

GOD, DESIGN, AND NATURALISM: IMPLICATIONS OF METHODOLOGICAL NATURALISM IN SCIENCE FOR SCIENCE-RELIGION RELATION

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ABSTRACT: The aim of this paper is to analyze the implications flowing from adopting methodological naturalism in science, with special emphasis on the relation between science and religion. Methodological naturalism, denying supernatural and teleological explanations, influences the content of scientific theories, and in practice leads to vision of science as compatible with ontological naturalism and in opposition to theism. Ontological naturalism in turn justifies the acceptance of methodological naturalism as the best method to know the reality. If we accept realistic interpretation of scientific theories, then methodological naturalism conflicts science with religion. Theistic evolution does not seem to be a proper way to reconcile Darwinism and methodological naturalism with theism. Many of such propositions are boiled down to deism. Although evolution can be interpreted theistically, it is not the way in which majority of modern scientists and respectable scientific institutions understand it.

KEY WORDS: methodological naturalism, ontological naturalism, evolutionary theory, theistic evolution, teleology, randomness.

Dios, diseño y naturalismo: Implicaciones del naturalismo metodológico en la ciencia para la relación ciencia-religión

RESUMEN: El objetivo de este artículo es analizar las implicaciones derivadas de la aceptación del naturalismo metodológico en la ciencia desde la perspectiva de la relación entre la ciencia y la religión. El naturalismo metodológico, que niega explicaciones sobrenaturales y teleológicas, influye en el contenido de las teorías científicas y en la práctica conduce a una visión de la ciencia como compatible con el naturalismo ontológico y en oposición al teísmo. El naturalismo ontológico por su parte justifica la aceptación del naturalismo metodológico como el mejor método para conocer la realidad. Si aceptamos una interpretación realista de las teorías científicas, entonces el naturalismo metodológico hace entrar en conflicto a la ciencia con la religión. La evolución en sentido teísta no parece ser una vía adecuada para reconciliar el darwinismo y el naturalismo metodológico con el teísmo. Muchos de sus enunciados se reducen al deísmo. Aunque la evolución puede ser interpretada en perspectiva teísta, esta no es la forma en que la entienden la mayoría de los científicos modernos y de las instituciones científicas de prestigio.

PALABRAS CLAVE: naturalismo metodológico, naturalismo ontológico, teoría de la evolución, teoría teísta de la evolución, teleología, probabilidad.

The aim of this paper is to analyze the implications flowing from adopting of methodological naturalism in science, with special emphasis on the relation between science and religion. We show that the naturalistic principle may lead to acceptance of metaphysical naturalism and that, on the other hand, it is exactly the ontological position that justifies the acceptance of methodological naturalism as the best way to gain knowledge about the reality.

After presentation of the most important statements of methodological and metaphysical naturalism and theism, we discuss some prospects on the relation

between science and religion. At first we look at the problem from the point of view of beliefs maintained by scientists and promoted by scientific institutions and we analyze the concept according to which science «is silent on religion». Further, we discuss the relation of methodological naturalism and teleological explanations. We also point at the importance of science in modern culture and show why theistic evolution does not seem to be a proper way to reconcile Darwinism and, more generally, methodological naturalism with theism.

Finally, we discuss the implications of methodological naturalism for the issue of truth in science and its implications for science-religion relation. We present an instrumentalist interpretation of science as a way of circumvent the problem of its conflict with religion and we show the flaws of this approach. If scientific theories are interpreted in realistic way, as the source of adequate description of reality, then the conflict between naturalistic science and theistic religions arises.

METHODOLOGICAL AND METAPHYSICAL NATURALISM AND THEIR RELATION TO THEISM

In this paper we are interested in the understanding of the concept of «naturalism» which refers to methodological and metaphysical premises of science.

The methodological naturalism is usually understood by scientists as a part of the definition of science¹. We would like present two crucial characteristics of this position. The first is well described by Niles Eldredge, one of the most prominent evolutionists, and Eugenie C. Scott, the executive director of National Center for Science Education:

«If there is one rule, one criterion that makes an idea scientific, it is that it *must* invoke naturalistic explanations for phenomena, and those explanations must be testable solely by the criteria of our five senses².

(...) scientists are constrained to frame *all* their statements in “naturalistic” terms simply to be able to test them³.

Science is a way of knowing about the nature – composition and behavior – of the natural, material world. (...) By its own rules, science cannot say anything about the supernatural. Scientists are allowed to formulate solely ideas that

¹ See e.g. WILLIAM LANE CRAIG and J. P. MORELAND, «Preface», in: WILLIAM LANE CRAIG and J. P. MORELAND (eds.), *Naturalism: A Critical Analysis*, Routledge, London-New York, 2000, p. xii [xi-xv]; DAVID RAY GRIFFIN, *Religion and Scientific Naturalism. Overcoming the Conflicts*, New York, 2000, State University of New York Press, pp. 8, 11; DALLAS WILLARD, «Knowledge and naturalism», in: CRAIG and MORELAND (eds.), *Naturalism...*, p. 30 [24-48]; PHILLIP E. JOHNSON, «Evolution as Dogma: The Establishment of Naturalism», in: ROBERT T. PENNOCK (ed.), *Intelligent Design Creationism and Its Critics: Philosophical, Theological, and Scientific Perspectives*, The MIT Press, Cambridge-A Bradford Book, London, 2001, pp. 59-76.

² NILES ELDRIDGE, *The Monkey Business: A Scientist Looks at Creationism*, Washington Square Press, New York, 1982, p. 82.

³ ELDRIDGE, *The Monkey Business...*, p. 87.

pertain to the material universe, and they are constrained to formulate those ideas in ways that can be testable with empirical evidence detectable by our senses. (...) [Science] does not rule out the existence of the supernatural; it merely claims that it cannot (...) study the supernatural – if indeed, the supernatural exists⁴.

Most scientists today require that science be carried out according to the rule of *methodological materialism*: to explain the natural world scientifically, scientists must restrict themselves only to material causes (to matter, energy, and their interaction). There is a practical reason for this restriction: it works. By continuing to seek natural explanations for how the world works, we have been able to find them. If supernatural explanations are allowed, they will discourage – or at least delay – the discovery of natural explanations, and we will understand less about the universe»⁵.

Methodological naturalism is conceived as a scientific principle, application of which guarantees the empirical testability of scientific explanations. Science cannot conduct empirical research on the nature, motives and the ways of God's (or any other supernatural being's) actions, even though its existence and the fact that such research can be done on the ground of theology and philosophy are not excluded. Methodological naturalism not only rejects the possibility of scientific studies of supernatural, but it also limits the scientific explanations to materialistic ones.

In another formulation, made by Michael Ruse, we find reference to the nature of causes invoked in scientific explanations:

«I believe that the first and the most important characteristic of science is that it relies exclusively on blind, undirected natural laws and naturalistic processes⁶.

[...] the most important characteristic of modern science is that it depends entirely on the operation of blind, unchanging regularities in nature. We call those regularities “natural laws”. Thus, scientists seek to understand the empirical world by reference to natural law and naturalistic processes»⁷.

According to methodological naturalism scientists explain the natural world, including people, in terms relating to objects and processes occurring in the natural casual order. Any reference to something supernatural, transcendent or to any teleological factor is denied and excluded from the range of science.

According to metaphysical (or ontological) naturalism, nature is the ultimate reality, in other words: «nature is all there is». Nature is understood here as «a

⁴ NILES ELDRIDGE, *The Triumph of Evolution and the Failure of Creationism*, W. H. Freeman and Company, New York, 2001 (2000), p. 137.

⁵ EUGENIE C. SCOTT, «“Science and Religion”, “Christian Scholarship”, and “Theistic Science”: Some Comparisons», *Reports of the National Center for Science Education*, 1998, vol. 18 (2), pp. 30-32, http://www.ncseweb.org/resources/articles/6149_science_and_religion_chris_3_1_1998.asp (Last accessed: 18 Feb., 2008).

⁶ MICHAEL RUSE, «Witness Testimony Sheet McLean v. Arkansas», in: MICHAEL RUSE, *But Is It Science? The Philosophical Question in the Creation/Evolution Controversy*, New York, 1996, Prometheus Books, p. 296 [287-306].

⁷ RUSE, «Witness Testimony...», p. 301.

permanently closed system of material causes and effects that can never be influenced by anything outside of itself. (...) To speak of something as «supernatural» is therefore [from the naturalistic position] to imply that it is imaginary (...)»⁸. From the metaphysical naturalism perspective, to claim that a supernatural being also exist is to say at the same time that the being has never intervened in the workings of the world. Ontological naturalism is equivalent to atheistic interpretation of the world.

Scientists relying on methodological naturalism principle do not claim to prove that there is no God. For them referring to God as the Creator, however, is to violate the Ockham's razor, because purely naturalistic forces seem to be enough to explain the origin of universe, life and human beings, and the scientifically built picture of the world is for scientists as just the true one. In this sense the principle of methodological naturalism leads to ontological naturalism. On the other hand, it is the metaphysical naturalism that provides justification for naturalistic methodology of science understood as the way to discover «how the things really are».

There are some scientists who perceive metaphysical roots of methodological naturalism and naturalistic scientific theories. One of them is Richard Lewontin, prominent geneticist and evolutionist from Harvard University. Lewontin wrote:

«We take the side of science in spite of the patent absurdity of some of its constructs, in spite of its failure to fulfill many of its extravagant promises of health and life, in spite of the tolerance of the scientific community for unsubstantiated just-so stories, because we have a prior commitment, a commitment to materialism. It is not that the methods and institutions of science somehow compel us to accept a material explanation of the phenomenal world, but, on the contrary, that we are forced by our *a priori* adherence to material causes to create an apparatus of investigation and a set of concepts that produce material explanations, no matter how counter-intuitive, no matter how mystifying to the uninitiated. Moreover, that materialism is absolute, for we cannot allow a Divine Foot in the door. The Eminent Kant Scholar Lewis Beck used to say that anyone who could believe in God could believe in anything. To appeal to omnipotent deity is to allow that at any moment the regularities of nature may be ruptured, that miracles may happen»⁹.

Metaphysical naturalism is, of course, not in reconciliation with theism. By theism we mean the view that there is some personal, omnipotent and omniscient entity, i.e. God, who created the universe, life and human beings, and although transcendent to nature he still takes an active role in the world. It is crucial to distinguish this attitude from deism, according to which in the beginning God established the laws of nature and thereafter left nature to its own devices. There is no contradiction between deism and metaphysical naturalism so understood.

⁸ PHILLIP E. JOHNSON, *Reason in the Balance: The Case against Naturalism in Science, Law & Education*, InterVarsity Press, Downers Grove, 1995, p. 38.

⁹ RICHARD LEWONTIN, Review: Carl Sagan, *The Demon Haunted World: Science as a Candle in the Dark*, *The New York Review of Books*, 9 January 1997, pp. 28, 31.

Of course, we cannot say that there is a logical contradiction between methodological naturalism and the theistic doctrine. These approaches belong to two different domains: epistemology and metaphysics. We can, however, analyze the metaphysical implications of that methodological position. We can also refer to the picture of reality which is provided by naturalistically based science and consider whether there is a contradiction between these two ways of understanding the reality or not.

IS SCIENCE SILENT ON RELIGION? SCIENTISTS' AND SCIENTIFIC INSTITUTIONS' POSITION

There is no doubt that methodological naturalism is widely accepted among scientists. But what about ontological naturalism? In 1996 and 1998 American scientists were asked about their religious views¹⁰. 90% of members of the elitist National Academy of Sciences (NAS) declared themselves as non-believers. Among the representatives of biological sciences the percentage amounted to 95%.

Among the rank-and-file scientists the degree of «disbelief» was smaller (amounted to about 60%). It seems that these results confirm the James Leuba's thesis (who conducted similar polls in 1914 and 1933), stating that because of extensive knowledge and greater experience the prominent scientists are less willing to accept the possibility of supernatural phenomena. It is also necessary to remember that members of NAS, established in 1863, chose their successors by themselves. Thus, it is possible that this mechanism is responsible for widespread acceptance of atheism among scientists, recognized as the most prominent, that these polls have revealed.

In fact, all greatest authorities of contemporary Darwinism, such as Theodosius Dobzhansky, George Gaylord Simpson, Ernst Mayr, Richard Dawkins, Stephen Jay Gould and Douglas Futuyma, deny any divine intervention or teleological explanation of creation of life and human beings. We can read for example:

«Man is the result of a purposeless and natural process that did not have him in mind¹¹.

Some shrink from the conclusion that the human species was not designed, has no purpose, and is the product of mere mechanical mechanisms – but this seems to be the message of evolution¹².

All appearances to the contrary, the only watchmaker in nature is the blind forces of physics (...). Natural selection, the blind, unconscious, automatic process which Darwin discovered, and which we now know is the explanation for the existence and apparently purposeful form of all life, has no purpose in mind. It

¹⁰ See EDWARD J. LARSON and LARRY WITHAM, «Scientists and Religion in America», *Scientific American*, September 1999, no. 281, pp. 88-93.

¹¹ GEORGE GAYLORD SIMPSON, *Meaning of Evolution*, rev. ed. 1967, Yale University Press, New Haven, 1949, pp. 344-345.

¹² DOUGLAS FUTUYMA, *Science on Trial: The Case for Evolution*, Pantheon Books, New York, 1983, pp. 12-13.

has no mind and no mind's eye. It does not plan for the future. It has no vision, no foresight, no sight at all. If it can be said to play the role of watchmaker in nature, it is the *blind* watchmaker¹³.

Let me summarize my views on what modern evolutionary biology tells us loud and clear, and I must say that these are basically Darwin's views. There are no gods, no purposive forces of any kind. No life after death – when I die, I am absolutely certain that I am going to be completely dead! That's going to be the end of me. There is no ultimate foundation for ethics, no ultimate meaning in life, and no free will for humans, either»¹⁴.

Another most prominent contemporary evolutionary biologist Edward O. Wilson assures that evolution is a new myth that will replace Christianity. According to Wilson,

«(...) the final decisive edge enjoyed by scientific naturalism will come from its capacity to explain traditional religion, its chief competition, as a wholly material phenomenon. Theology is not likely to survive as an independent intellectual discipline»¹⁵.

One could say that the polls and the above quotes shed light only on personal beliefs of particular scientists. But let us look at official statements of public educational and scientific institutions due to relation of theory of evolution and religious beliefs. We find there a popular view that science and religion answer different questions and refer to different domains of reality so we cannot say about conflict between them. For example, in the official *Position Statement of the American National Association of Biology Teachers* we can read that

«[...] evolutionary theory, indeed all of science, is necessarily silent on religion and neither refutes nor supports the existence of a deity or deities»¹⁶.

According to a pamphlet of National Academy of Sciences, *Science and Creationism: A View from the National Academy of Sciences*, it is

«false (...) to think that theory of evolution represents an irreconcilable conflict between religion and science. (...) A great many religious leaders accept evolution on scientific grounds without relinquishing their belief in religious principles»¹⁷.

¹³ RICHARD DAWKINS, *The Blind Watchmaker*, Longman Scientific & Technical, Harlow, 1986, p. 5. American edition of the book has a telling subtitle: *Why the Evidence of Evolution Reveals a Universe without Design*.

¹⁴ WILLIAM PROVINE in: WILLIAM PROVINE and PHILLIP E. JOHNSON, *Darwinism: Science or Naturalistic Philosophy? Video Study Guide*, Access Research Network, Colorado Springs, 2001 (1996), p. 33.

¹⁵ EDWARD O. WILSON, *On Human Nature*, Harvard University Press, Cambridge, 1978, p. 192.

¹⁶ AMERICAN NATIONAL ASSOCIATION OF BIOLOGY TEACHERS, *The American Biology Teacher*, January 1996, vol. 58, no. 1, pp. 61-62 (quoted in: PHILLIP E. JOHNSON, *Defeating Darwinism by Opening Minds*, InterVarsity Press, Downers Grove, 1997, p. 120).

¹⁷ NATIONAL ACADEMY OF SCIENCES, *Science and Creationism: A View from the National Academy of Sciences, Committee on Science and Creationism*, Washington, 1984 (quoted in: JOHNSON, *Reason in the Balance...*, p. 190).

But is science really silent about religion if in the booklet of ANABT mentioned above we read:

«The diversity of life on earth is outcome of evolution: an unsupervised, impersonal, unpredictable and natural process of temporal descent with modification that is affected by natural selection, chance, historical contingencies and changing environments»¹⁸.

In another quotation from NAS we read:

«Scientists seek to relate one natural phenomenon to another and to recognize the causes and effects of phenomena. In this way, they have developed explanations for the changing of the seasons, the movements of the sun and stars, the structure of matter, the shaping of mountains and valleys, the changes in the positions of continents over time, the history of life on Earth, and many other natural occurrences. (...) it is the job of science to provide plausible natural explanations for natural phenomena»¹⁹.

Naturalistic evolution indeed seems not to be in conflict with deism. But in what sense the doctrine that our creator is an unsupervised, impersonal and blind (as Dawkins argues) process is silent on doctrine saying that life and human beings were created by personal, loving creature for some purpose? It is claimed here that creation of life and man has naturalistic explanations. It means that those events, so important for Christian theism, took place without any supernatural intervention and don't require teleological explanation.

Scientists who successfully promote metaphysical naturalism in their popular publications are, among others, Steven Weinberg, Stephen Hawking, Richard Leakey, Stephen Jay Gould, Francis Crick and Richard Dawkins. Dawkins who wrote that Darwin's theory «made it possible to be an intellectually fulfilled atheist»²⁰ does not hide his antireligious attitude in his books. He stresses the philosophical implications of theory of evolution characterizing its mechanism as «blind watchmaker». In his publications Dawkins makes it clear that there is no need to appeal to supernatural Creator since natural abiogenesis of life and process of natural selection and random mutations of DNA are enough to explain the diversity and complexity of life. As «the scientist who has done the most to further the public understanding of science»²¹ in 1990 Dawkins received the Michael Faraday Award from British Royal Society. Carl Sagan, also promoting metaphysical naturalism, received in 1994 Public Welfare Medal from the National Academy of Sciences for his contribution to public education. So in the eyes of the public it may look like they speak in the name of SCIENCE.

¹⁸ AMERICAN NATIONAL ASSOCIATION OF BIOLOGY TEACHERS, *The American Biology Teacher...*, pp. 61-62 (quoted in: JOHNSON, *Defeating Darwinism...*, p. 15).

¹⁹ NATIONAL ACADEMY OF SCIENCES, *Science and Creationism: A View from the National Academy of Sciences, Committee on Science and Creationism*, 2nd ed., Washington, 1999, <http://books.nap.edu/html/creationism/origin.html>.

²⁰ RICHARD DAWKINS, *The Blind Watchmaker*, Penguin, London, 1991, p. 6.

²¹ JOHNSON, *Reason in the Balance...*, p. 76.

METHODOLOGICAL NATURALISM AND TELEOLOGICAL EXPLANATIONS

As we have seen, the concept of blind, naturalistic evolution seems to be compatible with deism, but not with Christian theism. It is clearly seen by Gould, who remarked: «Before Darwin, we thought that a benevolent God had created us»²². From the evolutionary point of view, however, the reality looks quite different:

«No intervening spirit watches lovingly over the affairs of nature (though Newton's clock-winding god might have set up the machinery at the beginning of time and then let it run). No vital forces propel evolutionary change. And whatever we think of God, his existence is not manifest in the products of nature»²³.

To show more clearly how different are theistic and naturalistic visions of reality let's compare the last Gould's statement about lack of God's manifestation in nature with Romans 1:20: «Ever since the creation of the world [God's] eternal power and divine nature, invisible though they are, have been understood and seen through the things he has made.» Gould, as well as many scientists, deny possibility of empirical evidence of design in nature. Such possibility was once widely accepted in Western science and was crucial assumption of natural theology. Its medieval formulation we find in Thomas Aquinas five arguments for God's existence. In XIX century popular version of natural theology was William Paley's argument from design in nature. The contemporary science is rooted in works of Charles Darwin. The problem situation of his research was constituted by Paley's argument from design explaining the origin of living structures by reference to a Creator. In the *Origin of Species* Darwin provided naturalistic explanation to Paley's crucial examples. Darwin denied special creation and any theistic and teleological interpretations of evolutionary theory. Contemporarily teleological explanations justified in science are only those understood as functional explanations. As Wesley Salmon puts it:

«In evolutionary biology functional considerations play a crucial role, and – since the time of Darwin – it has been appropriate to deny that such appeals to functions involve the conscious purposes of a creator, or any other sort of final causation»²⁴.

Works of Darwin provided not only a new vision of history of life on earth but also consolidated a special role of methodological naturalism in science. Let us take a closer look at contemporary version of design argument presented by advocates of intelligent design theory and its relation to methodological naturalism.

Some advocates of scientific legitimacy of the design argument point at two elements of methodological naturalism: it not only rejects the possibility of

²² STEPHEN JAY GOULD, *Ever Since Darwin*, Pelican, W. W. Norton, New York, 1977, p. 267.

²³ STEPHEN JAY GOULD, «In Praise of Charles Darwin», in: CHARLES L. HAMRUN (ed.), *Darwin's Legacy*, Harper & Row, 1983, pp. 6-7.

²⁴ WESLEY C. SALMON, *Four Decades of Scientific Explanation*, University of Minnesota Press, Michigan, 1989, pp. 31-32.

scientific studies of supernatural, but it also limits the scientific explanations to materialistic ones invoking solely categories of chance and necessity. While adopting the principle of methodological naturalism in the first sense seems to be indispensable and desirable in science, second understanding of the principle is the subject of much controversy. It is because narrowing the possible scientific explanations to materialistic ones is equivalent to eliminate from science theories maintaining that some intelligent cause played or still plays an active role in the origin and/or development of nature and its constituents, and that such an activity can be investigated in accordance with methods of science.

Note that in quotation presented earlier Eugenie Scott discerns the *practical* reasons for adopting the principle of methodological naturalism: it leads to successes. Thereby Scott suggests that in some circumstances the principle could be rejected. In the same spirit William A. Dembski, a proponent of intelligent design theory (ID), which claims are anti-naturalistic in essence and concern mainly the area of biology, indicates that if methodological naturalism is really regarded as a working hypothesis that is successful, then scientists should be free to reject it when it fails. But when design theorists are pointing out that there are some reasons to reject methodological naturalism, the scientific status of their theory is denied and the rationale for that is interpreting the principle as a necessary condition of scientific theories. Critics of intelligent design claim that the theory invokes supernatural explanations and thus violates the principle of methodological naturalism. The problem is, however, that ID theory does nothing like that. Failure of ID critics is in that they confuse the two different meanings of methodological naturalism represented here by the words of Eldredge and Ruse. According to a polish philosopher of science Kazimierz Jodkowski anti-naturalism of ID theory is not due to naturalism-supernaturalism opposition (understanding presented by Eldredge), but to opposition of naturalism and artificialism (understanding presented by Ruse):

«The first oppose natural to supernatural or extranatural causes. The second oppose natural to artificial, purposeful and intelligent causes. (...) Intelligent design theory maintains that impersonal and unintelligent causes do not suffice to explain both origin of the life itself and subsequent evolution of diversity of its forms»²⁵.

Notice that acceptance of the second sense of methodological naturalism implies acceptance of the first sense – after all, exclusion of intelligent causes entails rejection of supernatural causes. Thus, these two senses can be combined as two ingredients of one meaning, as it is in the case of majority of modern scientists, but they can be considered in separation as two different, independent meanings – acceptance of the first sense doesn't imply acceptance of the second.

²⁵ KAZIMIERZ JODKOWSKI, «Antynaturalizm teorii inteligentnego projektu» (Anti-naturalism of Intelligent Design Theory), *Roczniki Filozoficzne* 2006, vol. LIV, no. 2, p. 73 [63-76], <http://www.nauka-a-religia.uz.zgora.pl/index.php?action=tekst&id=110> (Last accessed: 18.02.2008).

From the perspective of naturalism-supernaturalism opposition, ID theory could be scientific, because its explanations aren't inherently supernatural. Design theorists don't identify the designer, at least not on scientific grounds. ID is studying, first of all, the structures and phenomena in nature, which might be the result of intelligent agency, but identity, motives and ways of action of the designer aren't the subject of inquiry (unless by support of additional information it is possible). Design proponents hold that one can know whether given structure or phenomenon was designed, independently of the knowledge about the designer's identity and regardless of whether he is natural or supernatural entity. It follows that science might be able to study not only the results of natural intelligent causes but effects of supernatural causes too – in both cases these results would be, after all, the part of natural world.

Consider the following example. In Mount Rushmore there are sculpted faces of four American presidents. If these faces haven't been sculpted by a human, but by some supernatural being, we still would be able to conduct a scientific design inference; one can find that no known natural, unintelligent process has the ability to produce such structures and that they could be explained by application of our knowledge about the results of intelligent agency. According to design theorists, we infer intelligent agency from the features, so-called specificational patterns or specifications, which are characteristic to signs left by such a type of activity, coupled with high complexity of object or phenomenon in question²⁶. We have to remember, however, that it is relatively easy to recognize design in the faces sculpted in Mount Rushmore and in many other structures, but recognizing it in biological systems seems not to be so simple at all and such a possibility is disputable. Anyway, it shouldn't be doubted that empirical detection of intelligent design in natural structures is theoretically possible, though it could be unfeasible in practice.

Note, by the way, that at least to some extent we can detect design in biological systems. We discern design, for instance, when we observe a cluster of trees growing in even rows and even distances from each other. Our current knowledge enables us to infer that such an arrangement of trees wasn't directed by some natural law and it was too improbable to have been produced by chance. At the same time, we are in possession of background information that people can plant trees in such a way, so we can legitimately infer that this cluster of trees was produced by intelligent agency, even if we hadn't saw the process of planting itself. And it holds true even if this specific cluster of trees was produced by some other intelligence than human one, for we infer design from the similarities of signs leaved by it to effects produced by human intelligence.

It should be also noted that to detect intelligent agency we don't have to know what exactly intelligence (human or any other) is. It suffices to know one or more features that distinguish the activity of intelligent agents from processes

²⁶ See e.g. WILLIAM A. DEMBSKI, «Reinstating Design within Science», in: JOHN ANGUS CAMPBELL and STEPHEN C. MEYER (eds.), *Darwinism, Design and Public Education*, Michigan State University Press, East Lansing, 2003, pp. 408-414 [403-417].

operating in accordance with necessity and chance alone. One such a feature is making a choice between different possibilities. On that basis one can establish, for instance, whether an animal displays an intelligent behavior (regardless of what animal intelligence is). Imagine that we introduce a rat into a complicated maze in which there is only one way out and every wrong turn prevents the rat to exit outside. If the rat exits successfully and he'll repeat it every time when introduced in the maze, then we could say that the rat indeed learned how to exit the maze and we would not ascribe it to chance, let alone necessity²⁷. But whether this type of inference could be applied to the problem of the origin of body plans, biochemical structures and processes and the like is quite different matter.

It seems, however, that even methodological naturalism in the sense of naturalism-artificialism opposition is regarded as a necessary condition of a theory to be scientific one (at least in disciplines not having interest in the results of human activity – one exception is SETI research program which aims to find an extraterrestrial intelligence, but its proponents generally don't regard the program as a proof that the design of nonhuman intelligence can be detected also here on earth). Dembski rightly claims that by natural explanations scientists don't have on mind simply to explain phenomena occurring in nature. Instead, natural explanations involve only material causes: matter, energy, and their interaction. In other words, in natural sciences merely unintelligent causes, expressed in categories of chance and necessity, are acceptable. Dembski says, however, that one cannot assume what must be demonstrated. How do we know that only natural, i.e. unintelligent, causes were and/or are at work? Defining science by a principle of methodological naturalism in the sense of naturalism-artificialism opposition is to impose an artificial restriction on it and to a priori exclude the possibility of the involvement of intelligence in the course of natural history. In that case the one and only option is unintelligently guided, blind (though maybe not Darwinian) evolution which in these circumstances is true by definition – it doesn't require support of evidence as we usually would expect from science because we already «know» that some naturalistic theory is true²⁸.

Let's look at one example of such naturalistic thinking. In the booklet *Science and Creationism* members of the National Academy of Sciences try to show the superiority of the naturalistically based science over creationism. At one point authors write: «For those who are studying the origin of life, the question is no longer whether life could have originated by chemical processes involving nonbiological components. The question instead has become which of many pathways might have been followed to produce the first cells»²⁹. It is evident from this quotation how a priori methodological assumptions eliminate the need to

²⁷ DEMBSKI, «Reinstating Design...», pp. 411-414.

²⁸ See WILLIAM A. DEMBSKI, «Expert Witness Report: The Scientific Status of Intelligent Design», 29 March 2005, pp. 7-8 [1-51], http://www.designinference.com/documents/2005.09.Expert_Report_Dembski.pdf (Last accessed: 19.02.2008).

²⁹ NATIONAL ACADEMY OF SCIENCES, *Science and Creationism...*, p. 6.

indicate evidence showing that (most generally understood) naturalistic theories are true, whereas nonnaturalistic theories seem to be false by definition. Although it is unknown exactly which process produced first life, without invoking appropriate evidence it is «known» that it was some natural process, and this «knowledge» is gained thanks to adopting the principle of methodological naturalism. Otherwise, how could we know «that», since we don't know «how»? Of course, there are cases when we could know «that» despite we don't know «how»; namely, when we can observe such a phenomenon. For example, when we shake a closed container filled with gas, the temperature of gas will increase. We would know «that» this phenomenon have occurred but if we wouldn't be in possession of the Boltzmann's kinetic theory, then we wouldn't know «how» actually it happens to occur. However, the emergence of life from chemicals has never been observed.

SCIENCE IN MODERN CULTURE

As Phillip E. Johnson puts it, «Every culture must have a creation story as a basis for things like philosophy, education and law. If we want to know how we ought to lead our lives and relate to our fellow creatures, the place to begin is with knowledge about how and why we came to be»³⁰. For many centuries in Western civilization such a creation story has been provided by religion. In the nineteenth and twentieth century the source of creation story became science. In contemporary culture it is the science that tells the rational story of creation, it is science that tells «how things really are». In the light of this view, «Darwinian evolution is not primarily important as a scientific theory but as a culturally dominant creation story»³¹.

Of course, the description of reality provided by science based on methodological naturalism uses language which ontology is free from notions referring to any supernatural being acting in the history of universe and responsible for the origin of life and human beings. According to this new creation story, all living creatures evolved by unguided, material, purposeless process of random genetic mutations and natural selection. From this perspective «man is the result of a purposeless and natural process that did not have him in mind».

And that is how Douglas Futuyma sees the dominant element of Western civilization:

«By coupling undirected, purposeless variation to the blind, uncaring process of natural selection, Darwin made theological or spiritual explanations of the life processes superfluous. Together with Marx's materialist theory of history and society and Freud's attribution of human behavior to influences over which we have little control, Darwin's theory of evolution was a crucial plank in the

³⁰ JOHNSON, *Reason in the Balance...*, p. 12.

³¹ JOHNSON, *Reason in the Balance...*, p. 12.

platform of mechanism and materialism – of much of science, in short – that has since been the stage of most Western thought»³².

THEISTIC EVOLUTION

In cultural context contemporary science has a strong connection with metaphysical naturalism. The success of naturalistic understanding of science and naturalism in contemporary culture is rooted in the scientific triumph of Darwinism which rejects teleological interpretation of history of the development of life on earth. In result, we obtain general opposition between religious and scientific view of reality maintained in Western culture of our days.

Popular theological ways of neutralization of this conflict are concept of theistic evolution and viewing science and religion as complementary domains of knowledge. Both these ways involve a considerable reinterpretation of theistic doctrine, because they reject the possibility that God's action is empirically discernible in the world of nature. Theistic evolution is meant to be a way of reconciliation of Christian religion with Darwinism, and methodological naturalism in general. According to this position God controls and guides the process of evolution. Evolution is the God's way of creation and if it is correctly understood, it reveals the existence of Creator, his endless wisdom, goodness and goals he gave to the creation. But there are some problems with this stance.

If God guides the evolution and is responsible for every event, then he is also responsible for every evil.

He also seems to be a mischievous demon deceiving people by attaching importance to his interventions to make them always look in the way we would expect from naturalistic evolutionary process.

Let's refer again to Ockham's razor: if naturalistic explanations seem to be adequate, then God is a redundant hypothesis.

Another problem for Christian theism is that it cannot resign from supernatural explanation of such events like virgin's conception, resurrection, multiplying of bread, or changing water into wine. Should the biblical description be understood only allegorically, like the first chapters of the Book of Genesis?

Evolution can be interpreted theistically, but it cannot be equivalent to a genuine Darwinism. Consistent theistic evolution approach requires rejection of chance playing such a crucial role in the current scientific theory of evolution. Creation made by a reasonable God has to be far from random. Chance cannot have so great power as to defeat God's plan of creating humanity. But it appears it is exactly the role chance plays in Darwinism: «Replay the tape a million times (...) and I doubt that anything like *Homo sapiens* would ever evolve again»³³. Thus, in the

³² DOUGLAS FUTUYMA, *Evolutionary Biology*, 3rd ed., Sinauer Associates, Sunderland, 1998, p. 3.

³³ STEPHEN JAY GOULD, *Wonderful Life: The Burgess Shale and the Nature of History*, Norton, New York, 1989, p. 289.

divinely governed world chance must be somehow restricted, though it does not mean that there cannot be some portion of genuine randomness. Nevertheless, since God's goal was to create human beings, some historical evolutionary pathways had to be nonrandom (i.e. God intervened at some points of natural history) inevitably leading to the development of humans. To be sure, God might have predicted that some authentically random evolutionary pathway will produce human beings and choose it as his way of creation. If that was the case, however, the role of God would be limited only to deliberately choosing one pathway from a large array of different possible evolutionary pathways and then he let it work on its own. For example, Howard Van Till outlines the following reasoning arguing that that even a genuine, and not restricted to one result only, randomness of biotic evolution does not rule out purpose:

«Suppose there were a perfectly honest gambling casino in which no game was rigged – every turn of the cards, every roll of dice, every cycle of the slot machines, was authentically random. Does that rule out the possibility that the outcome of the casino operation cannot possibly be the expression of some preestablished purpose? Clearly not. In fact, the operators of the casino depend on that very randomness in their computation of the payout rates to insure that they will have gained a handsome profit at the end of the day. Now, if human casino operators can employ random events to accomplish their purposes, could God not do so on a scale far more grand in the formational history of the creation?»³⁴.

But there is a problem. In traditional sense, theism means that God actively intervenes in the workings of nature, so the idea that God used a self-contained evolutionary process to create humanity isn't the idea of theistic, but of deistic evolution, where God merely establishes boundary conditions and set the process in motion.

According to theistic evolutionists, after God created the world and gave it the laws (also the laws of evolution) he had still constantly upheld the existence of the universe and operated through the laws in undetectable way. As Johnson states, «Wise metaphysical naturalists will smile at these transparent devices (...)»³⁵. He would surely agree with Provine who explicitly evaluates such a position:

«A widespread theological view now exists saying that God started off the world, props it up and works through laws of nature, very subtly, so subtly that its action is undetectable. But that kind of God is effectively no different to my mind than atheism»³⁶.

By the way, we should also ask what implications do methodological naturalism bears on the issue of canonization. If, from the perspective of theistic evolutionists,

³⁴ HOWARD J. VAN TILL, «The Fully Gifted Creation», in: J. P. MORELAND and JOHN MARK REYNOLDS (eds.), *Three Views on Creation and Evolution*, Zondervan, Grand Rapids, Mich., 1999, p. 168 [161-218].

³⁵ JOHNSON, *Reason in the Balance...*, p. 101.

³⁶ WILLIAM B. PROVINE, «Progress in Evolution and Meaning of Life», in: MATTHEW N. NITECKI (ed.), *Evolutionary Progress*, University of Chicago Press, Chicago, 1988, p. 70.

science must proceed in accordance with the principle of methodological naturalism and since God's action is empirically undetectable, then God cannot perform empirically discernible miracles (of course, in the usual meaning of the term). But such miracles are the basis to proclaim someone a saint. Here, miracle means something inexplicable by science and thereby violating the principle of methodological naturalism. For example, one of evidences in the canonization process of Pope John Paul II is a miracle of a «sudden and complete cure» of a French nun who was dying of cancer; it happened «after the members of her community prayed for the intercession of the late Pope»³⁷. Thus, either theistic evolutionists will reject methodological naturalism or they'll eliminate the basis for canonization.

Finally, we should remember that even if Catholics would accept that God could have used evolution to create human body, the spiritual soul is always created directly by God. It means that, as Pope John Paul II wrote, «the passage into the spiritual realm» presents an «ontological leap», a «great ontological discontinuity», and cannot be explained by science. The Pope stated that «the experience of metaphysical knowledge, of self-consciousness and self-awareness, of moral conscience, of liberty, or of aesthetic and religious experience – these must be analyzed through philosophical reflection, while theology seeks to clarify the ultimate meaning of the Creator's designs»³⁸. It turns out, however, that naturalistic evolutionary theory explains these things in the framework of science and without any reference to God. From evolutionary perspective, religiously interpreted morality, ethics, and the like, are just delusions – nothing more than the means of survival. For example, Michael Ruse and Edward Wilson claim that

«As evolutionists, we see that no [ethical] justification of the traditional kind is possible. Morality, or more strictly our belief in morality, is merely an adaptation put in place to further our reproductive ends. Hence the basis of ethics does not lie in God's will. (...) In an important sense, ethics as we understand it is an illusion fobbed off on us by our genes to get us to cooperate. It is without external grounding. (...) Ethics is illusory inasmuch as it persuades us that it has an objective reference. This is the crux of the biological position»³⁹.

Regarding above considerations, we may ask: how one can be a Christian theist and consistent evolutionist and methodological naturalist at the same

³⁷ «Miracles Reported; Could Speed John Paul's Canonization», *Catholic World News*, 30 November 2005, <http://www.cwnnews.com/news/viewstory.cfm?recnum=41004> (Last accessed: 22.02.2008).

³⁸ See POPE JOHN PAUL II, «Message to the Pontifical Academy of Sciences: On Evolution», 22 October 1996, <http://www.ewtn.com/library/PAPALDOC/JP961022.HTM> (Last accessed: 24.02.2008).

³⁹ MICHAEL RUSE and EDWARD O. WILSON, «Evolution of Ethics», in: J. E. HUCHINGSON (ed.), *Religion and the Natural Sciences: The Range of Engagement*, Harcourt Brace, Orlando, 1993 (quoted in: JEFFREY P. SCHLOSS, «Evolutionary Accounts of Altruism & the Problem of Goodness by Design», in: WILLIAM A. DEMBSKI (ed.), *Mere Creation: Science, Faith & Intelligent Design*, InterVarsity Press, Downers Grove, Ill., 1998, p. 236 [236-261]).

time? It seems that one can be consistent theistic evolutionist only after crucial reinterpretation of theistic doctrine or of evolutionary theory.

METHODOLOGICAL NATURALISM AND THE TRUTH

Consider the following remark made by a theoretical physicist and Nobel Prize winner, Steven Weinberg: «only way that any sort of science can proceed is to assume that there is no divine intervention and to see how far one can get with this assumption»⁴⁰. It seems Weinberg suggests here that science could encounter something that it wouldn't be able to explain and scientists will have to admit that explanation of this is beyond the competence of science, but may be explained by theology or philosophy. However, the methodological naturalist always could hope that natural explanation, filling a gap in the scientific knowledge, will be found in the future. In the framework of naturalistic science there exists no criterion suggesting to scientists when they should abandon that hope. Nonnaturalistic criteria, on the other hand, are ignored and recognized as unscientific. Such an attitude could in turn lead to a situation when a scientist would prefer to place credit in speculations lacking appropriate support of evidence. For example, the advocate of such a position is the origin of life researcher Robert Shapiro:

«Some future day may yet arrive when all reasonable chemical experiments run to discover a probable origin for life have failed unequivocally. Further, new geological evidence may indicate a sudden appearance of life on the earth. Finally, we may have explored the universe and found no trace of life, or process leading to life, elsewhere. In such a case, some scientist might choose to turn to religion for an answer. Others, however, myself included, would attempt to sort out the surviving less probable scientific explanations in the hope of selecting one that was still more likely than the remainder»⁴¹.

Loyalty to principle of methodological naturalism, interpreted as a necessary condition of scientific theories, entails a requirement that scientists have to look only for materialistic explanations. But in case when reality cannot be appropriately described in such a way, this loyalty could lead to a common acceptance of a false picture of the world – at least in societies where science enjoys considerable respect. If we acknowledge that scientists' aim should be the attempt to develop a theory describing the real world, i.e. a true theory of the natural world, then if an intelligent agent has intervened and/or intervenes in nature and methodological naturalism is recognized as a necessary condition of scientific theories, the picture of the world provided by science so understood is inherently untrue. As Dembski noted:

⁴⁰ STEVEN WEINBERG, *Dreams of a Final Theory: The Search for the Fundamental Laws of Nature*, Pantheon, New York, 1992, p. 247.

⁴¹ ROBERT SHAPIRO, *Origins: A Skeptic's Guide to the Creation of Life on Earth*, Summit Books, New York, 1983, p. 130 (quoted in: MICHAEL J. BEHE, *Darwin's Black Box: The Biochemical Challenge to Evolution*, The Free Press, New York, 1996, p. 234).

«(...) methodological naturalism isn't saying that we have to encounter empirical evidence of design in nature but we should stay open to it in case it comes along. Rather, methodological naturalism insists that one is most logical, most scientific, if one pretends such an empirical possibility is logically impossible. Instead of holding methodological naturalism as a working hypothesis, methodological naturalists hold it as a dogma»⁴².

It follows that if scientists would encounter some compelling evidence of design in biological systems, being restricted by methodological naturalism, they would have to ignore it and search for a natural, and therefore false, explanation. This problem would vanish if methodological naturalism – but merely in the sense of naturalism-artificialism opposition – will be treated only as a working hypothesis, leading to successes in scientific practice, i.e. to finding natural explanations, and not excluding teleological explanations by a convenient definition of science. But in that case, science must allow theories incompatible with methodological naturalism.

As to relation of science and religion, the prospect in which we surely cannot say about conflict between them is the instrumentalist understanding of scientific theories. According to this view, scientific theories are regarded only as tools to organize our experience and tools are nor true nor false. They are valuable because of their usefulness for technological progress or for making predictions – simply speaking, they make our lives much easier and safer. One problem concerning instrumentalist understanding of scientific theories is that it isn't clear what is the value of the theories about origin and past development of nature if not just the correspondence with reality. After all, what we want to achieve studying course of historical events if not the knowledge about the *real* events in a *true* history?

Naturalistic science and theistic religions are clearly in conflict if we adopt a realistic interpretation of scientific theories and theistic doctrine, i.e. if we accept that their claims refer to objective reality and describe «how things really are». In our culture, however, science is the source of adequate description of reality. Nor metaphysical naturalists nor theistic evolutionists regard scientific theories only as tools. In practice, methodological naturalism leads to acceptance of metaphysical naturalism which, on the other hand, justifies the acceptance of methodological naturalism as the best way to know the reality. Scientific theories refer to reality and what they say is restricted by principle of methodological naturalism. The naturalistic picture of the world given by science is essentially different from the one given by religion. It is the reason why methodological naturalism leads to conflict between science and religion.

CONCLUSIONS

We have reached the following conclusions: 1) in practice, methodological naturalism leads to acceptance of ontological naturalism which in turn justifies

⁴² WILLIAM A. DEMBSKI, *The Design Revolution: Answering the Toughest Questions about Intelligent Design*, InterVarsity Press, Downers Grove, Ill., 2004, p. 171.

the acceptance of methodological naturalism as the best method to know the reality; 2) if science is to be an enterprise devoted to seeking the truth about reality, then methodological naturalism – but only in the sense of naturalism-artificialism opposition – couldn't be regarded as the necessary condition of scientific theories; 3) if we accept realistic interpretation of scientific theories, then methodological naturalism conflicts science with religion; and 4) theistic evolution does not seem to be a proper way to reconcile Darwinism and, more generally, methodological naturalism with theism. Evolution can be interpreted theistically, but it is not the way in which majority of modern scientists and respectable scientific institutions understand it.

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