

Paper Title: Human Origins: Continuous Evolution versus Punctual Creation  
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Paper Abstract:

According to classical evolutionary approach, evolution is a process of change that leads to – provided certain circumstances in the environment of a population – the origination of new species. However, the process of evolution is continuous, and therefore the distinction of individual species from one another is conventional.

Among organisms that reproduce sexually, the distribution of most characteristic morphological features in a population is close to normal. Such features change gradually in subsequent populations, but when analysis shows that certain new feature appears (or another – ceases to be present) in statistically significant – usually within one standard deviation (dispersion) in Gaussian distribution – part of population A in comparison to population B, we may classify organisms belonging to A as representatives of different species than those belonging to B. This method is very useful, especially in paleontology, where it allows us to use the concept of species in a meaningful way. However, conventional character of this concept of species (along with other taxonomical levels) is obvious.

This is true also with regard to human species. Additionally, the ‘definition’ of *Homo sapiens* is method-dependent. For instance, morphological method shows that first populations of *Homo sapiens* appeared 400–200 thousands years BC, whereas archeological method finds our first ancestors ca. 40 thousands years BC. Moreover, within every method, the crucial criteria of distinguishing humans from pre-human individuals change in time, and depend on current prevailing opinion among anthropologists. This shows again that seeing continuous process of evolution (or the results of this process) through a ‘discrete’ notional framework has to be conventional.

On the other hand, the Biblical account of human creation seems to imply that ‘early true man’ appeared in a well defined moment in time, due to an immediate act of God. This act yielded an ontologically new being, essentially different from the rest of creation.

Such a ‘punctual’ account of creation seems difficult to reconcile with continuous character of evolutionary processes. This paper will therefore elaborate on the scientific arguments for the continuity or the discontinuity of evolution, and what follows, for the existence or non-existence of a clear borderline between our species and the rest of the living world. In turn, various possibilities of theological interpretations of the act of creation of man will be pointed out and a question will be considered to what extent theology is interested in a ‘momentarily’ account of this act.

Given this background, one particular proposal of a reconciliation of scientific and theological accounts of the origin of man will be shown, a so-called ‘evolutionary model of creation’ suggested by Polish philosopher K. Kloskowski. The accuracy of this solution will be reflected upon in the light of the results of previous considerations offered in the paper.

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Paper Text:

**Introduction**

One of the particular problems in the debate between science and theology regarding human origins seems to be an apparent controversy between continuous character of evolutionary processes leading to the origin of *Homo sapiens* and punctual understanding of the act of creation of man seen as taking place in a moment in time.

The paper will elaborate scientific arguments for continuity or discontinuity of evolution, and what follows, for the existence or non-existence of a clear borderline between our species and the rest of the living world. In turn, various possibilities of theological interpretations of the act of creation of man will be pointed out and a question will be considered to what extent theology is interested in ‘momentarily’ account of this act.

After having cleared the respective positions of science and theology with regard to human origins, a particular proposal of reconciliation of the two views will be shown and its accuracy and acceptability will be reflected upon.

**1. Continuous character of the process of evolution**

Darwinian theory of evolution – along, perhaps, with other non-Darwinian approaches to describe the process of evolution – aims at explaining the causes and mechanism of the process of changes of biological organisms which occurs in sufficiently long period of time and comprises many generations. Understood as such, it has little bearing on the evolution – creation controversy, and it may trigger discussions regarding only those causes and mechanism (like natural selection) which Darwin and his followers point at; specialists may look for other explanation of the leading factors of this process of changes in the natural

world which we witness around us. But this undoubtedly important matter may be a subject of consideration among evolutionary biologists and need not bother theologians or religious thinkers. The situation is quite different, however, when it comes to describing and interpreting the *course* of evolution, that is – phylogeny. Phylogenetic ancestor – descendant hypotheses aim at reconstructing the line of subsequent generations and show, for instance, how contemporary species are related to each other and to their common ancestors. The notion of a species plays therefore an important role in those reconstructions – along the line of ancestors and their descendants new species emerge from previous ones, and the latter either die out or develop further separately. This general scheme applies to all present or past species and even if we are unable to follow certain phylogenetic line (due, for instance, to poor fossil records), it is assumed that such a line existed. This applies obviously also to the species of *Homo sapiens*. A question of human origins posed on biological ground is therefore the question of phylogenetic line leading to the species of *Homo sapiens*. Given this line, biology may also ask when and where it occurred such a decisive change in a population of our ancestors which resulted in our – *really new* – species. The problem is, however, that it seems to be no decisive criteria of distinguishing one species from another and therefore the very notion of *really new* one is, to some extent, empty. The conventional character of the notion of species may be shown on many levels – we will consider paleontology, genetics and anthropology as disciplines where this is particularly obvious.

### **1.1. The notion of species in paleontology**

Whereas in many other branches of biology the notion of species may be defined in an objective way (like a ‘classical’ reproductive definition: two organisms belong to the same species if they can have fertile progeny), such definitions are inapplicable with regard to fossil populations. To use the notion of species in paleontology in a meaningful way, a statistical analysis has to be applied. Among organisms that reproduce sexually<sup>1</sup>, the distribution of most characteristic morphological features in a population is close to normal. Such features change gradually in subsequent populations, but when analysis shows that certain new feature appears (or another – ceases to be present) in statistically significant – usually within a standard diversion (dispersion) in Gaussian distribution, which comprises 68% of population representatives – part of population A, in comparison to population B, we may classify organisms belonging to A as representatives of different species than those belonging to B.

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<sup>1</sup> Organisms which reproduce in a non-sexual way are classified in an even more conventional way.

This method is very useful, but a ‘borderline’ that we may draw between the two species using this method is clearly conventional – a discrete notional framework is imposed on a continuous picture of gradual changes.

The significance of this paleontological way of distinguishing between different species for the problem of human origins stems from two facts. When looking down our phylogenetic line we search for a ‘moment’ or a ‘place’ in the history of life on our planet, when or where the first human population appeared. Hoping for an answer we have no other way than to resort to paleontological methods and inherently use the notion of species embedded in them. What follows, what we may hope to find is not a kind of ‘*true*’ beginnings of humankind, but the beginnings of a species that we previously *decided* to define in a chosen way. What is more, the conventional character of the notion of species is not just a choice that we make for practical reasons, but it is a consequence of continuous character of the process of evolution. The observations of evolutionary changes in fossil populations imply that there are no significant differences in the course of evolution – it displays continuity regardless of the environment where evolutionary processes were at action, or of the degree of development of organisms subject to these processes – which applies also to primates, including man [Dzik 2006]. It seems therefore, that we are not only unable to point to an objective moment when the first humans appeared, but that such a ‘moment’ never happened.

## **1.2. Genetic borderlines between species?**

A reconstruction of our phylogenetic past with the use of methods of molecular biology is directly impossible. Human ancestors died out and what is at our disposal now, is only fossil remains from which we can obtain only fragments of mitochondrial DNA. What can be done, however, is an analysis of a genome sequence of contemporary species. Such analysis can show genetic basis of the differences between given species and, with the use of additional, usually non-controversial presumptions, can suggest possible ways of evolutionary changes. Human genome was sequenced a few years ago and the chimpanzee genome sequence was published in 2005. A comparison of these two genomes shown about 500 hundreds of genes, in which the DNA differences are the biggest and therefore probably decisive for morphological, behavioral and other differences between the two species [Stępień 2006]. Although we are not chimpanzees’ descendants, but have with them a common ancestor, a comparison of our genomes may suggest possible evolutionary changes that led eventually to our two so different species. We may assume, that the differences between humans and their direct ancestor (regardless of the fact that we cannot be sure at present what particular species

it was) were of similar kind and span. If we wanted to find out what particular change in molecular structure of our ancestor's DNA yielded a new species – *Homo sapiens* in this case – it wouldn't be plausible to attach this 'moment' of a new species arrival to a change in one particular gene. If, in turn, we liked to think that it was more substantial part of the genome, we would have to decide where to draw the ultimate borderline: at the level of 10, 100, 300 or any other number of those genes in which we differ from our supposed ancestor. Quite clearly, a borderline we look for is again conventional – it is impossible to *find* it, but instead, we have to *decide* where we want to draw it.

### **1.3. Anthropology and its methods**

A look at some methodological issues of anthropology and examples of anthropological classification of certain discoveries shows that even this discipline, which deals directly with the past and origin of *Homo sapiens*, does not have – and perhaps cannot have in principle – any 'proper definition' of man. And if this observation is correct, any answer to the question of a place and time when our species came into existence can be – again – only conventional.

There are three basic ways of approaching the past of our species, which are used in three anthropological methods respectively. It can be done by the analysis of fossil remains (the morphological method), the interpretation of artifacts (the archeological method), or genetic analysis (the genetic method).

First of them, and the oldest one used in anthropology, is the morphological method, which tries to determine the degree of relationship between fossil organism and contemporary one by a comparative analysis of bone material. Morphological criteria which are used to classify fossil remains as belonging to a representative of a particular species are of different kind. What is taken into account when classifying certain remains as representing the ancestors of *Homo* is, for example, the morphology of dental structures, the phenomenon of bipedality (which is inferred from the structure of certain bones) or the volume of the braincase. Using this method, the first representatives of our species (so-called early archaic *Homo sapiens*) were identified in some remains dated up to 400 thousand years ago [Stringer et al. 1984; Aiello 1995].

The archeological method searches for the degree of phylogenetic similarity on the basis of the behavioral pattern recorded in such forms of material evidence as tools, burial places, objects of arts and crafts, etc. [Tomeczyk 2006]. To infer the behavior from such forms of material evidence as mentioned above, and to interpret this behavior as having specified

meaning for a population which probably displayed it, one has to assume quite strong auxiliary hypotheses, and the epistemological value of such reasoning depends on the accuracy of those hypotheses. This problem is, however, an internal issue of this particular method and justification of its credibility has to be left to specialists using this method in their anthropological consideration. From the point of view of this paper, we need only to note, that this method leads to the conclusion that the history of mankind began only 30–45 thousands years ago, when such evidence of human existence has been discovered as cave paintings and quite sophisticated tools [Clark 1967; White 1989; Harrold 1992; Leakey 1995].

The last of the anthropological methods mentioned is the genetic one. It “defines genealogy, projecting the degree of biochemical-serological as well as genetic affinity on the temporal axis” and tries to answer such questions as: “Which functional qualities of proteins, what kind of transformation of proteins, and what changes in the sequences of the nucleotides stand behind the origin of man?” [Tomczyk 2006]. Analyses undertaken with the use of this method push the origin of our distant ancestors (the separation of human evolutionary branch from the primate tree) as far back in time as 6–7 million years ago [Tattersall 2001; Tobias 2003; Lewin, Foley 2004], or even more [Tempelton 1993], and points at the molecular unity of Modern Man as established about 200 thousand years ago [Cann et al. 1987].

Anthropological controversies that are triggered by the very fact of using different methods may be well illustrated by the history of solutions concerning the taxonomic status of the Neanderthal man. Morphological method seemed to show, that although it belonged to the genus *Homo* (big braincase), it was not a representative of *Homo sapiens* (massive skeleton) [e.g Keith 1931; Howells 1945]. This opinion was called to doubt, however, when – with the use of the archeological method – the Neanderthal Man had to be classified as an extinct variety of contemporary man, when it was shown that the Neanderthals buried their dead and even had certain burial rituals. According to many scientists, such rituals prove that they who display them have to possess an essentially human notion of transcendence [e.g. Solecki 1971; Trinkaus, Shipman 1993; Stringer, Gamble 1993]<sup>2</sup>. The result of these discoveries and its interpretations was that the Neanderthal man was no longer seen as a species different from *Homo sapiens* (*Homo neanderthalensis*), but as a subspecies of our own (*Homo sapiens neanderthalensis*).

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<sup>2</sup> In such a pattern of reasoning – from material remains of burial places and those suggesting burial rituals to granting the possession of ‘essentially human notion of transcendence’ – we can see that certain auxiliary hypotheses mentioned above have to be used indeed in interpretations of what is excavated.

The dependence of the ‘definition’ of ‘true man’ on the assumptions applied in the respective anthropological methods can be seen not only ‘across’ those methods, but also within them. An example of this is a short-lived carrier of *Oreopithecus* as the ancestor of contemporary humans [Tomczyk 2006]. When the morphological method was applied, this creature was previously included in the family of *Hominidae*, because of its dental characteristic [Hürzeler 1960; 1968; Schaefer 1960; Straus 1963]. This classification was, however, rejected [Tuttle 1975], when within the same – morphological – method, the ability to sustain upright position began to be demanded for any creature pretending to be a hominid form.

The diversity of research methods in anthropology is not surprising, nor is the fact that the ‘definition’ of man is method-dependent. Even if some degree of consensus between the advocates of those methods can be achieved and a univocal definition of ‘true man’ formulated<sup>3</sup>, it necessarily would be a conventional one. The choice of criteria (be it morphological, archeological, genetic, or other) according to which certain past forms are classified as our ancestors or their status of being early representatives of our species is denied, will be always arbitrary. And this is not a weakness of scientific methods, but a consequence of applying a discrete framework to describe an apparently continuous evolutionary process which eventually brought our species to existence. Our phylogenetic line is smooth – there are no objective borderlines or breaking points to which we could attribute ‘the moment and place’ of the origin of man.

## **2. Animals and man: borderlines?**

Although many biological sciences suggest clearly, as it was demonstrated above, that there are no sharp differences between *Homo sapiens* and the rest of the living world, it can also be shown that humans do differ from their closest animal cousins. Contemporary knowledge of various behavioral sciences, like ethology or comparative and evolutionary psychology, allowed J. A. Chmurzyński to suggest a hypothesis of ‘continuity marked with leaps’ [Chmurzyński 2006]. There are many behavioral features which we share with the animal world. For example, many emotional homologies<sup>4</sup> can be found between man and apes – both in their causes and expressions. One of them is displacement activities, when in a conflict

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<sup>3</sup> Whether it is possible or not is irrelevant for the main conclusion of this paragraph. I do not think either that such univocal definition should be required.

<sup>4</sup> Behavioral homologies are such features which can be found in all related species and are similar with regard to their form and origin, though they may differ in their functions [Meissner 1976]. The example given above shows such a form of animal and human behavior, which is homologous and similar also in its function.

situation some people tend to scratch their heads or tidy their hair with fingers [Tinbergen 1977; Eibl-Eibesfeldt 1975]. Even such forms of human activity which can be called ‘cultural’ can be found in animals. Chimpanzees, for example, learn how to use certain tools from other representatives of their local population [Whiten et al. 1999; Whiten, Boesch 2001] – in a quite similar way as humans learn many forms of behavior from their social group – not as a part of their genetic inheritance, but by tradition. Speaking about less positive behavioral features, even an ability to lie was found during experiments on sign language communication with a gorilla [Patterson 1978] and prostitution (in exchange for food) – among bonobo chimpanzees [McKee 2004].

All such homologies can be seen as yet another proof of non-exceptionality of *Homo sapiens*. On the other hand, however, there are also such forms of human behavior which seem to have no pre-human rudiments. For example, although animals can be furious and violent towards their enemy, it is specifically human ‘ability’ to experience persistent hatred. Only humans know what is shame, exercise trade [Grzegorzcyk 1983], have syntactic speech, art, technology and agriculture [Diamond 1992] and are inclined to transcendence, magic or religion and search for generalized worldview [Wierciński 1994]. What is more, there are also such typically human features, which are in opposition to our etho-psychological inheritance. Some principles of human religious or ethical systems are in accordance with the biological principle of fitness maximization, which gave rise to those well-known explanation of human morality, which attributes it exclusively to biological, evolutionary factors. But there are also such moral principles, which not only do not give any evolutionary advantage, but, on the contrary, are clearly in opposition to biological needs of a species: the prohibition of stealing or lying, the condemnation of nepotism or (male) promiscuity, and the call to behave in a way which is unprofitable for an individual or his relatives: to tell the truth regardless of the circumstances, to keep and fulfill promises, to be altruistic towards non-relatives without any reward [Bielicki 1990; 1993].

Seeking for essential differences between the animal and the human, many authors point also to our intellect as something which we do not share with the rest of the living world. This is more controversial, since some mental abilities seem not to be exclusively human. It certainly requires some form of thinking to prepare tools with the use of material ‘consciously’ searched for, which has been observed in some ape species [Chmurzynski 2002]. Even abstract thinking was found in the animal world – chimpanzees can be taught to count and express the result in figures, including the use of “zero” [Boysen, Berntson 1989].

Also an argument that it is an exclusively human ability to recognize necessary truths – mathematical and logical [e.g. Barr 2003] – can be called to doubts. It is indeed hard to imagine that this kind of cognition could be possible even among the most ‘intelligent’ apes, but the very notion of necessary truths can be questioned. If mathematics and logics is just a human construct, to some extent nothing more than syntactic ‘play’ with conventional rules – and despite contrary, neo-platonic views, such position can be defended – then there is nothing special in ‘recognizing’ that, to take perhaps the simplest example,  $1 + 1 = 2$ . This ‘truth’ is in fact a thesis which can be proved provided a set of arbitrary definitions and axioms. It is also not convincing, that when human child does such a calculation, s/he *understands* what it really means, whereas ‘counting chimpanzees’ can only *learn* how to do such calculations, but do not understand them [Barr 2003]. In fact, humans too learn how to use certain symbols, and there is nothing ‘obviously understandable’ in the above formula. Only by training we ‘understand’ that to have one chocolate bar and again one chocolate bar is the same as to have two chocolate bars. I suspect that for every glutton there is a huge difference between having both treats at once than having them one by one<sup>5</sup>.

On the other hand, our other mental abilities do seem to give us an exceptional position in the animal world. People use abstract notions like “femininity” or “circularity” and understand them as referring to ‘ideas’ as opposed to concretes<sup>6</sup> [Barr 2003]. Also, a characteristic feature of human language, which K. R. Popper calls its argumentative function – enabling us to confirm or falsify previously formulated theses [Popper 1979; cf. Przechowski 2006] – may be seen as something distinctively human (though other Popperian highest function of language – descriptive – can be attributed to some forms of animal communication).

Many authors try to explain human thinking in terms of evolutionary advantage of *Homo sapiens*, and thus maintain, that although our mental abilities are exceptional, they do not suggest any essential ‘gap’ between us and animals. Also Popper, mentioned above, speaks of evolutionary origin of his highest functions of language. But at least one of human mental features seems difficult to be explained in this way. This is an ability – or at least, inclination – to pose and answer ‘purely theoretical’ questions; to solve problems, which solutions have no practical consequences. We want ‘to know in order to know’, not only ‘to know in order to

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<sup>5</sup> Obviously there are much more serious arguments against the idea of necessary truths, but these are well known in the history of philosophy.

<sup>6</sup> A position one takes in the medieval controversy over universal notions is irrelevant here. We use and understand such notions regardless of what we think they actually refer to.

use'. Aristotle thought that such 'pure' knowledge should be much more desired than practical knowledge, because only this is worthy of man.

### 3. "Punctual" creation?

For many non-theologians, creation is often a unique, supernatural act of God<sup>7</sup> taking place a very long time ago when the Creator brought certain beings – or the world itself – to existence. With regard to the creation of the world, this view of a special moment in time when the Divine act is performed, is seriously challenged not only by current theories in cosmology, but also by long-standing theological opinions, formulated yet in ancient Christianity by St. Augustine, that God created world not in time but together with time. But with regard to the creation of man taking place – as simple reading of the book of Genesis seems to suggest – after the creation of the world and the rest of its beings, the problem of non-existence of time at 'the moment' of creation disappears, and the view of creation taking place at some moment in time is back on the agenda.

Such a view of creation of man was one of the reasons why Darwinian theory of evolution was at first quite strongly opposed by many Christian thinkers<sup>8</sup>. What seemed especially difficult to accept was the alleged consequences of the evolutionary view of human origins on the Christian doctrine of the original sin. When it became clear that from biological point of view it is impossible to hold that at the beginning of our species there was numerically one pair of 'the parents of everybody', the doctrine of the original sin which seemed to require monogenism had to be challenged. Certain solutions were found, however, especially after the encyclical *Humani generis* issued in 1950 by pope Pius XII<sup>9</sup>. Although the pope pointed out that polygenism seems to contradict certain elements of the Christian doctrine, at the same time he allowed that proper investigation be carried out in all disciplines, including theology, with regard to evolutionary origin of human body. This opened a way for new understanding the dogmatic truth of the original sin. If it can be accepted that humanization occurred by the way of evolution, then both 'first parents' originated in the same way and polygenism cannot

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<sup>7</sup> Preliminary results of recent research of opinions among Polish students and teachers of biology showed (the final results are yet to be published) that the majority of them hold such a view.

<sup>8</sup> It was not the only reason of this opposition, though. Much more important reason of Christian reluctance towards Darwin's theory was a fear that it undermines human exceptional position among the rest of the creation and man's dignity stemming from his likeness to the Creator (Gn 1,26-27). It is also worth to note, that none of Darwin's books was ever put on the Index, although in that time many books were regarded by Church as unacceptable all too easily. Hence the opinion that the Church in its official decisions was in strong opposition to Darwinism is more an artifact made up by antitheists writers than a true report on facts [Salij 2006].

<sup>9</sup> I'm speaking here about proposals formulated in catholic theology.

be avoided at least with regard to the first human pair. In turn, if two human beings come independently from animal world, there is no reason why it had to be only two of them and not more [Anderwald 2006]. All humanity in its origins were in the state of biological-historical unity and therefore it is possible that either one man (or one pair) commits the sin and because of that the rest of united humanity is deprived of its holy state of God's grace, or the whole humanity – of polygenetic origins – commits the sin in the persons of all its members as a group historically one and united [Rhaner 1967]. As it also became clear, in evolutionary perspective it is impossible to define historical time and place when the original sin was committed [Schmitz-Moormann 1969]<sup>10</sup>. And because the teaching on the original sin is an intrinsic part of the whole doctrine of the creation of man, it is equally unconvincing that speaking about the origins of man in theological perspective we have to search for *the moment* and *the time* when the act of creation of man took place.

The problem with the doctrine of the original sin brought about by biological rejection of the notion of monogenism was eventually looked at from a broader perspective and theology returned to concepts which have been known in fact from the beginnings of Christianity.

One of the key principles of Christian theology since its beginning was a differentiation between the truths of the faith and the form of their presentation. As early as in the 2<sup>nd</sup> century St. Irenaeus, commenting on the 'story' of creation of man by "shaping him from the soil of the ground" (Gn 2,7), wrote that God "shaped man with his own hands, that is through Son and the Holy Spirit" (quotation after [Salij 2006]). Ancient Christianity knew that the Bible presents important truths in an anthropomorphic way and it would be naïve not to separate the meaning of the scriptural teaching from its anthropomorphic form. The symbol of 'the soil of the ground' from which man was shaped, was understood as showing that man is a part of nature. In the Middle Ages, such approach to the biblical 'stories' was further developed in St. Thomas Aquinas' theology of creation. Aquinas taught that God gives his creatures a share in his own causal power – being the immediate cause of the whole world and every individual being, he allows some creatures to be causes of other ones [Salij 1995]. For Aquinas, also the problem of time-span of the created world was of secondary importance. Although he personally believed that the world had its beginning in time, but for him it was equally possible that it existed eternally – the fundamental meaning of the belief in creation is not that

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<sup>10</sup> Despite those attempts to reinterpret the doctrine regarding the original sin, official teaching of the Catholic Church admits that the issue of the 'transmission' of the original sin from the parents of humanity to all its members remains a mystery (Catechism of the Catholic Church). It seems that theological research of this problem is still required.

the world came into existence at a particular moment in time, but its continual relation to the Creator – and this relation could last eternally [*Summa Theologiae*, I q. 46].

It is indeed surprising, that although theology had had all those sophisticated tools at its disposal for centuries before Darwin, they all were forgotten when the controversy between evolutionary explanation of the development of the living world and the religious belief in creation emerged in the 19<sup>th</sup> century. Most Christian thinkers in the times of Darwin tried to defend a common view of the Creator who created all beings by means of giving existence to the first representatives of every single species. Under the pressure of the theory of evolution some theologians replaced this view with the doctrine of special divine interventions in the crucial moments in the evolutionary development of the world. While for the most part of its history the world could – according to this doctrine – be governed by natural forces driving its evolutionary course, at least two moments had to be exempt from the ruling of evolution: the origin of life and the appearance of the first human. Such a view, although more advanced than a simple picture of God – the craftsman who builds its creation step by step, was not only insufficient from evolutionary point of view, but also theologically inadequate. The need for special interventions of the Creator in the course of the history of the world may suggest a false view of God who is external to it. Whereas God, while being transcendent, is also present everywhere and in every moment: “In him we live, and move and have our being” (Ac 17,28) [Salij 2006].

Many of bitter disputes in the fall of the 19<sup>th</sup> and at the beginning of the 20<sup>th</sup> century could have been avoided, had theologians remembered that the dogma of creation does not require a moment in time when creation – of the world or of particular species, including humans – takes place. It holds, instead, that everything what exists, is continually given its existence by God. Timely beginning of the world, or of man, is irrelevant. The world – and man – was created, which means that the creatures are dependent in every moment of their existence on God. The world is able to develop driven by natural forces – and to discover and describe those forces is a task of natural sciences. It is being given its existence *as such* (able to develop) by God – and this is the subject of faith in creation. [Salij 2006].

#### **4. A need for a solution?**

As it was demonstrated above, one of the main issues in evolution – creation controversy, a discordance between continuous evolutionary approach and ‘punctual’ religious (theological)

view on creation, is not so sharp as it would seem to be. Neither scientific data force us with no doubt to admit that because *Homo sapiens* is a product of evolution, our species does not differ in an essential way from the rest of the living world, nor theological account of creation require ‘punctual’ understanding of this divine act. It weakens this particular aspect of the controversy we deal with in this paper, and suggests that a solution – if there is still need for it – should be searched for beyond this not-so-sharp opposition between ‘continuous evolution’ and ‘punctual creation’.

Since there have been several attempts to look at evolution and creation in a unifying manner, it is worth to look at them from our ‘weakened opposition’ perspective and see if those solutions go indeed beyond this opposition, and hence can be accepted in the light of our interpretation of scientific data on the one hand and proper theological understanding of creation – on the other. As an example, we present shortly an “evolutionary model of creation” developed by Polish philosopher, K. Kloskowski [1994].

The model in question is based on two assumptions: (1) processual interpretation of the world and – especially – the living world, and (2) epistemological choice of evolutionary theory of knowledge, developed by R. Riedl [1981, 1984], which is seen as the best tool for description and understanding of the processually treated reality. Both assumptions are of philosophical kind, which shows that a solution of our controversy can be reached beyond purely scientific or purely theological perspective. Those two realms of knowledge rightly enjoy methodological and epistemological independence, hence any kind of a ‘unifying view’ of particular knowledge or concepts formulated in both of them requires a ‘third party’ providing a ground and tools for such ‘unification’. As we can see, this ‘third party’ is in our case philosophy – we need to accept certain philosophical presumptions and what we can eventually obtain is not any amendments in scientific or theological concepts, but a philosophical worldview based on those two.

The assumption (1) is a choice which implies particular ontological perspective, in which fundamental ontological entities are not things or events, but processes – the world itself is a process, it not *is*, but constantly *becomes*. Such a view allows for both: accounting for evolutionary, continuous view of the living world which is clearly suggested by most biological sciences, and applying such theological account of creation which stresses not a moment in time when certain beings came to existence, but understands the truth of creation as a conviction of continuous dependence of creatures on their Creator.

The assumption (2) serves mainly to show essential differences between humanity and the rest of the world and hence to justify the need for a special act of creation of man. Evolutionary epistemology maintains that our cognitive abilities evolved under the pressure of natural selection – they appeared due to natural influences of the world on our ancestors and we enjoy them, because they serve properly for our evolutionary success in this world. This implies that our cognitive abilities are ‘in accordance’ with the world (if they were not, they would not have been chosen for by evolution), which means that generally our cognition has to be correct, because there is a sort of isomorphism between the pattern of nature and the pattern of our thought and cognition [Kloskowski 1994]. In turn, since apart from natural cognition, humans developed also spiritual cognition, the latter has its sources – according to the theses of evolutionary epistemology – in reality. Asking in this perspective about the origin of man, we have to look for an answer in both: natural and spiritual reality, because both ‘realities’ are mirrored in human cognitive capacities, and an answer based only on one of them would be inadequate.

The two assumptions described above allow Kloskowski to suggest a thesis that evolution can be seen as a specific ‘moment’ of the act of creation. An act of the creation of man is required to account for spiritual side of human reality mirrored in our cognition. But because our spirituality appeared in the course of evolution, and – according to the assumption (1) – the whole world, including ourselves, is a continuous process, we cannot find a ‘moment’ when the act of creation happened. Instead, evolution must be seen as a process occurring *within* the act of creation and may be called a ‘moment’ (meaning: part) of this act.

It seems that Kloskowski’s proposal goes indeed beyond simple opposition, challenged in this paper, between absolutely continuous account of evolution and momentarily understood act of creation. But his assumptions which allow him to put forward his final thesis of evolution as a ‘moment’ of creation are debatable. Obviously, if we agreed that a desired solution of the evolution–creation controversy has to be of philosophical character, one has to define the philosophical basics of proposed approach, which are the matter of choice and their fully objective evaluation is impossible. However it would be interesting to see if his assumptions could be weakened without denying the conclusions. Particularly, applying the consequences of controversial evolutionary epistemology seems both insufficient and unnecessary. The very existence of human spiritual cognition can be challenged. Moreover, perhaps there is no need of any ‘proof’ of such special abilities of *Homo sapiens*, and what is sufficient enough for our purpose is to note essential differences (laying not necessarily in our spirituality) between the

human and the animal. And some exceptional characteristics of humanity do seem to exist, which was shown in paragraph 2.

As for the application of processual ontology in the referred approach the question is, if similar construction can be achieved without such particular ontological choice. It is true that one of the fundamental features of reality is its changeability. But one may want to maintain that what changes are *things*, and in such ontological perspective – for the use of those who are more inclined to such a view – we also should be able to demonstrate a sound possibility of looking for concordance between not-so-continuous evolutionary view of the origins of *Homo sapiens* and not-so-punctual account of the creation of man.

## **Conclusion**

The paper drew upon one particular problem in evolution–creation controversy: the tension between continuous character of evolutionary processes and punctual understanding of the act of creation. It was demonstrated that this opposition is not so sharp as it may seem. So any search for sound solution of our problem has to go beyond this opposition and not try to reconcile continuous evolution (because it is not absolutely continuous) with punctual creation (because it does not need to be – or, indeed, cannot be – understood, for theological reasons, in such restrictive way).

Apart from this particular issue which we have been concerned with in this paper, there are also others which clearly appear when it comes to the details of allegedly conflicting theological and scientific views on the origin of man. Among other important ones there are the problem (mentioned in the paper) of the original sin versus polygenism, and the problem of chance as a driving force of evolution versus causal and final character of creation. Although these problems can and ought to be distinguished, they are interrelated, hence a good proposal of reconciliation of theological and scientific perspectives with regard to the origin of man should offer a tool for possible solutions of all of them.

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