

THE ENVIRONMENT RETROSPECTIVE AND FUTURE

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Abstract: The environment will be analyzed retrospectively by underlining the factors which have influenced its evolution in time. We also present the relationship man-environment from its beginnings to today, stressing the environmental modifications as determined by: the discovery of bronze, discovery of iron, agriculture, taming of animals, development of plant knowledge, the environment's capacity for self-regulation and sustainability, the public conscience as well as overpopulation. According to the ideas presented in the paper, the main conclusion of environmental science can be drawn, namely that we need a balance between the economic claims of man and Earth's capability to bear them (the ecological footprint). The very perpetuation of the species imposes that we revisit the harmony between man and nature. The key condition for man's survival is that it excludes anthropocentrism. Which, i.e. changing conscience without being forced to, is only possible by means of education.

Key Words: *Environment, Anthropology, Overpopulation, Biodiversity, Ambientology.*

1. What does environment mean?

In its most general meaning, the environment is an area where the man lives, works, thinks and dreams. In its familiar sense the environment might mean our home, be it an apartment in a block of flats, a hovel or a hamlet; it might also mean a sunny orchard and even the crowded blocks of flats resembling an apiary with lots of floors and with their unfriendly entrance. The environment is the earth (the soil), with all its living beings, with its water and with the sky, the dimension of the living and dead systems interwoven and interconnected (Stugren, 1986).

According to the resolution approved by the environment council of the United States, in 1969, the environment is not only an abstract thing and also it does not imply only the object of beauty or of our personal pleasure – although it must include all these, too. The very physical being of the man, his mental health and even his culture or the institutions, his expectations and his achievements, and in fact the perpetuation of the human species, all are dependent and concretely connected to the environment. In other words, man is in a large measure, the result of his environment (Klesius, 2002).

2. The relation between man and environment.

Man avails himself of his environment, but more than that he exploits it. Then he observes it, he investigates it and administers it, so that in the end he gets to be concerned about it. He would protect it, but in the meanwhile he uses its products and its space, he changes it and deteriorates it and eventually he appropriates it and pollutes it. As a consequence of these attitudes and deeds, the issue of the environment has become a serious concern of the whole world (Klesius, 2002; Montaigne, 2001).

Man's attitude towards the environment and towards the entire nature is a result of the history of the earth and of the society. At the very beginning of this world, when man belonged naturally to the living world and when he was forced to adjust himself to the equilibrium settled by all the systems (multiplication, selection and dissemination), the relation between man and environment was harmonious (Boscaiu & Soran, 1974; Harte, 2001; Hill, 1989). He looked at it with awe and more than that, he worshipped the ambient surroundings in which he was living, that is, he worshipped the nature. This kind of relation lasted until the end of the second half of the Stone Age and the beginning of the Neolithic period (10.000-5.000 BC) that is, until he discovered and used the fire (Lorenz, 1967; Soran, 1977; Stugren, 1986).

3. The period from the utilization and the domination of the environment

Once that the man discovered and used the fire, he also started the well known fundamental occupations of those ancient times (such as the clearing of the forests, the agriculture and the taming of the animals) that determined a radical change in the way he related to his environment. As a consequence of what this change caused, that period of time is considered to be the so-called "Neolithic revolution". Starting with this moment, the natural utilization of the environment ceased and so the period of its domination has begun. Man pulled himself out of the environment connections, stopped being a constitutive part of it and started to subdue it and rule over it as if it were his possessions. There were only the natural catastrophes (like earthquakes, floods, droughts, epidemics) that took him by surprise and warned him of his real position, seemingly a selected one, but in fact one which made him susceptible to the laws of the environment. "People

are not able to rule over the nature or to influence its rules and its order“ would say Plinius Sec. when on the 23rd to 25th of August, in 79, the Vezuvium volcano erupted.

From the beginning of the employment of the metals and up to our present time, man’s attitude towards the environment has been influenced by the discovery and the improvement of the tools that is by the development of the technique. This very discovery and this mentioned above development brought along advantages which proved to be transient because unfortunately, they produced deeply harmful, unconceivable and irreversible consequences in the natural systems of the environment (Barraclough & Stone, 1992).

a. The Brass Era and its consequences upon the environment.

Copper was the first metal, which was discovered by man. It was in the region of Anatolia (that is, present Turkey), 7000 years ago BC, and in Europe about 3000 years ago BC, that the extraction of copper began (its smelting from the ores). The most direct consequences of the smelting of copper from the minerals were the massive cutting of the woods, which caused unwelcome changes in the vegetation, the erosion of the soil as well as other processes unleashed by them. However, they existed and still continue to exist because of the permanent need of copper (for fiber boards, wires, cartridges and so on), without which the civilization that we enjoy nowadays couldn’t have been achieved. Indeed it’s true that at the moment it is not the wood the element that is employed in the extraction of the copper, but other sources of energy, such as coal, crude oil, methane gas and electric power. Nevertheless, the harmful impact on the environment has not diminished yet (Barna, 1978; Graff, 1991).

b. The Iron Era

The discovery of the iron (around the year of 4000 BC. in the Middle East, and 700-450 BC. in Europe) and its ever increasing employment in the past, as well as in the present, had more significant effects on the formation and structure of the various civilizations; besides this, its impact on the environment was even more threatening than in the case of the copper. The most direct consequence of the discovery of the iron upon the environment was the speeding up of the wood consumption and therefore, the massive cutting of the forests. The employment of the wood as a means of iron production decreased and ceased only in the XVIIIth century when it was changed with coal. It is surprising that the wood had been enough until that moment. The forests are good places for a greater number of vegetals and animals (cenoze composition) than other constituents of the environment. As a result of the disappearance of the forests, the flora and the fauna of the globe is dramatically threatened. There is a number of 250 species that disappeared each year.

c. The agriculture and its consequences

The employment of the iron implements has had an efficient and lasting impact on the soil even in our present days. It was the *invention of the plough* (in 4000-3500 BC. in the Middle East) that determined stimulating effects in the work of the land and of course its extension; it also led to the growth of the number of cultivated species and of their production. The cultivated plots of land spread over in detriment of the scenery. Then there were the accompanying countless weeds that appeared among the cultivated plants and that spoiled the equilibrium of the previous system. During those times, the cultivated plots became exhausted quite soon. The process of treating the land with fertilizers or with manure was not known yet. And so the cultivated soil became a fallow land. As a consequence, the community, which worked and benefited from it, was forced to set off towards other places and start over the cultivation of other parcels, which had not been touched previously. The migration of the people went on as long as pieces of land for the tillage could be found (Davis, 1990; Harlan, 1975).

In spite of all the unwelcome consequences upon the environment, the agriculture remained the most unharmed occupation of the people until the use of its resources got to be balanced and its products became parts of the known cycles of nature (the biogeochemical cycles) (Puia et. al., 2001). An environmentally harmless agriculture existed in the plains of Transylvania during the XIIIth and XIVth centuries. The cultivated lands were partly sown and all the rest remained a ploughed field. The forests were carefully and considerably cleared and the trees that produced acorn and wild fruits (such as crabs) were protected.

The traditional agriculture ceased to exist in the XVIIIth century as a consequence of the industrial revolution. The employment of the steel and steam energy determined the manufacturing of more efficient implements which facilitated the introduction and generalization of the new “scientific agricultural” methods. There were plants from the New World that were brought in, like: corn, bean, potato, sunflower, tobacco and so on. The traditional succession of the sown fields was replaced by a planned changing of the crops and the exhaustion of the soil was forestalled by a natural and reasonable fertilization and afterwards by artificial fertilizers. In the second half of the XIXth century, the first factory to produce artificial fertilizers, such as ammonia nitrates, was set up and then the so called Thomas flower, that is, the calcium phosphate (a subsequent output of steel fabrication) was set on a large scale. The undesirable consequences on the soil were known only much later – its eutrophization (the eutrophic soil)

d. The taming of the animals.

The first animal that became attached to the man was **the dog**. Due to his assistance, hunting was more successful and the defense of the household against the threatening wild animals was more certain. In this way the dog played his role in the ruling of man over his environment. The oldest domestic animal that the man possessed was and still is **the goat**, which was tamed even in the Stone Era. The goods that she gives (milk, meat, fur and skin) enhanced significantly the living conditions of the man. Even nowadays she continues to be part of the shabby households. However, her way of living has consequences of the most harmful kind upon the environment, particularly on the vegetation. The dryness of the Mediterranean surroundings and of other extended regions, once that the clearing of the forests had been done, is one of these undesirable consequences.

The advantages and the damages caused by the breeding of the goats were much amplified with **the taming of the sheep** (around 9000-8000 BC.). They were bred in a much larger number than today and subsequently needed much more expanded lands. The sheep is a searching animal; although she has enough to eat in a certain place, she keeps on searching for new places trampling on the fields. Behind her, no other animal stops for eating. Something that is particular to the sheep is that she eats selectively the grassland: lots of plants such as the saffron, the milkweed (*Euphorbia*) or the horsetail and so on are avoided (they are possibly poisonous for them). Consequently the sheep contribute to the changing of the balance within the vegetal species. The use of the wool for clothes manufacturing (around 6000 BC. in Turkey) enabled man to investigate and exploit colder regions. The making of the thick cloth determined the breeding of the sheep in such a manner that stretched plots of lands, including agricultural ones in England, Scotland and later in New Zealand became pastures again.

The horned cattle were soon found to be a good means for the tillage of the land and became tamed animals simultaneously with this new discovery (in the Neolithic Era, in Europe). Their employment eased very much the living conditions of the people, but unfortunately it brought along gradually undesirable results in the environment (Trevelyan, 1967).

The horse---a very agreeable animal and of great avail to the man in his confrontation with the environment. Thanks to him, the man increased his ability to move from one place to another. In fact the horse is pre-eminently the animal of the grassland and of the steppe. He does not harm the environment in a direct way, however, in a large measure he had an important contribution indirectly in the changing of the environment and even in an anthropocentric kind of ruling of the environment. Due to the horse the distances disappeared. The invention and the manufacturing of the mechanized vehicles (the train, the motor car, the airplane) increased only the speed. According to the historians, the first people to mount the horses were the Huns. The invasion of the indo-germanic tribes is due first of all, to the horse. But their establishment on the new discovered lands did not mean exclusively the occupation of the environment; it also meant the gradual domination of the other tribes, that is of the natives. The search for richer places continued until the terrible wars of the XXth century (the extermination wars).

e. The development of the knowledge about plants

The man who lived in the Stone Era tasted every plant that he came across in his surroundings. After checking them, he would select the most prolific ones for the tillage with a view to preserve his welfare and health. During those ages, out of the existing plants (that is, 370.000 species) and up to nowadays, he tried to cultivate only a small number that is 2.297 species which represent 0,6 percentage. The number of plants used in the traditional medicine is estimated to be around 1000. It is also upheld the idea that every plant is in fact a medicinal herb. If the deterioration of the environment continues at the same rapid pace, there will be lots of plant species that will disappear. During the last 50 years, there have vanished 74 species from the Transylvanian flora.

It is indeed obvious that as the man avails himself more and more of the variety of the living creatures, as well as of the medicinal herbs, he will enhance his life conditions and subsequently will enjoy a much longer life.

f. The capacity of the environment to adjust and sustain by itself.

The gradual improvement of the nourishment as well as of the healthcare system resulted directly in the growing of the population and the prolongation of the lifetime. Due to the increased number of the population, the living conditions of a certain region exhausted rapidly, so that the migration of the population occurred more frequently. As a consequence, the self-adjustment system of the living beings communities (vegetal as well as animal species) was disturbed. Therefore, the cause was considered to be the demographic increase. Thus, the term "natural milieu" was reduced to that of "environment" (Lurie, 1968).

4. The environment and the public conscience.

All the factors that have been mentioned above manifested such a pressure upon the environment that its reestablishment became very difficult and even impossible. Clear-sighted personalities concerned about the state and the future of the nature as well as about the man invoked various causes of the resulted

situation. This continuous alarming state required the investigation of other relations within the environmental systems. One of the results of these new searching experiments was seen as epoch-making and it was represented by the finding of the gradual diminution of the soil's fruitfulness. The chemical tests revealed differences between the structure of the soil and the plants that were growing in it; as a result it was decided the necessity to supplement the soil with nutritive elements. The employment of the artificial fertilizers led to the terrible perturbation of the natural cycles of the elements. The harmful effect of the artificial fertilizers added up gradually. Nevertheless, they had a considerable contribution in meeting the need for food of the ever-growing population (Calvin, 1987; Kurtz, 1988; Pownall, 1988).

As soon as it became obvious that the return of certain elements in the nature is temporary, the seeking of the factors considered to be responsible for the crisis of the environment went on. It was observed that the variety of the plants and animals, that is, the so-called biodiversity, is the result of the interaction between the non-living constituents of the environment (the soil, the climate), and the living ones. This interrelation is nothing else than "nature management", in other words it represents all the mechanisms included within the concept of ecology (Során et al., 2000; Vegh, 1999; Wilson, 1988).

The involvement of man in the natural processes of the environment, which is more and more frequent and through going, needs an answer from the ecological researchers. The methodical ecological investigations represent only a stage of it. What matters in fact for the environment is the action, the deeds that unfortunately are behindhand (Hill, 1989).

5. The overpopulation.

One of the responsible factors in the deterioration of the environment, probably the most significant, has been the man himself. The overpopulation as a cause for the environmental crisis was apparently omitted, although its consequences have been obvious and active beginning with the ancient times and up to the present days. The two world wars of the XXth century represent a concealed consequence of this factor. The political explanation of the antecedents and of the consequences is nothing else than a spiritual pollution (that is, false explanations, misleading, specious information, suspicion, intolerance instigation).

It is almost a century and a half that has passed by since the risks of the overpopulation were admitted and its consequences recognized. In the meanwhile, the science of the relations between the environment and the ecology has become environmentology; this occurred as a result of the attempts made to improve and recover the damages caused by the progress of the civilization.

In the last 50 years, the studies related to overpopulation have been more and more frequent (Levy, 1991, 1993, 1994). At present there's not a single spot that wouldn't have the footsteps of the man. It has already been counted the vital space per individual. The ability of the earth to sustain by itself, according to the reckonings is about 1,8 to 2,3 ha/individual. The "ecological footprint", that is, the individual impact upon nature (consumption, constructions pollution) in Romania is 2 to 4 ha/individual, and in the Baltic countries, it is even more than 6 ha/individual. The cessation and even the stoppage of the overpopulation has been encouraged along the time by lots of thinkers, one of them being T. Malthus (1798), and the Prince of Wales and the Canterbury Bishop, nowadays.

With the support of the scientific research, mainly that realized in the field of the genetic engineering, which has to do with genetically changed bodies, there is a significant increase in the industrial and in the agricultural production. In the meanwhile, in the environment, the non-biodegradable waste products (400 million tones yearly) accumulate and the landscape is being destroyed. The soil and the waters are being polluted, the fertile plots of lands are being washed through and eventually they turn into refuse. At the same time, dams all over interrupt the natural tide of the running waters, and the seas and the oceans have already grown poor in fish. Also, the atmosphere is being loaded with carbon dioxide and is being warmed up (the well known greenhouse effect). As a result of the overproduction there are some regions that abound in goods and others that are haunted by poverty (Matson, 2001; Parker & Pickett, 1966).

CONCLUSIONS

The man whose mind has not changed during the 200.000 years (Szeckely, 2002) passed through various stages on his tumultuous way: identification, employment/utilization, domination, exploitation, ecologization, pollution and eventually the stage of the protection of his original environment, getting afterwards at the stage of the so called environmentology, that is, he created the science of the environment. According to the environmentalists it is necessary to be pointed out the physical and mental conditions of the survival.

The agricultural production of the XIXth and the XXth centuries demolished the barrages of the environmental exploitation. The result was a huge production and redundancy, but the occupations of the man are no more harmoniously interwoven with the repetitive cycles of the nature (the biogeochemical processes). The main conclusion of the environmentology upholds that it is necessary to be established a balance between man's economical expectations and the earth's ability to sustain itself (the ecological footprint). The review of the relation and of the equilibrium between man and nature is imposed by life

perpetuation itself. All the living beings on the earth (the so called biosphere) must be regarded as an independent being and man is one of its constitutive parts (the concept of Gaia). The biosphere is a fundamental system in the human civilization; in case a single part of this system is harmed, the whole of it is deteriorated.

The survival of the man can be realized provided that we make sure that the natural environment harmonizes with the artificial one. In order to achieve this we must resort to all the scientific and technological findings. “*The return to nature*” is impossible. However, it is true that certain parts of the environment built up and organized to our liking (such as the parks, the orchards, the carefully cultivated parcels) are attractive and good-looking. But their keeping is permanently in danger because these do not have the cycles of the nature. They could be kept only by an outside surplus of energy for the production of which other sources are used and which at their turn produce waste material.

The key condition of man’s survival is the avoidance or the exclusion of the anthropocentrism. In fact, man differs from the rest of the beings (the chimpanzee, for instance) only by his conscience and the change of the conscience is possible only by education. Even though the education is more successful if it is started from an early stage, the education for the protection of the environment must be done at all ages, at all levels and with all the possible means because it has started to be late.

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