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Environmental Sciences, Apocalyptic Thought, and the Proxy of God

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Abstract

The deep link between ecological awareness and the apocalyptic thought of the beginning of the 21st century is self-evident. Ecology and apocalypticism are mirror-imaged twins because ecological consciousness is equated to the awareness of the disappearance of nature in time. First, I shall describe the interrelationship between our understanding of “time” and “nature” (1.). I propose to understand both as ideas of mind, which influence the power-structure of ecologically relevant revelations of science (2.). If the speech of a dead end of the world is an outcome of our particular perspective, then we have to consider the transformative power of today’s apocalyptic thought. What is the meaning of apocalypticism in the face of the paradigm of feasibility (3.)? Finally, I will suggest to search for relations between our religious and technology based expectations (4.) while understanding both as creative approaches to the world.

1. Time consciousness and the ecological thought

The less “natural” we live, the more “ecological” we want to become. However, the way of human life is cultivation. Thus, the decline of naturalness is an inevitable result of humaneness. At the same time, there is a longing for a natural lifestyle, contradicting the cultural essence of humanity. In this situation we have two main options. One option is to accept culture in general and – in particular – technology to be the “nature of humans”. An alternative way is to promote nature as the unquestionable basis of life and simultaneously observing its disappearance. As a result, the loss of nature increases with every further step we take to counter it. This is why the 20th century described and lamented the end of nature in many ways. Ulrich Beck assumes a perfect socialization of nature:

Nature is society, society is (also) 'nature'. Those who still speak of nature as a non-social society today speak in the categories of another century that no longer grasp our reality. Everywhere today we are dealing with a high-grade artificial product of nature, an artificial 'nature'. There is no hair, no crumb 'natural' about it any more, when 'natural' means nature's self-sufficiency. (Beck 1986: 109, transl. A.S.).

Around the turn of the millennium, Paul Crutzen proclaimed the “anthropocene”, meaning that human action no longer only changes the biosphere, but also the atmosphere and geology of the earth as a whole. He agreed with Bill McKibben, who already proclaimed an “end of nature” in 1989 (Mc Kibben 1989).

Following the idea that the end of nature means the end of human life, there is no other option than ecological apocalypticism. Apocalyptic thought is the very outcome of the idea that “naturalness” was the human way of life instead of cultivation. This apocalypticism is indeed unquestionable as long as ecology means preserving nature from socialization. The most convincing argument of this matter is that there is less and less time for a reversal, as “nature” becomes less day by day. Since the disappearance of nature goes along with the disappearance of time, ecological thought influences our understanding of time and time structures.

In particular, the idea of a disappearing nature changes the awareness of our personal time, because from this perspective there is no difference between nature and our historiography of natural events. The unlimited future as such changes into a limited future for us. In this understanding the ecological thought follows the idea of a linearly-limited time, which we can find in the Judeo-Christian and Islamic tradition. Nature becomes the heir of the predicates of God. On the one hand nature is the basis of life, which implies that it is unlimited and unconditionally existing. On the other hand we try to influence nature to preserve our life. While making nature a part of ourselves, we change the character of its development. The widespread discussion of the global catastrophe, mainly expressed by the metaphor “five to twelve!”, suggests the complete demise of all life on earth. The metaphor of the end of the world has its origin in the Judeo-Christian idea of the Apocalypse. In part four I will show that there is an important difference between Christian and ecological apocalypticism, what both ideas have in common, that is the model of a linear-limited time *for us*. The limitations of our time are also evident. Any disaster model divides the future into a near future and a future far away. It says that we will be able to influence the near future, but there will be a distant future which is the outcome of the near future. The distant future we influence indirect through our present action only.

The conclusion is that our today's and the near future's actions will decide about the long run. The rhetorical meaning of this is to bring changes in environmental action today and tomorrow, because the day after tomorrow depends on the present mobilization. Anyone who speaks of a global catastrophe or doomsday suggests that we are creating an earth without life and nature instead of an unpredictable change. The future is predictable and the prediction is disaster. However, we have to understand that time consciousness itself is an outcome of our perception of the world. As environmental awareness influences this perception, we have to assume that our idea of time is influenced by ecology itself.

Ecological awareness is built on the foundations of the religious understanding of time, but it also influences this understanding. Augustine (354-430) declared that neither past nor future are at hand. We cannot say that past and future exist (Augustinus, *Confessiones* XI, Ch. 14). Instead of this, we have to say that they just exist as ideas in our mind.

What does this mean for our understanding of the five-to-twelve-metaphor? We cannot capture the future of nature. Whatever we have in mind concerning the status of nature only shows, yet again, what has already happened. Once we construct natural time with a beginning and an end, this can only represent a limited part of our space-time reality. If we create a relationship between the past, the present and the future of the earth, then we are comparing our pictures of the past and of the future with the respective perception of the present. But these representations do not relate to facts and the respective value of our images of nature is the value *for us* today. Thus, the five-to-twelve-metaphor says nothing about the future, but is rather a statement about our today's sense of time and consciousness of nature in the present.

There is a suspicion against our technological perspective here: At least in the context of a metaphor that follows the idea of a clock, we are captured by a picture. What is meant here is not the image of nature of environmentalists or the image of time that Augustine had in mind, but the image of an instrument for time-measurement. Our idea of time-structure follows the idea of measurement just as our concept of nature follows the ability to count, weigh and measure. Feasibility is the precondition of the idea of an end of the world caused by man.

To summarize we can say that only the technical perspective of a measurable time-scale, which is deeply rooted in the Judeo-Christian tradition, allows us to think about our own situation as one point between the genesis of the world and the apocalypse. In pre-Christian antiquity and, even more

clearly during the era of Mayan civilization, the idea of the end of the world has been developed from a cyclic imagination. One simply takes a huge cyclic image of world, that from the perspective of society will come to an end. Yet, from the perspective of God the cycle goes on just with a new world birth. Both time structures can be found in today's ecology (Schummer 2001: Ch. II.):

A. The linear time and the end of the world

Western ecological thought is led by the dictum "follow the Sciences". This means natural sciences would have to give us information about the best way to act, individually and as a society. We believe that for all our problems there is a scientifically rendered way to find a (technical) solution. We are aware of unintended and undesirable side effects, but all in all we believe that even for new problems sciences will come up with new solutions. The idea behind this is one of a linear development. It includes the conviction that the problem-solving capacity of science is faster than the growing-capacity of our problems. We cannot prove this vision of feasibility, but we can say that the whole scientific description of the world follows the idea of a linear development in terms of time. Even the assumption of an unlimited growth process falls under this scheme. Think about the expansion of the universe according to the Big Bang theory (at least according to one variant) or about the decline in carbon dioxide and increase in ozone over billions of years in our Earth's atmosphere: astronomic and geological time scales follow the same principle, since they both describe a continuous development. Finally, one could also consider the evolutionary differentiation of biological species: there is no repetition of the same, but a development from one state into the other.

However, this idea of linearity is logically linked to the questions "where from" and "where to". It might not be by accident that the Big Bang theory was developed by a catholic priest, George Lemaître, while physicians felt the idea of a "starting point" of the world to be very Christian (Lambert 2015). Today we have accepted the idea as a physical one, but in actual fact it has translated the religious idea of a starting point into a scientific model. The other fixpoint – the end of the world – is taken up by the environmental movement. In this way, we are able to synthesize the past, the future and our own present into one scientifically paraphrased story that is easily accessible to the modern mindset. One has to bear in mind, that this story is very similar to the Christian one which we assume to be premodern.

B. The circular time-structure

Nature itself is not bound to any time model, but today we perceive natural processes as a cycle that is disturbed by human interventions. Following this, we propagate that the "natural cycles" are models for human action. We should react to what nature is showing us. In fact, the question whether we treat nature as a model for linear or circular development depends on the frame. When looking at a single living object or a species, one can find a starting point and an end. Taking the regeneration into account, we can see nature in the mode of the cycle.

In the 2nd main theorem of thermodynamics, evolution is associated with the entropy of a system. From this perspective, life is perceived as a form of energy consumption. Living beings are entropy generators. This "destruction of energy" – the conversion of usable energy into useless heat energy – led Ilya Prigogine to speak about "dissipative structures". Natural life was no longer the expression of a (thermodynamic) equilibrium. Any natural balance is now linked to the opposite: death. The increasing complexity of organic life, which marks the course of evolutionary processes, as well as the physical conditions, speak against the view that living organisms and ecological systems follow a search for equilibrium.

The romantic admiration of natural regeneration processes again follows cultural ideas instead of scientific ones. In ancient Egypt as well as in the Indian tradition we find the idea of ash rising to

the divine harmony of the circular motion of the sky. Going and coming interchange permanent. In our days the transformation of ecological relationships into norms and objectives is always determined by the addition of intentions and objectives. We speak of the “ecological equilibrium” to underline the fact that it is a good thing to live in a balance with nature. But this saying is not rooted in a given state of nature, but in our striving for harmony with an environment that has long since ceased to be natural. The normative function of the circular model is only possible because in our everyday language we understand “balance” as something what we desire and wish for.

Nature does not give us clear clues about the real time structure. However, we can find all time-structures in natural systems, depending on the perspective. If one only takes the observation period into account, one always finds a limited life span, regardless of whether one examines individuals, species, entire ecological systems or even mere elementary particles. We find cyclical processes at the level of the generation sequence, such as seasonal variations, sky movements, atomic oscillations, etc.

We can see that the perception of the environment and the experience of the loss of nature is strongly linked to our understanding of time. “Time” and “nature” depend on each other, but we cannot say what they really are. Our present understanding mainly is rooted in the ability to measure. We measure time and we measure natural events. Furthermore, we have the willingness to describe a continuous development from the beginning of the world to its end, making today’s life a part of this continuum of time and nature.

As our scientific world-view inherits the Christian understanding of the beginning and the end of the world, ecological apocalypticism is part of a story following the traditional setting. It pressures us to act for the betterment of a limited future in the same way as a religious story is able to make people work in a limited world in light of the unlimited. Since pressure means power, we have to ask for the consciousness of power as the second characteristic of today’s apocalyptic thought.

2. Technology driven revelation and power consciousness

Visions of global disasters and natural cycles change our consciousness of time. Because our consciousness of time is fundamental to our perceptions, evaluations, and actions, this has consequences for our environmental perceptions and -actions. Our memories influence our expectations much more than the other way around. This means whoever wants us to act in a specific way, needs to revive our memories. Either we act for a comeback of a glorified past or we work for a future that is better than all that we already know. But there is a third way to make people act. One can show that only a specific way to deal with the present will save us from an external power that is already waiting for us in the future. Especially the expectation of a threat will produce energy out of fear.

Translating the Greek word *apokalypsis* precisely, it doesn't mean “end of the world”, but “revelation”. The apocalypse is the revelation of a hidden characteristic of the world, especially its temporary nature, which needs to be fulfilled. In today’s perspective the hidden characteristic of the world is revealed through the sciences. Past generations were unaware of the massive impact of human activities. Our ancestors did not think about the possibility of an “anthropocene”. Even the description of the green-house-effect by Svante Arrhenius did not cause any significant activity realizing the revelation (Arrhenius 1896: 237-276). This is why we feel that the real revelation came at the end of 20th century and this was a scientific one. Sciences show us that the earth is structured through features which have been hidden before. Only today’s generation got the chance to become aware of the truth. Our present mind – in contradiction to the mind of our ancestors – is enlightened

with knowledge about the real interdependence between humans and their environment. This view leads to one important assumption: First of all, we have the duty to accept the revelation. If it is right that the generations before the 20th century were living in the dark, then we must not ignore the apocalyptic reality of the world we live in. The existence of the earth depends on us – this knowledge calls us to responsibility. The message is that any ignorance would be irrational, because those who ignore the environmental issue would live as people who refuse to live in the light of the revelation.

But what does the revelation say exactly? It does not only shed light upon the hidden character of the world, it mainly tells us that this world seems to have reached a dead end. In this respect apocalypticism is exactly a means of power. If the environmental sciences reveal the hidden feature of the world which is the dead end of our future, then they pressurize us to do something against this dystopia.

The fulfillment of apocalyptic thought is destruction. However, the mood of anxiety is only one side, the other side is the trial to proclaim hope. However, the hope for salvation implies the fulfillment of the provisional period. Above that the hopelessness and the permanence of powerlessness do not mark a finite barrier. Apocalyptic thought means turning powerlessness into a search for another option. It transforms powerlessness into power. Thus, the revelation of the proclaimed end of the world changes the pictorial epitome of fear into a symbol of hope. The world might come to an end, but then again it might not – both is included in apocalyptic thought in general. In particular, environmental sciences offer themselves as the healing power of this transformation. On the one hand, we are able to produce a forecast through meteorology, the study of bio- and atmosphere as well as other ecological methods. But the success of the scientific methods is not only reflected in the procurement of explanations for the future, but in their influence. Sciences gives us the power to influence the future of the world in this way that the revelation becomes relative. Apocalyptic thought does not mean the proclamation of an absolute and definite end, but the promise of a change. However, this change depends on our willingness to follow the revelation.

Again, the power of environmentalism is linked to our understanding of time. The ability to learn from the past and to draw on conclusions on the future, makes us capable of learning and foresighted. It is precisely in this sense that we generalize structures of the past into general time structures. Nevertheless, in comparison to our past, the future will remain relatively indefinite. This indeterminacy of the future leads to expectations. These expectations are prone to emotions such as the hope for improvement or the fear of deterioration. Also our longing for security and our sense of orientation is a part of it. The relative uncertainty of the future leaves room for intellectual speculations.

While our memories reach back to a limited extent, our expectations are unlimited in principle. □ The experience of human impotence and the superiority of external power is the basis of apocalyptic understanding. Therefore, apocalypticism is always the quest for power. In today's world we negotiate power politically and technologically. Technology once was the primary instrument of social progress. Today we are aware of its ambivalence. This is why technology is part of our impotence and it is also an external power.

Side effects show that we cannot fully restrain its power. This does not mean that technology was inhuman. Rather it shows that technology is human, that is ambiguous and ambivalent. In particular we experience its power to cause environmental crises. We know that the hole in the ozone layer and many of the natural disasters that are currently erupting again and again, such as floods and cyclones, are not natural phenomena, but consequences of our technology. At the same

time, great progress has been made in recent decades in the fields of air pollution control, waste, water treatment and waste disposal. It is precisely in the face of the environmental crisis that we ask for technology, especially environmental technologies. Technology remains our culture, the crisis even reinforces the paradigm. In this way technology objectifies our power consciousness in the light of the ecological revelation. The environment might be destroyed, but then again it might be rescued – both is included in our technological thought. Next, after having considered the meaning of time and power, we now have to ask for the meaning of crises.

3. Crises consciousness and the transformative power of apocalyptic thought

How can we achieve a realistic handling of the environmental irritations caused by global ecological problems? On the one hand, it seems important not to respond to the pressure of the problem in such a way that the future becomes the all-dominant time mode. We need to keep past and present independent from a future-oriented awareness. Our expectations and our memories influence our current perception, this we need to bring to mind. On the other hand, we have to see that our personal time, the time of our culture and natural time follow completely different time structures (Schummer 2001: 188). It is a question of our willingness to take up the plurality of time structures. Does the apocalyptic discourse allow this plurality? Does the pressure of apocalypticism contradict any other perspective? Can we really allow ourselves to discuss the crises, which would mean being ready for compromises in general? Or does the crises situation contradict any democratic idea through the pressure of the five-to-twelve-metaphor? These are the questions we have to answer and the best way to do so will be via a “political theology of climate change” (Northcott 2013).

If we forget that time is a transcendent idea of human mind, then we will create a linear progressive time structure for the future. And we will not be able to think in alternatives. While environmental movements criticize the irresponsible fixation on the present as a cause of ecological problems, they produce a future-cult, saying that all our duty is about the upcoming days. From a historical point of view, we have to say that the future-oriented progress has occurred increasingly since the 18th century only. It is an optimistic faith and therefore a secularized form of Christian salvation history. The idea was that one can optimize the living conditions for now and forever. The climax of this idea is that “our children shall live better than we do”, which was the creed of 20th century. Only the overestimation of one's own knowledge and assessment skills has led to consequences that we now regard as ecological problems.

We can describe apocalypticism and technology as expressions of a crisis consciousness that react to social, environmental and political upheavals. We experience the present as an ecological crisis, which should be interpreted and mastered with the help of apocalyptic thought patterns. This leads us to concentrate on the upcoming future. At the same time, we experience our time as a crises of modern thought, which should be mastered with the help of new technological patterns. Hence, technological and apocalyptic thought join together. However, the environmental technology we use permeates us as a state of mind that precedes all ethically motivated actions. It is more than just a means of making our lives eco-friendly and sustainable. It is an expression of an epochal state of mind. Environmental technology touches on the possibility of the dissolution of boundaries, especially in light of the limits that the ecological crisis presents. Thus, technology transforms the fear of our apocalyptic thought into a will to escape the dead end. It takes up our images of time, power and crises and gives us engineering options to deal with them. How are these options related to the religious meaning of the apocalypse?

4. Technology as the proxy of God

Christian apocalyptic thought does not commit the revealed world to come to an end. Skrimshire shows that the terms 'apocalyptic', 'eschatological', 'millenarian', and 'millennial' are often and incorrectly used interchangeably (Skrimshire 2014). The only reason of revelation is to transform fear into a "courage to be". This word of Paul Tillich (Tillich 1952) marks the transformation of the fear of senselessness into an existential Yes to exist. This goes back to an anthropological analysis of man in the modern world. The modern world distinguishes between nature and sense and finally decides to concentrate on nature. This is why natural sciences do not include meaning. As an outcome of this, even the environment is silent to us, a senseless being. But to the extent that the environmental crisis marks a borderline situation, it reformulates fundamental questions of modern thought. What sources do we live from, what do we fear and what can we hope for? Technology, which is very different from science, partially fulfills what the secular world believes in and hopes for. The apocalyptic expectation is not a renaissance of religion, but a sense-making program for the technical civilization. Technology is not a substitute for religion. From a religious perspective it is rather a deputy or proxy, waiting for the return of God.

Today, however, we are confronted with the question of what expressiveness the Christian message in the face of nature threats on a global scale has. If Christian theology stands in relation to that reality which the sciences describe and if statements of the faith are sentences in the dispute over this reality, then we have to say that theology does not add a guarantee of survival to the debate. Religion is not authorized to proclaim safety. Christian faith is not synonymous with hope for the survival of the world. Of course, it is also something other than an apocalyptic hope for another world beyond the catastrophe. Rather, faith affirms the world in the light of the threat of today's actual negation and annihilation.

The Christian mood in this sense is not a mood of hope, but a mood of courage. The Protestant Theologian Paul Tillich and the Catholic Karl Rahner both have emphasized the importance of courage (Körtner 2002: 83). Faith proves itself in protest against the catastrophic view, i.e. in protest against an apocalyptic world-view. The action of faith is action in the face of the absurd and the active proclamation of sense against the senselessness of an abstract dead end. As faith proclaims sense and environmental technology produces sense, we have to ask for the common horizon of both of them. Traditionally, sense can only come from God and even in the face of the possible self-destruction of mankind, it still remains relevant. But the ability to change fear into hope through technology is also a gift of God's creative power. The main task will be to interlink both, our courage to produce sense in a crisis situation and our ability to receive the unavailable meaning of life. The environmental crises reminds us that we cannot produce everything. The knowledge that not everything concerning the environment will depend on us, provides a relief that turns fear into courage. Precisely this is the meaning of revelation and this is why we negotiate the range of technology in front of the crisis. We do not know its power exactly, but we count on it. This is why we ask for something else than feasibility: creation, that means an untouchable being.

Works cited

Arrhenius, Svante (1896) "On the Influence of Carbonic Acid in the Air upon the Temperature of the Ground." *Philosophical Magazine and Journal of Science Series* 5.41, 237-276.

- Beck, Ulrich (1986) *Risikogesellschaft. Auf dem Weg in eine andere Moderne* (Frankfurt/ M: Suhrkamp).
- Körtner, Ulrich (2002) "Glaube, Angst und Hoffnung," *Gegenworte* 10 (2002), 79-83.
- Lambert, Dominique (2015) *The Atom of the Universe. The Life and Work of Georges Lemaitre, preface by J. Peebles* (Cracow: Copernicus Center Press).
- McKibben, Bill (1989) *The End of Nature* (New York: Random House).
- Northcott, Michael S. (2013) *A political theology of climate change* (Gran Rapids, Michigan/ Cambridge/U.K.: Wm. B. Eerdmans Publishing).
- Prigogine, Ilya (1977) "Time, Structure and Fluctuations," *Nobel Lecture*, 8. Dec 1977, URL: http://www.nobelprize.org/nobel_prizes/chemistry/laureates/1977/prigogine-lecture.pdf (accessed 26 Nov 2019).
- Schummer, Joachim (2001) "Zeitbewußtsein, Ökologie und Ethik," in *Antemnae: Periodico mensile a carattere scientifico*, Band 3, 172-190.
- Skrimshire, Stefan (2014) "Climate change and apocalyptic faith," *Wiley Interdisciplinary Reviews: Climate Change* 5.2, 233-246.
- Tillich, Paul (1952) *The courage to be* (New Haven, CT: Yale University Press).