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METAPHYSICAL PRINCIPLES OF GENESIS

When one faces such a profound problem as genesis it is always worth looking at its origins and at the first attempts at its solution. Since in Western Civilization the problem was formulated in Ancient Greek philosophy I will base my report on the works of Aristotle, the great encyclopedist of Ancient Greece. I will focus my attention on the first book of *Physics* by Aristotle in which the author analyses and solves the difficulties which Ancient Greek philosophy faced while trying to explain the genesis of the Universe. Therefore the first principle, the first efficient cause will remain outside of my considerations.

The *Physics* starts with the sentence: “When the object of an inquiry, in any department, has principles, conditions or elements, it is through acquaintance with these that knowledge, that is to say scientific knowledge, is attained”¹. From this it is clear that Aristotle aims at creating the science of Nature. In the same paragraph he says that the first task will be to try to determine what relates to its principles². But what he says later does not give a clear picture of his scientific program in general. He has no need to present it in detail in his *Physics* since he has already elaborated it in the *Posterior Analytics*. Here Aristotle says that scientific knowledge is the correct syllogistic conclusion from the necessary true, primary, immediate (i.e. independent of demonstration) premises. That these premises

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¹ Aristotle, *Physica*, 184 a 9-14, transl. by R. P. Hardie, R. K. Gaye, [in:] *The Basic Works of Aristotle*, ed. by R. McKeon, New York: Random House 1941. Here and further the customary Bekker’s indication of passages is used.

² Ibid., 184 a 15.

are the verbal expression of the principles or causes becomes clear from his remark that premises are not our mere understanding of the meaning, but knowledge of the fact³. Since these premises cannot be syllogistically demonstrated, they are not scientific. This does not mean that they have a lower status than science. As Aristotle explains at the end of his *Analytics*: “[...] demonstration cannot be the originative source of demonstration, nor, consequently, scientific knowledge of scientific knowledge. If therefore, it is the other kind of true thinking except scientific knowing, intuition will be the originative source of scientific knowledge. And the originative source of science grasps the original basic premise [...]”⁴ Thus Aristotle separates syllogistic reasoning from intuition, making the latter the source of principles, which in their turn are the source of science, and the former the producer of scientific knowledge. The primary premises are to scientific knowledge as intuitive to discursive, and as less knowable to more knowable. But these characteristics are not enough for our purposes, since we aim at understanding how Aristotle came to the principles of Nature or, in other words, to the primary premises of *Physics*.

We need to know the mechanism of their coming into being. Concerning this Aristotle says, that “the immediate primary premises are neither innate in a determinative form, nor developed form other higher states of knowledge, but from sense perception [...]”⁵ “Thus it is clear that we must get to know the primary premises by induction; for the method by which even sense perception implants the universal is inductive”⁶. These quotations are only the most important parts of a much more elaborate picture, but they are sufficient for our purposes – they describe the route: from sense perception by induction to principles.

Now, having enough information about the character of the primary principles and the way of their discovery, let us proceed further in *Physics*. Bearing in mind what is already said, it is quite logical to expect Aristotle to start his quest for the principles of Nature from the analysis of sense perception data; but he does not. He starts from an analysis of the opinions of his predecessors and gives seven chapters out of nine of the first book to this. This is a dialectical move, for, as Aristotle mentions in *Topics*,

³ Aristotle, *Analytica Posteriora*, 71 b 30-35, transl. by G. R. G. Mure, in the indicated edition.

⁴ Ibid., 100 b 13-15.

⁵ Ibid., 100 a 9-11.

⁶ Ibid., 100 b 3-5.

dialectic is a process of criticism wherein lies the path to the principles of all inquiries⁷. Only one, the seventh chapter, is given entirely to his own account of the matter. But again, this account does not start with an analysis of sense perception it starts with an analysis of language: “We say that one thing comes to be from another thing, and one sort of thing from another sort of thing [...] We can say (1) the ‘man becomes musical’, (2) what is ‘not-musical becomes musical’, or (3) we say the ‘not-musical man becomes a musical man’”⁸.

Analyzing the meaning of these and similar expressions Aristotle gets to his principles of Nature. He points to the simple fact that in the given expressions ‘man’ survives from the beginning to the end of becoming, but not-musical does not. Instead of not-musical appears musical, which is the contrary of the former. And contraries, as all philosophers agree, are the principles of generation. Since not only these given particular expressions but also all expressions of becoming contain something which survives from the beginning till the end, the inductive conclusion follows that the something which survives is also a principle of becoming, along with contraries. This principle he calls substance, substratum of the contraries, subject and matter.

The discovery of this principle is the greatest achievement of Aristotle. It permitted the solution of the problem formulated by the representatives of the Eleatic school and the development of the concepts of those whom Aristotle calls physicists and with whom he agrees on many points. The problem was, as Aristotle himself puts it, that none of the things that are either comes to be or passes out of existence, because what comes to be must do so either from what is or from what is not, both of which are impossible⁹. In other words, it is impossible to escape contradictions while thinking genesis. Desiring to remain faithful to the correct thinking, Eleats decided that genesis is not real but illusory. The indication of the perceptible examples of coming to be is an insufficient argument against their position: it is necessary to show how to think the genesis without contradictions. Since all philosophers agree with the premise that nothing comes from nothing, Anaxagoras proposes his own solution of the problem, saying that everything comes to be from the infinite in multitude and in kind par-

⁷ Aristotle, *Topica*, 101 b 3, transl. by W. A. Pickard-Cambridge, in the indicated edition.

⁸ Id., *Physica*, 189 b 34-190 a 4.

⁹ Ibid., 191 a 26-30.

ticles, which are imperceptible for their smallness. But Aristotle regards this explanation as unacceptable, since infinite as infinite is unknowable, that is it is impossible to know things which are composed of the infinite in number and quality principles as well as to build the science of nature on them. He points to the fact that all philosophers (even Parmenidas) in one way or another identify principles with contraries, but name the different contraries as principles: hot and cold, wet and dry, love and strife, and so on. From this, Aristotle makes the conclusion that in one sense their principles are the same, in another different; different certainly, as indeed most people think, but the same inasmuch as they are analogous¹⁰. Then he reminds us that contrary cannot be neither one nor innumerable, therefore there must be a limited number of principles. But contraries cannot act upon each other and are of different kinds. Those which arise from each other as bitter and sweet, black and white, and those, which do not. Only the latter contraries can be principles and they must be no more than two. In other words, there must be only one primary contrariety. But again, if primary contraries cannot generate from each other, how is generation possible? It is possible if there is another, the third principle of genesis, the substance. We have already considered how Aristotle got it in the analysis of the sentences of becoming. Now it is worth noting that the substance appeared as a category long before *Physics* (since almost all researchers agree that *Categories* were written before *Physics*¹¹) and appeared in the same way as the substance principle, that is in the analysis of language: forms of speech and predication.

This can be explained by the supposition that the intuitive knowledge of the first principles is somehow fixed in the language ordinary people speak, especially in their myths (whence even the lover of myths is in a sense a lover of wisdom¹²). But in the best possible way it is expressed in what philosophers and scientists say about the matter. If so, it is reasonable to start the quest for the principles from the analysis of language, using the sense experience as an auxiliary. It makes the inquiry shorter and easier. Nevertheless, it seems that Aristotle has too much confidence in language.

¹⁰ Ibid., 188 b 36-189 a 1.

¹¹ H. G. Apostle, *Preface and Commentaries to Aristotle's Categories and Propositions (De Interpretatione)*, p. I, Grinnell, Iowa: The Peripatetic Press 1980, p. 72-74 and further.

¹² Aristotle, *Metaphysica*, 982 b 18, transl. by W. D. Ross, in the indicated edition.

Language tells the truth but it can deceive as well, especially opinions. When the principles are achieved in the dialectical way and are analogous, does the theory, which is built on them, meet the Aristotelian criteria of science? Let me leave this question open and recall that Aristotle created the first systematically elaborated theory of Nature, and in this sense it can be called scientific.

Let us come back to the principles. It is already said the principles of becoming and ceasing to exist are two primary contraries, and underlying them substratum; but still the contraries are not named. So far we have considered the particular contraries of 'musical' and 'not-musical'. Only in the middle of the seventh chapter of *Physics* does Aristotle give the names of the primary contraries. He does it in this way: "I say everything comes to be from both subject and form. For 'musical man' is composed (in a way) of 'man' and 'musical' [...] Now the subject is one numerically, though it is two in form. (For it is the man, the gold – the matter generally – that is counted [...] the privation on the other hand, and the contrary are incidental in the process)"¹³. The last two chapters of the first book of *Physics* are very interesting and important, for there Aristotle argues that the difficulty of the early thinkers is solved in this way alone, that is by positing these three principles. The main difficulty was that it is impossible to think that a being comes from not-being, or that a being comes from being. Aristotle consents that nothing can come from what is not, but a thing can come from privation, which is not-being in a qualified sense, since it belongs to some matter. In a similar way, being comes from being in a qualified sense. It seems that the key of the solution is privation.

Aristotle says that in its own nature privation is not-being and, as far as the matter holds it as an attribute, privation makes it not-being, though the matter itself is nearly, in a sense is, substance. So, because of the privation 'not-musical' a man is a not-being as a musical man. But how he can become musical is not quite clear, for contraries cannot generate each other. Perhaps noticing this Aristotle says at the end of the eighth chapter that there is another way of solving the difficulty, which consists in pointing out that the same things can be explained in terms of potentiality and actuality¹⁴. It is plain from experience that not every not-musical man can become musical but which has an aptitude for music, or, to use an Aristo-

¹³ Aristotle, *Physica*, 190 b 20-27.

¹⁴ Ibid., 191 b 27-29.

telian term, a potentiality for music. This potentiality belongs not to privation but to man, subject, substratum, matter. But the privation is related to the potentiality in such way that it is easier to think it as some reserved space for the actualization of the potentiality than as not-being. I suppose that the difficulties like this encouraged M. Heidegger rise the question about Nothing so emphatically in his lecture *What is Metaphysics?*¹⁵

METAFIZYCZNE ZASADY GENEZY

S t r e s z c z e n i e

Analiza historii filozofii i nauki starożytnej Grecji pokazuje, iż problemem matematycznym było stworzenie nauki przyrodniczej. Wszelkie wysiłki w celu uczynienia z matematyki, w której centrum znajdujemy statyczne formy geometryczne, nauki wyjaśniającej zasady ruchu, zmiany, stawania się i zanikania rzeczy nie przyniosły spodziewanych rezultatów. Badacze doszli do wniosku, że widzialny świat jest raczej przedmiotem różnych poglądów, ale nie nauki (zob. np. P l a t o n, *Timajos*, 29). Niemniej jednak myśl, że matematyka jest istotna dla nauk przyrodniczych, była słuszna. Księga przyrody została napisana językiem matematyki – takie jest motto fizyki New Age. Trzeba by teraz pokazać konkretnie, jak język matematyki potrafi opisać zmiany.

Matematyka starożytnej Grecji nie była gotowa do wypełnienia tego zadania. Grecy mieli do wyboru albo zrezygnować z projektu tworzenia nauki przyrody, albo zbudować ją na czymś innym. Arystoteles wybrał tę drugą możliwość. Oparł fizykę na metafizyce zamiast na matematyce i stworzył pierwszą naukową teorię przyrody, która obowiązywała przez stulecia, dopóki nie została zastąpiona (i to niezupełnie w sposób pokojowy) przez bardziej naukową fizykę matematyczną. Newtona ostrzeżenie brzmi: fizyka odrzuca metafizykę, odzwierciedla kolizję pomiędzy fizyką Arystotelesowską i fizyką New Age. Powstaje pytanie, czy fizyka Arystotelesa stymulowała, czy też hamowała rozwój nauk przyrodniczych. Odpowiedź na tę kwestię winna zainteresować myślicieli katolickich ze względu na bezpośrednie powiązanie z tomizmem.

Tłumaczył Jan Kłós

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Key word: category of genesis, metaphysics, Aristotle, philosophy, nature.

¹⁵ M. H e i d e g g e r, *Was ist Metaphysik?*, Frankfurt am Main 1949.