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Taxonomic debate: anthropological or philosophical problem?¹

Although anthropology belongs to biological sciences, its full understanding is impossible outside the context of the humanities. This paper tries to explain the necessity of cooperation between anthropology and philosophy. A good example to illustrate the point is the debate about the taxonomic status of fossil hominids.

1. Introduction

Over the ages people strove to understand their own nature and history. We created different kinds of sciences which were meant to serve as a means of such understanding. Anthropology and philosophy play an important part in the research of man. The former explains our biological structure, the latter informs us about the aim of our existence and the complexity of our nature. Many scientists and philosophers assume that their respective disciplines must remain fully autonomous, and that there are no points of convergence between different areas of human knowledge. It is argued, for instance, that anthropology and philosophy ask different kinds of questions, employ different methods and that they use different idioms. I am convinced, however, that we neither can nor may completely separate philosophy from anthropology. Indeed, if we want to reach a fuller understanding of some anthropological controversies or better evaluate some developments in this discipline, we should approach these issues through philosophical assumptions.

A good example to illustrate the connection between anthropology and philosophy are the taxonomic problems regarding fossil hominids. During the last century anthropologists did not know how to classify the remains of our ancestors. On some occasions they multiplied taxonomic names, then in other circumstances they preferred to join different

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categories together. Until the mid – 20th century the subfamily *Australopithecinae* included three genera: *Australopithecus*, *Paranthropus* and *Plesianthropus*². Materials from the Far East were classified into several species like: *Pithecanthropus erectus*, *Pithecanthropus modjokertensis*, *Pithecanthropus dubius*, *Sinanthropus pekiniensis*, *Sinanthropus lantianensis*, *Meganthropus palaeojavanicus*, *Javanthropus soloensis*³. By the sixties and seventies of the 20th century, however, the tendency to introduce new taxonomic names was abandoned. Moreover, groups of different hominids were brought together. In Africa, for instance, the anthropologists postulated the existence of only two genera: *Australopithecus* (and three species classified within it: *africanus*, *afarensis*, *robustus*) and *Zinjanthropus* (with one species: *boisei*). The fossils from Asia were also given one name: *Homo erectus*⁴. But from the 1980s onwards the majority of anthropologists seem to have returned to the earlier practice of multiplying taxonomic names⁵. The obvious questions which arise in this context are then: What is the reason behind such a change? Or, putting it differently: Why do anthropologists classify the same fossil material in different ways?

Some scientists would say that it is the fragmentary nature of fossil material which accounts for the taxonomic debates. Others argue that taxonomic controversies may result from a different understanding of the very notion of a species⁶. Still other scientists stress the significance of the problems involved in defining the degree of sexual dimorphism⁷.

I wish to point out here the fourth important cause of taxonomic controversy, i.e. one that arises from philosophical rather than biological considerations. It concerns the occurrence of different paradigms in anthropology.

² J. ROBINSON, *Australopithecines, Culture and Phylogeny*, American Journal of Physical Anthropology 21(1963), 595-605.

³ G.H.R. KOENIGSWALD, *The Oldest Hominid Fossils from Asia and Their Relation to Human Evolution*, Accademia Nazionale Dei Lincei, Roma 1973, 97-118; N.T. BOAZ, R.L. CICHON, *Dragon Bone Hill. An Ice-Age Saga of Homo erectus*, Oxford University Press 2004.

⁴ E. MAYR, *The Taxonomic Evaluation of Fossil Hominids*, in: WASHBURN S.L. (ed.), *Classification and Human Evolution*, Aldine, Chicago 1963, 332-346; M. WOLPOFF, R. CASPARI, *Race and Human Evolution*, Westviwe Press, Boulder 1997.

⁵ I. TATTERSALL, *Species recognition in human paleontology*, Journal of Human Evolution 15(1986), 167-175; R.G. KLEIN, *The Human Career. Human Biological and Cultural Origins*, The University of Chicago Press 1999.

⁶ W. KIMBEL, *Species, species concept and hominid evolution*, Journal of Human Evolution 20(1991), 355-371; Q.D. WHEELER, R. MEIER (ed.), *Species concepts and Phylogenetic theory*, Columbia University Press, New York 2000.

⁷ D. JOHANSON, T. WHITE, *A Systematic Assessment of Early African Hominids*, Science 203(1979), 321-330; M. COLLARD, *Grades and Transitions in Human Evolution*, in: T.J. CROW (ed.), *The Speciation of Modern Homo sapiens*, Oxford University Press 2002, 61-89.

2. What is a paradigm?

A famous philosopher and historian of science, Thomas S. Kuhn, claims that we are not able to see facts as such. Our vision of the world depends on the accepted paradigm of the world. A paradigm is a generally accepted theoretical conviction which helps us to solve individual problems. Since the interpretation of facts depends on the chosen paradigm, the same facts can be interpreted differently in the light of different paradigms. Moreover, paradigms are not invariable. When we discover facts which cannot be explained within the terms of a dominant paradigm, it must be rejected and a new one developed⁸.

Although anthropology belongs to empirical sciences, it is none the less based on some theoretical assumptions, which constitute the accepted paradigms. Thus, anthropologists interpret fossil material in terms which are consistent with the currently valid paradigm. This explains why the same fossil might be classified (or should we say: interpreted) in completely different ways, always depending on the paradigm in which the discoverers believe.

3. The „Fixity of species” paradigm

The belief in the fixity of species persisted until the mid nineteenth century. This paradigm was founded on the authority of Aristotle and his vision of the world, in which all creatures have always existed in the same form. In his book *De coelo* Aristotle defined two governing principles which controlled the whole world, i.e. order and stability. In 1735 Carol Linneus, a famous Swedish naturalist, published his *Systema naturae*. His book was also based on the belief in the fixity of species, and he described the entire animate world as consisting of unchangeable species. Worth noting is the fact that the paradigm of the fixity of species was perfectly suited to the theological concept of creationism. According to this concept, all living beings had been created by the Almighty God. Thus biological and theological assumptions remained closely intertwined over the centuries⁹.

The paradigm of the fixity of species affected the treatment of the fossils found in the first half of the 19th century. In 1829 Phillipe Charles Schmerling excavated three human skulls at Engis (Belgium). One of them was destroyed during exploration, the other was huge and

⁸ T. KHUN, *The Structure of Scientific Revolutions*, The University of Chicago Press, Chicago & London 1996.

⁹ J. TOMCZYK, *Natural-Theological problems concerning the beginnings of Man*, *Studia Theologiczne* 19(2001), 291-301.

massive, but similar to the skull of a modern man, but the third one (apparently a child's skull) was characterized by some archaic features. Schmerling concluded that humankind must have undergone morphological transformation over the centuries. Charles Lyell, who visited Belgium in 1833, examined the child's skull, but completely rejected Schmerling's suggestions. In Lyell's opinion, the excavated skull was no different from an ordinary skull of a contemporary man. The dating of the finding also corroborated his hypothesis. Under such criticism, Schmerling sold the Engis fossil to the University of Liège, and the case was closed.

Almost twenty years later, in 1848, another human skull was found in obscure circumstances in Forbes' Quarry (Gibraltar). It had a prominent brow ridge and flat forehead. Unfortunately, however, the finding from Gibraltar was treated as a mere natural oddity and handed over to the Royal Museum of Surgery in London¹⁰.

These two examples prove that biologists were unable to accept the idea that the fossils could have belonged to ancient people who might be classified as a species different from ours. Instead, they preferred to believe that the remains from Belgium and Gibraltar must have belonged to diseased or mentally handicapped people. The findings simply did not fit the widely accepted paradigm. The biologists were forced to make a difficult choice: They could either reject the dogma of the fixity of species and accept that man had evolved over time, or they had to reject the remains from Engis and Forbes' Quarry and forget about them. Ultimately, they chose the latter option.

In 1856, more ancient human remains were accidentally found in Neanderthal, Germany. Herman Schaaffhausen, an anatomy professor from Bonn, provided these findings with a detailed anatomical description. He wanted to give the remains a new taxonomic name, different from *Homo sapiens*¹¹. This interpretation, as we have already seen, was totally alien to the way of thinking of most anthropological authorities of the day. Carter Blake, an amateur-anthropologist, was convinced that the excavated bones must have belonged to a mentally retarded individual¹². In the opinion of another physician, Bernard Davis, the big skull with prominent brow ridges bore traces of pathological changes¹³.

¹⁰ K. OAKLEY, *The Problem of Man's Antiquity*, Bulletin of the British Museum (Natural History) Geology 9(1964)5, 86-153; L. LEAKEY, V.M. GOODALL, *Unveiling Man's Origins*, Methuen & Co., London 1969.

¹¹ H. SCHAAFFHAUSEN, *On the cranium of the most ancient race of man*, Natural History Review 2(1861), 156-176.

¹² C. BLACK, *On the cranium of the most ancient race of man*, Geologist 6(1862), 206.

¹³ G. SCHWALBE, *Der Neanderthalschädel*, Universitäts Buchdruckerei von Carl Georgi, Bonn 1901.

Schaaffhausen's proposal to classify the Neanderthal fossil as a new species was then criticized by August Franz Mayer, who came to the conclusion that the remains belonged to a Cossack who reached Germany in January 1814 when the Russian army was attacking Napoleon's troops¹⁴. Rudolph Virchow, the famous German pathologist also rejected Schaaffhausen's thesis. In 1873, at the International Anthropological Congress in Wiesbaden, Virchow presented the results of his research. In his opinion, the Neanderthal remains belonged to a man who had suffered from rickets in childhood and certainly could not be the remains of our ancestor. He repeated this opinion in Ulm in 1892. Furthermore, he insisted that the „cripple” from the Neanderthal Valley could not have survived without any help from his companions, and he argued that altruism was characteristic only of modern human beings. So, assuming that the Neanderthals were altruists (which would have to be if the group nursed the cripple), they had to belong to the species *Homo sapiens*¹⁵. Let us recall here the fact that Virchow was a pathologist, and that he often examined human bones affected by syphilis or rickets which means that he must have been well familiar with the changes caused by such diseases. It is, therefore, all the more surprising that he discerned the symptoms of rickets in a fossil that did not show any signs of the disease. It seems equally odd that he should have interpreted the features of these bones incorrectly. It appears, therefore, that his opinion was formed on philosophical, rather than biological grounds. In other words: Virchow continued to defend the old paradigm of the fixity of species, according to which modern man could not have primitive ancestors. Until his death in 1902, he firmly believed that the fossil from the Neanderthal belonged to an ill individual who could not be classified as a separate species – *Homo neanderthalensis*.

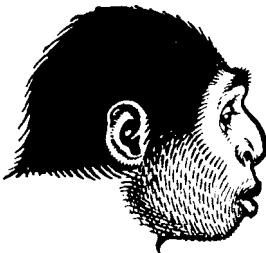
The year 1859 saw the first publication of Charles Darwin's great work: *On the Origins of Species*, containing many more examples which proved that the paradigm of the fixity of species had to be revised. Darwin's main thesis was that all forms of life were related by ancestry. This meant that all species, extinct and living, descended from a single, ancient ancestor. Darwin's theory, however, did not result in an immediate overthrow of the old paradigm. The Great Larousse Encyclopedia, published in 1882, still hold on to the view that the world was created in 4936 B.C., and that all life forms have existed in the same form ever since¹⁶. So, the belief in the fixity of species remained very

¹⁴ J. SHREEVE, *The Neanderthal Enigma*, Viking, London 1996.

¹⁵ R. VIRCHOW, *Untersuchung des Neandertalschädel*, *Verhandle Berliner Ges Anthropologie Ethnologische* 4(1872), 157-165.

¹⁶ D. PRIVAULT, *Larousse – Ziemia, Zwierzęta, Rośliny*, Nasza Księgarnia, Warszawa 1982.

firmly rooted in nineteenth century thought. This explains why anthropologists refused to accept the opinion that the Neanderthal fossil should be classified as a separate species in the genus *Homo*. However, excavations carried out in Asia (Java) and Europe (Krapina, Ochoz) at the turn of the 20th century, confirmed the theory of evolution. Thus, scientists were ultimately forced to reject the old paradigm and accept the new one, according to which species kept changing over time. As a result, different fossils from Germany, Belgium and Gibraltar, were included as a new species *Homo neanderthalensis*. In the end, the change of the paradigm allowed for a different interpretation of the fossil. (ilus.1)



Ilus. 1. Over time artists have presented Neanderthals in variety ways. One time Neanderthal was painted such a wild animal without intelligence, another looked like modern man.

4. Conclusion

In this paper I wanted to show how anthropology is connected with philosophy. To understand some anthropological problems we need to address philosophical issues. We can venture an opinion that anthropology and philosophy have a lot in common, although they constitute different branches of knowledge. In order to understand the nature of man, we should thus take into consideration different sciences, and move towards a more comprehensive type of understanding, instead of infinitely splitting and diving our respective 'fields' of interest or 'areas' of research.

Spory Wokół Taksonomii – Problem Antropologiczny czy Filozoficzny?

STRESZCZENIE

Antropologia na przestrzeni wieków była naznaczona okresami mnożenia bądź redukowania nazw taksonomicznych człowiekowatych. Wielokrotnie antropolodzy badając ten sam materiał hominidalny dochodzili do różnych wniosków i w odmienny sposób dokonywali jego klasyfikacji. Warto zatem zastanowić się, czy owe kontrowersje taksonomiczne wynikają jedynie z przyczyn biologicznych, czy raczej z przyczyn natury filozoficznej. Pozytywna odpowiedź na tak postawione pytanie ukazuje wspólną płaszczyznę badawczą nauk biologicznych i filozoficznych. Choć metodologia tych dyscyplin jest odmienna, a rodzaj stawianych pytań i zakres pojęć jest różny to jednak na kanwie dyskusji odnośnie początków człowieka nauki te „kooperują” ze sobą.