ISSN 1848-0071
UDC 001.3+165.5=111
Recieved: 2012-02-10
Accepted: 2012-03-09
Original scientific paper

BEYOND DESTRUCTION: POSSIBILITY OF A NEW PARADIGM OF KNOWLEDGE

TOMISLAV KRZNAR

University of Applied Sciences, Karlovac, Croatia
e-mail: krznartomislav@gmail.com

In this paper* the author tries to examine the background of the contemporary destruction of natural environment. Even a superficial analysis suggests that the problem of destruction of life on Earth, which is especially noticeable in the context of Western societies, is not just a problem that could be looked up in one dimension or horizon (for example, economical or political), but it requests deeper analysis of cultural and scientific models which lie down in the very bottom of phenomenon of destruction. Therefore the author analyzes the concept of knowledge as a basis of Western science. The central idea of this paper is that the knowledge, which is founded up on mechanicism, particular approach and commercial imperative, is necessarily destructive. This kind of destruction can be seen in destruction of natural environment which is, in the same time, the destruction of cultural patterns. Consequently, a new paradigm of knowledge should be made and it should be founded up on the ideas of holism, integrative thinking and respect for the life. The author suggests that the new paradigm could be developed in the framework of *integrative bioethics* which offers thematic and methodological potential of binding many diverse areas of intellectual work. Integrative bioethics also opens a possibility of activism which is essentially important for effective solving of problems of destruction of life.
Key words: knowledge, environment, destruction, philosophy, integrative bioethics.

S onu stranu uništenja. Mogućnosti stvaranja nove paradigme znanja. U ovom radu* autor nastoji istražiti podlogu uništenja prirodnog okoliša. Čak i površna analiza ukazuje da problem uništenja života, što se posebno uočava u zapadnjačkim društvima, nije problem koji bi se dao sagledati samo jednodimenzionalno ili u jednom horizontu (primjerice, ekonomskom ili političkom) nego zahtijeva dublju analizu kulturnih i znanstvenih modela koji leže u temelju fenomena destrukcije. U tom pogledu, autor analizira koncept znanja na kojemu je izgrađena zapadnjačka znanost. Središnja zamisao članka je sljedeća: znanje koje je utemeljeno na mehanicizmu, partikularnosti i komercijalnom imperativu, nužno je uništavajuće za život. To uništenje očituje se kao uništenje prirodnog okoliša, a istovremeno i kao uništenje kulturnih obrazaca. Konsekvenca tih uvida je imperativ izgradnje nove paradigme znanja koja bi bila utemeljena na holističkim uvidima, integrativnom mišljenju i poštovanju života. Zbog toga autor sugerira mogućnost razvoja nove paradigme znanja u okrilju *integrativne bioetike* koja nudi tematski i metodološki potencijal ujedinjavanja mnogih, naoko različitih i nespojivih, područja mišljenja. Istovremeno, integrativna bioetika otvara mogućnost aktivizma, što je od velike važnosti u pronalaženju konkretnih rješenja za probleme uništenja života.
Ključne riječi; znanje, okoliš, destrukcija, filozofija, integrativna bioetika.

INTRODUCTION

Maybe it is the truth that the process of thinking is always ordered to exist in the dichotomies, in everlasting attempts of trying to conciliate two different poles of

human life? It may be noticed that entering the area of environmental problems is especially determent with that insight. Nobody – at least nobody who is connected to the opportunities of contemporary life, such as possibility of different commodities of life, communication or transportation possibilities, health security, possibility of diversity of political life, etc. – thinks that the above mentioned determination of life of the contemporary human is negligible, but there are other dimensions of our common living, not only social, but also natural ones.

For example, Western societies, as well as this type of society that is becoming a World pattern, produce enormous amount of waste. They exist on the platform of consummation, especially that of water and other natural resources. Western societies, while they reside on the idea of infinite expansion, destroy numerous ways of life, especially the "wild" forms of life. Obviously we live in the divided world. Let we ask most important question: what kind of knowledge we have on that world that is the basis of our behavior?

So, which voice we should listen: the one which promises commodity or another one which speaks about the destruction of life on Earth? The problem is the following: these are only the two declarations of the same subject, two sides of a same coin. Let us formulate it more precisely: there is no human commodity without destruction of life. Answer is already manifesting itself, especially in the light of earlier mentioned dichotomy: if we are willing to save the life on Earth, we should resign the comfortableness of our life. At least some part of it. Here we ought to ask several questions if we wish to get through to possible answer.

First, at the technical level, what are the dimensions and impacts of this kind of destruction, and especially what causes it? Second, what are the roots of this destruction – in social, economical and political spheres of impact – observed from the point of view of the modern life? Third, is there a possibility of theory which can explain all the problems of human life in a non-destructive way regarding the life?

In this paper we are trying only to outline the possibility of way of life which would not harm the life itself. In other words, we are looking for the basis of a new theory, not just of adjustment of known facts.

TRANSFORMING OR DESTRUCTING THE LIFE?

But let us go a few steps back. The (sub)title of this article suggests several dimensions of the problem. First, there is a knowledge which causes environmental destruction. Second, what type of knowledge is that, and what is the character of it? Third, if it is happening, what kind of knowledge do we need to be putted in the basis of our social and economic life in order to minimize, or even exclude, environmental destruction?

And fourth, maybe the most important question: is this type of knowledge intentionally destructive or destruction is only the by-product of commodity of our life?

Firstly, let us show the basis: what is the impact of our way of living to the life itself? We could lean on the sketch given by Th. Homer-Dixon in his book *Environment, Scarcity, and Violence*, in which author outlined nine physical trends throughout which human kind – especially the Western type of societies – transforms the life. First one is the population growth, which by itself does not damage the environment, but in

combination with "prevailing social structures, technologies, and consumption patterns – make environmental degradation and depilation worse" [1:55]. The paradox is the following: over 90 percent of today's population growth is occurring in developing countries. On one hand it raises the number of poor people and on the other hand it suggests that population is not a very cause of environmental degradation. Much bigger impact is given through the technologies and social patterns of consumer societies. This dimension leads to the second trend: energy consumption. Per capita energy consumption in many developed countries is thirty or more times higher than in developing countries. The level of energy consumption depends up on the level of technology and the most used source of energy is the oil.

This leads us to the third trend – global warming. In short, global warming is caused by gas emissions in the atmosphere. The equation is simple: the more gases emitted in the atmosphere, the higher temperature at the surface of the planet. The result of that is the rise of the temperature between 0.3 to 0.6 degrees Celsius since the late nineteenth century [1:60]. Higher temperature has tremendous impact on life, especially in the seas and oceans. Fourth trend is the stratospheric ozone depletion caused by the emission of the harmful substances (mostly CFCs). Lower levels of the ozone in the stratosphere permit more harmful UV radiation to reach the surface of the earth from space [1:62]. This is a serious threat to the life processes, as well as to the human health. Fifth trend, according to Homer-Dixon, is cropland scarcity. While the agriculture is essentially a civilized tool of transformation of natural environment, this trend has more impact on society and human health than to the life itself, except in the case of soil degradation and intervention in the circles of life of microorganisms. Sixth trend, which is essentially connected to the agriculture and has a tremendous impact to the life processes, is a tropical deforestation. These processes intervene in the cycles of plant and animal life of particular area causing the reduction of the species, as well as lowering the level of oxygen in the atmosphere. They have impact on social processes as well. Human societies, especially Western societies, have great impact on the freshwater cycles.

Dominant consequence of industrial food production is enormous water consuming and polluting. This is the seventh physical trend of human impact on the life. It manifests itself through lowering the level of fresh water, causing the destruction of some forms of life. Intensive fishery, as the eighth trend, directly affects the fish stocks. Recent demand for fishes as human food causes a non-sustainable managing of natural resources, as well as fish breeding which is the cause of environmental destruction, too. Finally, ninth trend is presented through the lost of biodiversity, which is a "general indicator of the damage (…) inflicted on Earth's renewable resource systems" [1:70]. It is not just about physical extinction of animal and plant species; it is the problem of civilization matrix which causes a destruction of many forms of life. Essence of this matrix is the industrial force of Western societies which destroys life by trying to make commodity for humans. All the physical trends mentioned above are interconnected. The stronger the particular trend of destruction, the stronger the force of destruction of life. The most important question is the following: what type of knowledge is the basis of contemporary life?

We have outlined the range of destruction of life which is caused by human activity of production. Now we should consider the framework of these problems, which is undoubtedly inspired by the idea of human exception. It means that we should consider the problem of anthropocentrism. It is not unacceptable to say that the understanding of human particularity has

tremendously increased the level of commodity of human life. Civilization, especially Western civilization with all its ultimate purpose to serve the man's needs (the lesson of ecofeminism shown us that the 'man', especially in Western worldview, has been understood primarily as the male).

This position has two negative dimensions. First, generic wellbeing – wellbeing of entire humanity – is not fulfilled if entire groups of humans (women, poor and disabled persons, persons of "other" skin color, "other" religion beliefs, "other" sexual orientation, etc.) are excluded from the kingdom of human superiority. Second, the anthropocentric view on life has caused wide range of destruction effects, as it was mentioned earlier. Now we can pose further question: what made the anthropocentrism so strong, or what gave such life destroying strength to it?

First of all, let us distinguish different types of anthropocentrism, or better, different modes of the same phenomenon which can be distinguished by the difference in strength. We should make here an especially important distinction. Can some belief – even if it is so strong and dominant like anthropocentrism – make real social or environmental damage; can another, stronger belief make stronger means of life transformation, in terms of responsibility and respect for the life in general and human life? We think that the positive answer on these questions brings us closer to the core of the phenomenon of modern destruction of natural environment.

Anthropocentric beliefs, which are the basis of our civilization, are in the same time the source of the tremendous commodity and the destruction of life.

The scientific-technical construction of the world – the term we are using to describe the civilization matrix of Western societies – has offered the most useful and strongest means for the transformation of life and nature, but it did not make the benefits, is built upon such understanding: man is a special being and all other forms of life, as well as the totality of life, have mechanisms of control of this transforming power. Now we have reached the brink of our discussion. Let me summarize it this way:

- Anthropocentrism is both the worldview and the operational matrix of social behavior. It has generated most sophisticated types of life commodity, at least for certain parts of human population, but it has also created life destroying mechanisms which became, in ultima linea, a threat to the human, i.e. humankind.

- High level of human life commodity has been made through the ages of transforming the life, using natural materials and creative forces in order to construct the artifacts and find the ways which enable the survival and the living where it is, biologically spoken, naturally impossible. Such kind of living demands an enormous amount of energy, which was taken from the nature. Humans used and transformed natural resources and gave them back to nature in the form of waste and pollution of various kinds.

- Cultural construct which is made upon the anthropocentrically determined worldview, which has been essentially conceived as a problem solving activity, while problems were natural laws and natural power of creation, became the strongest tool of life transforming activity. In other words, worldview (the anthropocentric one) became a platform for knowledge, or more accurately said, for the particular kind of knowledge. This type of knowledge – and only this kind of knowledge – became the science. The science, as we know it, is an original spiritual product of the Western way of thinking. Its strength was measured by

successfulness of subjection of the nature. When we say "science" we think "Western science", a theoretical antechamber of technology, a commercial mechanism, but also – a possible destructor of life.

THE ROOTS OF MODERN ANTHROPOCENTRISM

We have tried to outline our problem. We have briefly presented our understanding of anthropocentrism, our understanding of civilization, and its impact on the entirety of life, as well as human life. Now we should answer the following question: what is the main force of the destruction of life? If it is the science, then we must answer two questions. First, what kind of knowledge we are talking about when we are talking about the cultural construct called science; and second, how is this knowledge shaped? In order to answer the first question, we could begin by pointing to the roots of modern science.

Here we should draw attention to the connection between anthropocentric world view, economic history of the European societies in 17th and 18th century, and the origins of civil society and its (capitalistic) economy. Nevertheless, all these elements are connected to the emergence of the particular kind of knowledge which forms the basis of Western science. What have influenced the emergence of this particular kind of knowledge? Also, what have influenced the emergence of modern age version of anthropocentrism in speculative and operational aspect? We can detect five main sources of the influence: philosophy of René Descartes, thinking of Francis Bacon, (proto)scientific work of Galileo Galilei, Christian thought, especially in the form of Roman Catholicism, and the heritage of the age of enlightenment.

René Descartes (1596-1650) is considered the most famous French philosopher and the father of modern Western philosophy [2]. He claimed that the most undoubtable fact of the universe is the following one: it is impossible that the one that thinks does not exist, therefore, central position of all the existing is the entity that have thinkable potential, that is – the (hu)man [3:204]. On the other hand, Descartes was also mathematician and physicist; he has also studied physiology. Out of the study of the last mentioned area emerged his idea of mechanicism and physicalism. As he was the "first thinker of the modern age", the catalogue of the knowledge that he has acquired was insufficient, especially the scholastic tradition. But we have to ask: insufficient for what? What did Descartes want to do, what kind of knowledge did he require? Descartes wanted to construct a system of knowledge with two main goals: first, it must be oriented to the (hu)man, meaning that it must be rational, its postulates must be clear and distinct; and the second, new system of knowledge must have a practical purpose [4: 51]. Scholastic systems could not positively answer those questions.

When mentioning the 'system of knowledge' we do not think only philosophy or natural sciences, but the synergy of entire knowledge which, contrary to the previous periods, has a single purpose: to assure the possibility of human expansion, especially in economic way. It should be done because man is the only being who has the mind, *res cogitans*, thing that thinks, while any other entity (paradoxically including human body) is *res extensa*, thing that fills the space, thing that can be measured and used. Descartes' philosophy became great inspiration of anthropocentrism especially due to the fact

that he putted the man in the center of his speculative interests and made him a single active being, being that can transform reality and create his own world. He creates his own world by using the nature and its "products". In conclusion, science, as a new system of knowledge, must make man the master and the owner of nature [4:50]. This is Descartes' central point that agitates the intellectual spirits of environmental thought for almost a half of the century. In their opinion Descartes is to blame for giving the inspiration to the growth of anthropocentrism, in the intellectual form of rationalism, using the intellectual tool of the method. After that the implementation and appliance became possible, even more, it became the only solution.

Second thinker whose thought inspired the modern anthropocentric circuit is Francis Bacon (1561-1626), English philosopher, politician and scientist [5]. He is most famous for his saying that "knowledge is power". What kind of knowledge, and power for what? Contrary to the continental rationalistic philosophical tradition, which is based on the belief that the path to the truth leads only through speculation, or better, that there is no truth outside the mind, Bacon belongs to the philosophical tradition of empiricism, which considers experience the only determinant of the process of cognition. In other words, the truth lies outside of us and we can reach it only by investigating the natural world. Bacon, on the basis of the critique of false knowledge, concluded that the system of knowledge needs a great restoration, and that the usefulness of new knowledge must be a main goal. Knowledge must have a pragmatic dimension in solving many problems of human existence, primarily the problems caused by the powers of nature. In Baconian perspective main method of science is the induction, which is the method based on the collecting of the facts in order to create a theory on this basis. The theory must be transformed into the artifact which must solve certain problems of human life and produce a higher level of commodity. The most important task of the knowledge is to subject the nature and make her to work for the man. In that sense, this type of knowledge is the knowledge of subjection the nature. There is the moral justification of that process due to the power of nature and its threats to human life. Obviously, it was great inspiration for the anthropocentric view of the human, nature and life.

In the scientific work of Galileo Galilei (1564-1642), with whom actually begun the new epoch in the history of Western science, we can see many elements that directed the development of scientific knowledge [6]. Central point of his work is the experiment, considered as a process in which scientific worker forces the nature to show him its secrets, in order to form the facts in the matrix of knowledge and use them as a step to the higher level of knowledge on life. The society of Galileo's time had begun a long journey of shaping of the other dimension of civility and the role of the individual in the world. New understanding of human's role in the world, especially his economic power, requested a new type of knowledge, more pragmatic and more operative. Galileo gave impulse for another distinction, the difference between philosophy and science. In his opinion science does not need to be speculative; it must be rationalistic, anti-occult and applicable [7:53]. Having in mind all the facts mentioned above, we can conclude that Galileo's influence on the modern science was enormous.

Christianity, in the wide range of meanings of the term, has influenced development of the Western world in numerous dimensions. It has also influenced the development of modern science, as well as the modern concept of anthropocentrism. We will leave aside usual critiques of the Christianity as the main inspiration of

environmental crisis and anthropocentrism [8] and focus on two problems: linearity and eschatology, both of which are important for the understanding of power of modern anthropocentrism. First, the problem of promised and gave them the salvation of their sins in the person of His beloved son. Act of salvation is historically rooted and the terrestrial birth of the Son of God can be detected in human history. After the death and resurrection of the Son of God people had the choice to believe or not in salvation message of Christianity. Anyhow, Christian doctrine of salvation assumes that the Creator will appear in some point of historical time, He will intervene in the existence of the world, so that neither personal death nor the end of the existence of the world could be a final stop in the life of the humans and humankind. There is the life beyond material existence which is unrepeatable, because there is the last judgment in which will be decided about the punishment or reward regarding one's terrestrial life. Dominant idea of described process is the idea of linearity: process has its beginning, its length and its end.

The most important characteristic of it is that it does not have a second appearance, although the end of it transfers the existence in some other dimension. Linearity advocates un-repeatedness, singularity. Natural processes are described as the cycles which are repeating themselves numerous times; every segment of the living world is connected to some other as the transformation of energy, information and matter. There are no beginnings and ends in the natural processes, because everything is in the same time the beginning and the end.

Pagan religions, i.e. belief systems of Indian, Nordic, Slavic and many indigenous peoples of the world give evidence about it. Christianity absorbed many of these beliefs and used them in order to increase its influence and power. How described process influenced the development of the science linearity. The basis of Christian doctrine of salvation is that Creator has created the world and the humans in it, but humans became corrupted during the times, so that the Creator, treating humans as His children, and how it gave the strength to everlasting anthropocentrism? Science, which has grown on the platform of mighty individual and had a role to ensure the safety and commodity of human life, did not care for the fragileness of the natural processes. It has understood linearity as the infinity: human is permanently in need and nature is permanently strong. If happiness of the humans should be ensured, strength of the nature should be shackled.

Having in mind the idea that nature is everlasting and unfolded infinity, humans can hardly imagine the possibility that the things made by us could get back to us as a threat or even as a kind of punishment, so that our actions and acts should be limited. This is the result of eschatological dimension of modern anthropocentrism that had been borrowed by Christianity.

We have point to, let us say, metaphysical dimension of the influences on the development of modern science and modern anthropocentrism, leaving aside other dimensions such as political and economic ones.

However, we should mention, at the end of this part of our paper, the last influencing factor, namely, the enlightenment. The whole movement in Europe, although differently from country to country, could be reduced to single request – man should use his reason [9]. It means that human must arrange his life according to the rules which are understandable and acceptable to all, while the society should be founded according to the principles that are dominated neither by particular religious ideas nor by any particular idea.

Very important role in the enlightenment's doctrine was given to reason, especially to the distinction between

man and animal in point of reason. This dimension of exclusion and singularisation gave the special strength to modern understanding of science and its speculative platform – the anthropocentrism.

MODERN PARADIGM OF KNOWLEDGE AS A SOURCE OF DESTRUCTION

We have already posed the question about the organization of knowledge: how scientific knowledge is organized? The answer is very simple: it is organized through paradigms. What is the paradigm and how it works? Term 'paradigm' entered into scientific and common language through the work of Th. S. Kuhn and his famous book *The Structure of Scientific Revolutions* [10]. First, term 'paradigm' can be understood as a scientific achievement, for example that of Aristotle's *Physics* or Newton's *Principia* (*Philosophiae Naturalis Principia Mathematica*), presentation of scientific theory, its evidences and directions for usage. Second, "paradigm" [11:14] can be used in terms that describe unity of basic theory and assemblage of beliefs, values, standards and procedures which ensure scientific work and distinguish it from other human practices. In both ways of understanding it is obvious that we are talking about the knowledge that has a wide area of acceptance and is determined by strong rational structure of evidence, social or even commercial usage, and possibility to become the basis for certain systems of belief.

We have described the consequences of the human usage of life and natural resources, as well as the impulses that have influenced the emergence of modern science and its cultural platform (anthropocentrism). We have also outlined the problem of paradigm. Now we have to describe more precisely the modern paradigm of knowledge and its destructive impact on life. For this purpose we will sketch seven specific attributes of modern paradigm of knowledge. First, it is founded up in hard anthropocentrism which is, as social and cultural determination of modern age, central dimension of human exceptionalism. Second, modern paradigm of knowledge represents the one-dimensional knowledge, i.e. the scientific, rationalistic, pragmatic and utilitarian knowledge. Other forms of knowledge, for example those based on intuition or various types of sensibility, are banished out of area of modern social discourse and marginalized as useless and primitive. Dimension of application or applicability, as third specific attribute of modern paradigm of knowledge, is directed towards human safeness and it is mostly commercially determined. Since the beginning of the modern age, as we have sketched earlier, science was thought as a force of human liberation from the nature and means of gaining the higher level of commodity. Human must be free, to live without any limitation, to investigate nature and use its force in order to ensure safer and more convenient life. The means that could be used for this purpose are technical artifacts which must be made in commercially acceptable way, which usually implicates the mass production and usage, invasive methods of production which include infinite usage of (natural) resources and huge amount of waste. In other words, the application is always a game of big numbers, so that the production must be commercial in order to be efficient. Fourth specific attribute of modern paradigm of knowledge is total lack of concerning the

results or impacts of manipulation of life. Until the negative, destructive impact on life became obvious, dominant idea was the following: only science, as a pursuit for truth, can ensure the better world and it should not be supervised from outside. In other words, only science itself, i.e. the scientists are allowed to supervise the science, which is formulated as the idea of freedom of research and innovation.

However, re-thinking the impacts of scientific work on society and life in general did not come from the science itself, but it emerged when humankind became aware of dark sides of our way of living such as destruction of diversity of natural and cultural forms of living. Fifth specific attribute of modern paradigm of knowledge is this kind of insight which is constructed in only one social horizon (in matrix of Western societies), but it has an intrinsic impulse to become global knowledge. The term "global" is not primarily a geographical determination, but rather the ontological one. This contradiction, paradoxically, does not essentially weaken the power of scientific knowledge; rather contrary, it has a negative impact on life. In other words, singularity wished to become generality. One perspective wanted to become the only perspective. Western science as the only relevant approach and worldview means that there is no other relevant way of observing the reality and that the ways of thinking specific to the other cultures have no relevance to us. Sixth, modern scientific paradigm rests on the insight that the knowledge is reductive mechanism which intention is to split the life and overmaster it. On the contrary, knowledge is an integrative concept which is by its nature referred to some concept of value determined from outside. Modern scientific paradigm offers almost autocratic type of knowledge, quite undemocratic knowledge. This is the final, seventh specific characteristic of scientific knowledge. It is very hard to realize how dogmatic structure of knowledge, which often depends on the insights of very few experts, can become a tool of truthfulness, especially if we consider the truth as concept of integration of perspectives. As we already said, to proclaim one perspective as the dominant one or, even worse, as the only one is socially and ethically suspect. Is some other kind of knowledge possible?

POSSIBILITY OF RESPONDING

The innovative concept of moral reasoning and ethical responding to the challenges of contemporary time, which has been developed under the name of *integrative bioethics*,** seems to be an adequate framework for considering the above mentioned problems. Integrative bioethics could be seen as a highest stage of development of bioethics, because it widened the scope of bioethics at two levels: subject-field and methodology [12:13]. At the level of subject-field (i.e. the substantial, problematic or thematic level), we could outline three phases of development of bioethics: the first was dominated by medical problems and problems connected to beginning and end of human life; in the second phase there was much more widened perspective, including healthcare systems, problems of biomedical research, etc. Third, recent phase is concerned with even more widened spectrum of the problems such as human relationship to non-human living beings, environmental problems, general problems related to knowledge and science, as well as philosophical-historical problems of turn of the epochs. At the methodological level, there are three congruent dimensions, too. The first was so-called principlism, which tried to solve different bioethical

problems according to previously set principles, such as autonomy, beneficence, non-maleficence and justice.

This methodology was not sufficient, so that, in the second phase, bioethical reasoning opened up itself to ethical pluralism and interdisciplinarity as well. Third phase of development of bioethics, at the methodological level, is characterized by invention of pluri-perspectivism – the methodological construction which integrates not only scientific, but also non-scientific or cultural perspectives.

Can integrative bioethics make contribution to the development of less destructive worldview and practices? Our answer is positive. Let us outline it by answering another question: what kind of knowledge do we need in order to reduce destruction?

New paradigm of knowledge should be founded on the permanent rejection of the particularity and fragmentarity in order to build the knowledge which would be founded on the understanding of human as a being which is the part of the community of life and not the master of it. Everything is connected and has its role in the whole. This is well-known holistic worldview which central moment is the harmony within the whole and not the disconnected fragments.

Another dimension of new paradigm of knowledge is new view on the problem of application of scientific results through technology. We should care about the possible side-effects of knowledge and science application, too. There are two concrete implications of it: the principle of precaution and the social control of scientific work, especially "grand projects" of intervening in the human genome or other kinds of transforming the life. Both aspects presuppose two complementary concepts: responsibility and democracy.

Exclusivist approach to the problem of scientific work leads often to scientific absolutism, while non-transparent control of scientific research leads to potentially dangerous results.

Third dimension is connected to the financial aspect of science. Although science should be in the service of public interest, today it is mostly commercial entity whose purpose is increasing profit? In our opinion science in the new paradigm of knowledge must be released from permanent commercial pressure.

Due to the methodological potential of pluri-perspectivism, integrative bioethics is able to integrate all these dimensions and ensure the integration of various perspectives, including scientific knowledge, into the holistic approach to the life. On the other hand, in ethical horizon, integrative bioethics advocates responsibility towards life, which is the insight based on the awareness that people destroy life by their way of living. Integrative bioethics also builds the framework for construction of "orientation knowledge" which emphasizes, besides the instrumental value of knowledge, the dimension of meaning. Modern paradigm of knowledge could not give it to the humans. In order to enable the meaningful human survival we should consider the possibility of creating the knowledge which would not destroy the life, but to preserve and protect it.

CONCLUSION

In this paper we have tried to outline some problems connected to the destruction of natural environment. Our main thesis is that the destruction of natural environment rests up on the type of knowledge which is characterized by the human exceptionalism, fragmentalism, pragmatic dimension, non-democratic social order, non-acceptance of

other forms of life, invasive logic, etc. Imperative of human survival demands building of a new concept of knowledge, a new paradigm, not just an adjustment of the present one. The framework of our consideration we have found in the integrative bioethics due to its thematic wideness and methodological potential, including the concept of pluri-perspectivism as a methodological tool which ensure the integration of perspectives as a main condition of truth, as well as the positive social concepts, such as responsibility and democracy, which could be used as a corrective force in social applying of scientific knowledge.

We should primarily try to synoptically look on the problems of human survival, understanding it in its biological, social, cultural and spiritual dimensions. To answer these complex questions is a tremendous task. The ethical component can and must be re-called as a permanent help. Therefore, in our opinion, the concept of integrative bioethics can help us in this journey.

NOTES

* This paper is written on the basis of author's research presented in the book *Znanje i destrukcija. Integrativna bioetika i problemi zaštite okoliša* [Knowledge and Destruction. Integrative Bioethics and the Problems of Environmental Protection] (Pergamena / Učiteljski fakultet Sveučilišta u Zagrebu, Zagreb, 2011). Nevertheless, it presents some new insights that the author gained while doing a specialized research.

** The concept and project of *integrative bioethics* has been developed under the guidance of professor Ante Čović from Department of Philosophy at the Faculty of Humanities and Social Sciences, University of Zagreb, Croatia, having a significant international impact. There are three key points of this project: developing the scientific dialogue (regular international conferences *Southeast European Bioethics Forum* and *Lošinj Days of Bioethics*), developing the bioethical education programs (*International Summer School of Integrative Bioethics* and diverse graduate and postgraduate programs at Southeast European and German universities), and developing the documentation and research infrastructure (*Referral Centre for Bioethics in Southeast Europe*). This article points out only one key feature of integrative bioethics, in order to show its potential in giving answers to the most important questions of human survival.

REFERENCES

1. Th. Homer-Dixon, *Environment, Scarcity and Violence*, Princeton University Press, Princeton, 1999.

2. R. Šajković, *Descartes i njegovo delo* [Descartes and His Work] I–II, Filozofsko društvo Srbije, Beograd, 1978.

3. R. Descartes, *Meditacije o prvoj filozofiji* [Meditations on First Philosophy], in: E. Husserl, *Kartezijanske meditacije* [Cartesian Meditations], Centar za kulturnu djelatnost Saveza socijalističke omladine, Zagreb, 1975.

4. R. Descartes, *Rasprava o metodi pravilnog upravljanja umom i traženja istine u naukama* [Discourse on the Method of Rightly Conducting the Reason, and Seeking Truth in the Sciences], Nakladni zavod Matice hrvatske, Zagreb, 1951.

5. S. Kutleša, "Francis Bacon", in: E. Banić-Pajnić (ed.), *Filozofija renesanse.*

Hrestomatija filozofije, sv. 3 [Philosophy of the Renaissance. Chrestomaty of Philosophy, Vol. 3], Školska knjiga, Zagreb, 1996, pp. 359-447.

6. J. Langford, *Galileo, Science and the Church*, 3rd edition, The University of Michigan Press, Michigan, 1992.

7. P. Machamer, "Galileo's Machines, His Mathematics, and His Experiments", in: P. Machamer (ed.), *The Cambridge Companion to Galileo*, 2nd edition, Cambridge University Press, Cambridge / New York, 1999, pp. 53-79.

8. L. White, "The Historical Roots of Our Ecological Crisis", in: *Science*, 155 (1967) 3767, March 10, pp. 1203-1207.

9. D. Barbarić, "Prosvjetiteljstvo u Europi" [Enlightenment in Europe], in: *Kolo*, 16 (2003) 4, pp. 69-77.

10. Th. S. Kuhn, *Struktura znanstvenih revolucija* [The Structure of Scientific Revolutions], 2nd edition, Naklada Jesenski i Turk, Zagreb, 2002.

11. Z. Kurelić, *Liberalizam sa skeptičnim licem* [Liberalism with a Sceptical Face], Barbat, Zagreb, 2002.

12. H. Jurić, "Uporišta za integrativnu bioetiku u djelu Van Rensselaera Pottera" [Footholds of Integrative Bioethics in the Work of Van Rensselaer Potter], in: V. Valjan (ed.), *Integrativna bioetika i izazovi suvremene civilizacije* [Integrative Bioethics and the Challenges of Contemporary Civilization], Bioetičko društvo u BiH, Sarajevo, 2007, pp. 77-99.

13. A. Čović, "Medicina – etika – bioetika" [Medicine – Ethics – Bioethics], in: *Mef*, 29 (2010) 2, pp. 42-44.