeseeability
Uncertainty
Emergence
Self-organization
Firm Law
Complexity
Robustness
Criticality
Bipolarity
Mutation
Selection
Becoming - Passing away
Rationality
Ego
Understanding
Essence of
Nature
Coevolution
Order
Disorder
Confrontation
Cooperation
Edge-of-chaos
Spirituality
Self
Perceiving
coniunctio
oppositorum
The Hölderlin-Heidegger Model

Fig. 1

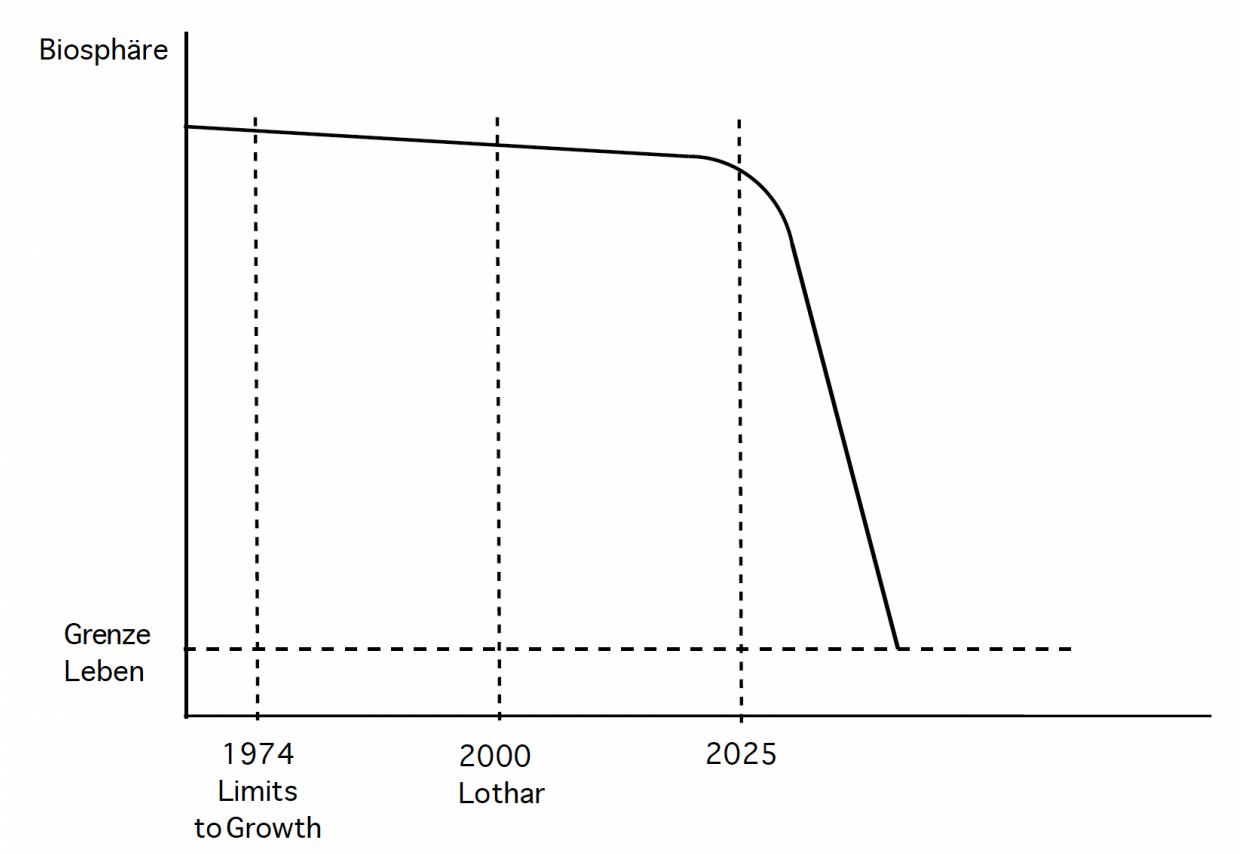

Biosphäre
Grenze
Leben
1974
Limits
to Growth
2000
Lothar
2025

Fig. 2