Ακαδημία Αθηνών / Academy of Athens

THE CONCEPT OF TIME IN ARISTOTLE AND THE ACCESS TO THE BEING *QUA KINESIS**

The conception of time by Aristotle can be regarded as the first systematic interpretation of this fundamental phenomenon and as such bears the responsibility to have strongly influenced the successive and most relevant theories on the nature of time by Augustine, Kant, Hegel and Bergson[1]. Of this determining legacy was so deeply convinced Martin Heidegger to make of Aristotle one of his most significant interlocutors in his creative dialogue with the history of western philosophy[2], by which he meant to bring to light the 'unspoken'[3] of the works of prominent western thinkers.

Aristotle has been revered by the author of *Sein und Zeit* as the *acme* of Greek philosophy and still has been designated as the thinker who laid the main presuppositions for the 'ontic degeneration' of the question of being[4]. Nevertheless, in spite of the fact that the relation that Heidegger entertained with

---

* I would like to express my gratitude to the 'Alexander-von-Humboldt' Foundation (Germany), whose generous support made possible to accomplish the research exposed in the present article.

1. Cf. M. HEIDEGGER, *Sein und Zeit*, in *Gesamtausgabe* (*GA*) Bd. 2, Frankfurt am Main: Vittorio Klostermann 1977, pp. 34-35.

2. On this «philosophical dialogue» a wide literature has been published. Here I would like to recall: H.-G. GADAMER, *Erinnerungen an Heideggers Anfänge*, in: *Dilthey Jahrbuch*, 4 (1986/87), pp. 13-26; IDEM, *Heideggers «theologische» Jugendschrift*, in *Dilthey Jahrbuch*, 6 (1989), pp. 228-34; W.G. BROWN, *An Inquiry into the question about truth and sense in the thinking of Heidegger and Aristotle*, Ann Arbor: University Microfilms International 1987; J. TAMINIAUX, *Lectures de l'ontologie fondamentale: essais sur Heidegger*, Grenoble, J. Million, 1989; Th. KISIEL, *The Genesis of Heidegger's* Being and Time, Berkeley-Los Angeles-London, University of California Press, 1993; F. VOLPI, *Heidegger, Aristotele, i Greci*, Barcelona, Universitad autonoma de Barcelona, 2002; W. BROGAN, *Heidegger and Aristotle: the Twofoldness of Being*, Albany, State University of New York Press, 2005.

3. Cf. MARTIN HEIDEGGER, *Was heißt Denken?*, Tübingen, Nieneyes, 1971, pp. 121 ff.; cf. also IDEM, *Sein und Zeit*, *GA* 2, cit., p. 385.

4. Cf. IDEM, *Grundprobleme der Phänomenologie*, *GA* 24, Frankfurt am Main, V. Klostermann, 1975, p. 28; IDEM, *Die Grundbegriffe der Metaphysik. Welt - Endlichkeit - Einsamkeit*, *GA* 29/30, Frankfurt am Main: V. Klostermann, 1983, p. 53, IDEM, *Brief über den «Humanismus»*, in *Wegmarken*, *GA* 9, Frankfurt am Main, Vittorio Klostermann, 1976, p. 348.

ΑΚΑΔΗΜΙΑ ΑΘΗΝΩΝ

Ακαδημία Αθηνών / Academy of Athens

Aristotle was very ambivalent and that the interpretations he gave of his thought remain hugely theoretical, so to be ought to approach them with a cautious maintenance of critical distance, still the importance of the considerations made by the German philosopher can hardly be overestimated: in fact, they are able to offer a precious new key to bring to light some of the most important ontological implications of the Aristotelian philosophy. This idea remains true especially in reference to the conception of time of the Stagirite. Thus, in order to make fruitful the theoretical insights of Heidegger's interpretations we must first be in clear about their main issues as well as about the criticisms addressed by the German philosopher to the Aristotelian ontology in general and to the related concept of time in particular. Then, we must carefully analyze the text in which Aristotle explains his own view on time, so to be finally able to see which new approaches to the Aristotelian concept of time can be found by virtue of Heidegger's remarks. In this way it is also possible to put the Aristotelian comprehension of time into a major value in spite of Heidegger's theoretical criticisms.

1. Aristotle's ontology in Heidegger's view. In order to face properly this topic, one must dedicate more than a few pages to it. In the present context we can however sketch the main points of this philosophical confrontation. The fundamental premise of this virtual 'dialogue' is represented by Heidegger's strong conviction about the intimate connection that in every ontology tries together the understanding of being and the understanding of time. Such a premise is based on the presupposition that being is always – even though implicitly – experienced through time[5]. This intrinsic mutual dependency between comprehension of 'time' and understanding of 'being', as the title of Heidegger's masterwork intends to testify, is doubled by the German Philosopher's famous claim according to which 'being' has been «abandoned» and lies in a state of 'oblivion' in western philosophical thought[6]: after the Greek beginning – with very few exceptions – no philosopher has ever been able again to think being as such and not on the score of mere ontic predications[7]. What has gradually obscured the ability of the initial Greek philosophers, such as Anaximander, Parmenides and Heraclitus[8], to think

---

5. Cf. IDEM, *Grundprobleme der Phänomenologie*, *GA* 24, *op. cit.*, p. 22; IDEM, *Prolegomena zur Geschichte des Zeitbegriffes*, *GA* 20, Frankfurt am Main, V. Klostermann, 1979, pp. 8 ff., 191 ff.; IDEM, *Der Begriff der Zeit*, *GA* 64, Frankfurt am Main, V. Klostermann 2004, pp. 17-19; IDEM, *Sein und Zeit*, *GA* 2, op. cit., pp. 5ff., and p. 24.

6. IDEM, *Vom Wesen der menschlichen Freiheit*, *GA* 31, Frankfurt am Main, V. Klostermann, 1982, p. 42: «Vergessenheit des Seinsverständnisses».

7. IDEM, *Der Begriff der Zeit*, *GA* 64, *op. cit.*, p. 103.

8. IDEM, *Parmenides*, *GA* 54, hrsg. v. M. S. Frings, Frankfurt am Main, Vittorio Klostermann, 1982, pp. 1 ff.

ΑΚΑΔΗΜΙΑ ΑΘΗΝΩΝ

Ακαδημία Αθηνών / Academy of Athens

phenomenologically 'being *qua* being' in terms of '*a-letheia*' consisted in the more and more dominating explanation of reality on the score of the concept of *energheia*. This domination, ratified by Plato and brought to its extreme expression and systematization by Aristotle, was due to a very peculiar feature of Greek approach to being, i.e. the centrality of the conceptual interpretation of the *techne*'s productive process in the comprehension of the becoming of *physis*[9]. Being has been understood under the guidance of a very precise sense of it: in ancient Greek view being said the same of 'being-produced' (*herge-stelltsein*) and therefore of being brought to 'presence' (*Gegenwärtigkeit*)[10]. Following Heidegger's interpretation, Greek thinkers considered that existence could only be conceived of as the productive 'bringing forward' of something (*pro-ducere*) into the realm of being, so that the phenomenon of becoming was to be explained and conceptualized on the model of *techne*. It is no chance that the words *energheia* and *entelecheia*, regarded both as Aristotelian neologisms, have been borrowed from the world of *technai*[11].

The comprehension of being descending from this close parallelism between existence in the sublunary reality and the productive process of *technai* was consistently based on the *energheia* concept: the existence is always thought of on the score of *what* 'actually' exists and on the score of the *way* in which it 'actually' exists, i.e. in its state of completeness and fulfillment (*Fertigkeit*)[12]. 'Being' says the same of 'being present' and 'being at one's disposal' (*zur Verfügung*). This sense of being finds its most relevent ratification in the concept of *ousia*, that Heidegger often recalls in its original meaning of 'property' (*Anwesen*), i.e. what stays at a constent disposal to be used[13]. Being says therefore spatial 'presence' (*Anwesenheit*) and temporal presence (*Gegen-wart*)[14]. The triad of terms by which Heidegger defines the ancient Greek comprehension of being and the related concept of time is *precence-energheia-present*[15].

---

9. IDEM, *Einführung in die phänomenologische Forschung*, *GA* 17, Frankfurt am Main, V. Klostermann, 1994, p. 8; IDEM, *Grundprobleme der Phänomenologie*, *GA* 24, pp. 149-153; ID., *Wom Wesen und Begriff der physis: Aristoteles Physik* B1 (1939), in *Wegmarken*, *GA* 9, *op. cit.*, pp. 239-301.

10. IDEM, *Grundbegriffe der Aristotelischen Philosophie*, *GA* 18, Frankfurt am Main, Vittorio Klostermann, 2002, p. 275.

11. GEORG PICHT, *Aristoteles* De anima, Stuttgart, Klett-Cotta, 1992², pp. 292ff.

12. M. HEIDEGGER, *Grundbegriffe der Aristotelischen Philosophie*, *GA* 18, *op. cit.*, p. 272.

13. IDEM, *Sein und Zeit*, *GA* 2, *op. cit.*, pp. 33-35.

14. IDEM, *Einführung in die phänomenologische Forschung*, *GA* 17, Frankfurt am Main, V. Klostermann, 1994, pp. 8-10; IDEM, *Der Begriff Zeit*, *GA* 64, *op. cit.*, pp.78 ff. and p. 101; IDEM, *Sein und Zeit*, *GA* 2, *op. cit.*, pp. 33 ff.

15. Cf. IDEM, *Grundbegriffe der Aristotelischen Philosophie*, *GA* 18, *op. cit.*, p. 219: «*Gegen-wärtigsein* und *Hergestelltsein*, sind es, die den Seinsbegriff der Griechen verständlich machen».

ΑΚΑΔΗΜΙΑ ΑΘΗΝΩΝ

Ακαδημία Αθηνών / Academy of Athens

Aristotle would represent in Heidegger's view the most perfect expression of this approach to being[16]. According to the author of *Sein und Zeit*, classical Greek philosophy even in the apogee reached with Plato's and Aristotle's speculations could be nothing more than an attentive phenomenology of the 'ontic' context of quotidian life (*Alltäglichkeit*), showing no capability to look deeper into the fundamental ontological structure that makes possible such a pre-ontological understanding of being[17]. Greek thinkers have ignored the constitution of *Dasein* as ecstatic temporality (*ekstatische Zeitlichkeit*), that unfolds itself as existential project towards its own possibilities[18].

In spite of the sharp limitations attributed by Heidegger to Greek philosophers, he acknowledged them the privilege to have been able to remain in the proximity of being, since the concept of *energheia*, as it emerges in all clarity in Aristotle, was very different from any successive idea of *actualitas*[19]. *Energheia* was still intended by the Greeks as the way in which the *kinesis* that characterizes the sublunary world comes to light, i.e. as the 'being-in-the-*ergon*' (*in-Arbeit-sein*). Energheie expresses the process of reaching the *telos* for the sake of which every given entity is put into motion[20].

After those more general remarks, we can say that according to Heidegger the Aristotelian conception of time represents the perfectly consistent expression of the still naïve Greek ontology[21].

Heidegger alludes quite often to the Aristotelian conception of time, but he treats this topic extensively in his lectures on the *Concept of time* (1924) and on the *Fundamental problems of Phenomenology* (1927). In the first of these expositions, Heidegger claims that quotidian life is temporally articulated in the sense of the ordinary concept of time: since the basic ontological feature of everyday life consists in the constant «taking care of the surrounding world» (*Besorgen der Umwelt*), just in this phenomenon human *Dasein* tends to have access to its occupations by an increasingly precise calculation of the available time: the dominating temporal dimension of quotidian life is the 'now', i.e. the portion of time that we call 'present' (*Gegenwart*)[22]. In the precisely calculated sections of time human *Dasein* finds a powerful instrument to articulate its care by making the world more available and stably at its own disposal[23]. This

---

16. *Ibid.*, pp. 55 f.
17. *Ibid.*, pp. 22 ff.
18. Cf. IDEM, *Sein und Zeit*, *GA* 2, *op. cit*, pp. 328 ff.; IDEM, *Der Begriff Zeit*, *GA* 64, *op. cit.*, p. 63.
19. Cf. IDEM, *Nietzsche*, Zweiter Band, Pfullingen, 1961, pp. 487 ff.
20. IDEM, *Grundbegriffe der Aristotelischen Philosophie*, *GA* 18, *op. cit.*, p. 313.
21. IDEM, *Grundprobleme der Phänomenologie*, *GA* 24, *op. cit.*, p. 155.
22. Cf. IDEM, *Sein und Zeit*, *GA* 2, *op. cit.*, pp. 411ff.
23. Cf. IDEM, *Der Begriff Zeit*, *GA* 64, *op. cit.*, p. 71: «Auf die Uhr sehen ist *Jetzt* sagen und in diesem Sagen wird die rechte Zeit verfügbar. Die «Jetzt» sind immer geeignete oder ungeeignete; sie begegnen im Charakter der Bedeutsamkeit».

ΑΚΑΔΗΜΙΑ ΑΘΗΝΩΝ

Ακαδημία Αθηνών / Academy of Athens

'being at disposal' of time is based on the infinite succession of 'nows' that allows human *Dasein* to 'dispose' also of past and especially of future time by regarding them respectively as a 'now' that is no more and a 'now' that is not yet. In this way, *Dasein* can amplify and stabilize the 'objectivities' in which its surrounding world consists. In such a context, also time assumes the objective status of a tool: the clock objectifies time by making it 'present' like every other utensil[24], so that we 'take care of time' when we count its passing by[25]. The clock represents the public availability and commensurability of time expressed by its standardization in the 'nows'[26].

This vulgar comprehension of time, so far described in its ontic and therefore pre-ontological features, would have been brought by Aristotle to the dignity of concept. In the second lecture in which Heidegger faces the Aristotelian conception of *chronos*, i.e. the *Fundamental problems of Phenomenology*, he states that Aristotle has merely conceptualize the natural understanding of time[27]. According to Heidegger, the Aristotelian definition can be exposed as follows: «time is the 'counted' in the motion regarding the 'before' and the 'after'», where the 'counted' is expressed by the 'now'[28]. This definition describes in deeds a spatial movement, i.e. the spatial articulation of quotidian life. The expressions '*proteron*' and '*hysteron*' of the Aristotelian definition are basically spatial coordinates, though presupposing a mere original temporal connotation[29]. Furthermore, these spatial-temporal coordinates show a distance from the '*nun*' in the sense in which past and future differ from the present. Aristotle would have followed on this point the ordinary conception of *chronos* when he interpreted the 'before' as a 'now' in the sense of a 'not-yet' and the 'after' as a 'now' in the sense of a 'no-more'. In this way, also past and future are interpreted on the basis of the 'present' and on the ground of the 'presence' (*Vorhandenheit*): the 'now' consists then in the gained access to an occupation or to a being. The 'now' represents the only consistent temporal expression for an ontology in which being says fundamentally *energheia*, and even though Aristotle underlines that the 'nows' that we count are *in* time, i.e. they express

---

24. Cf. *ibid.*, p. 77: «Die Uhr hat die Zeit vergegenwärtigt, zum Vorhandensein gemacht. Aristoteles hält sich auf das tägliche Bestimmen des *Dann* des Besorgens».

25. IDEM, *Sein und Zeit*, *GA* 2, *op. cit.*, pp. 411ff.

26. *Ibid.*, p. 544.

27. IDEM, *Grundprobleme der Phänomenologie*, *GA* 24, *op. cit.*, p. 329. Cf. IDEM, *Sein und Zeit*, *GA* 2, op. cit., pp. 556-558.

28. IDEM, *Grundprobleme der Phänomenologie*, *GA* 24, *op. cit.*, p. 348.

29. Cf. ARISTOTLE, *Physics*, IV, 219a15, quoted according to the edition of JONATHAN BARNES, *The Complete Works of Aristotle*, The Revised Oxford Translation, ed. and rev. by Jonathan Barnes, 2 vols, Princeton, 1984, vol. I.

ΑΚΑΔΗΜΙΑ ΑΘΗΝΩΝ

Ακαδημία Αθηνών / Academy of Athens

time, but *they are not* time itself[30], the main criticism addressed by Heidegger to the Stagirite has already found its basic motivation: Aristotle did not see the more original phenomenon of time, whose essence does not consist in the gained access to the merely present beings: in a more fundamental ontological sense, time says being itself. Its three dimensions such as past, future and '*Augenblick*', i.e. the so called ecstasies of temporality (*Zeitlichkeit*), express the ontological constitution of human *Dasein*. In the mutual conversion of these dimensions the ontological constitution of *Dasein* as existential project and as freedom in view of its own possibilities discloses itself[31]. Being is finally conceived as temporality without ecstasies (*Temporalität*). The Stagirite did not grasp the ontological interdependency of time and being as well as the authentic constitution of man. Therefore, he could not offer to the concept of ordinary time the more original foundation in the temporality. On the contrary, Aristotle confined himself to state that the 'now' is the extension (*Erstreckung*) between the 'before' and the 'after'; consequently, it has the dimensional character of a transition or of a link: in Heidegger's words, the 'now' is «*das Kontinuum des Zeitflusses*»[32]. Since the Aristotelian definition of time makes only accessible this continuum according to the movements of daily life, it ends to be a mere '*Zugangsdefinition*' just sufficient to address time in its closest and most public appearance[33].

2. The nature of time in the Aristotelian *Physics*. The first question that Aristotle raises in his reflection on time in the IV Book of the Physics is whether or not time belongs to «the class of things that exist or that of things that do not exist»[34]. Time presents in fact the controversial status of something that seems to be composed of parts that have no ontological stability: past and future are not, present seems to undergo a systematic corruption[35]; the *'nows'* cannot be considered as parts of the time, since a part is measure of the whole and a systematic addition of 'nows' considered as parts of time cannot produce time as such; furthermore, the 'nows' cannot be completely different from each other, but it nor is possible that the 'now' remains the same[36]. These are the

---

30. Cf. M. HEIDEGGER, *Grundprobleme der Phänomenologie*, *GA* 24, *op. cit.*, p. 349.
31. Cf. *ibid.*, pp. 389, 428.
32. *Ibid.*, p. 352.
33. *Ibid.*, p. 362.
34. ARISTOTLE, *Physics*, IV, 217b330-2.
35. IDEM, *Physics*, IV, 218a1-10. On the class of logical problems raised by these statements cf. MICHAEL INWOOD, *Aristotle on the Reality of Time, in Aristotle's Physics: A Collection of Essays*, edited by Lindsay Judson, Oxford, Clarendon Press, 1991, pp. 151-178, and RICHARD SORABJI, *Time, Creation and the Continuum: Theories in Antiquity and the Early Middle Ages*, London, 1983, pp. 10 ff.
36. ARISTOTLE, *Physics*, IV, 218a10-30.

ΑΚΑΔΗΜΙΑ ΑΘΗΝΩΝ

Ακαδημία Αθηνών / Academy of Athens

introductory issues that in the course of the Aristotelian investigation must find a satisfactory clarification. The method used by the Stagirite in this inquiry is the one that he has used in the most part of his investigations: the 'dialectical' method, whose first step consists in verifying the soundness of the *endoxa in fama* regarding the issue at stake.

In contrast to Heidegger, who attributed to Aristotle no interest for an epistemological definition of time[37], but only for a philosophical account of the quotidian naive 'experience of time', I shall argue that the Stagirite seems to be principally concerned with an ontological definition of time as accident of movement and continuum inasmuch as it grounds its epistemological function as universal order by which movements can be connected to each other so that a system of the world can be obtained.

As the dialectical method requires, the starting point of the Aristotelian inquiry must be the most accredited comprehension of temporal phenomena. The Stagirite claims that «time is most usually supposed to be motion and a kind of change»[38]; though, change and movement are not 'beings' themselves, but they exist only in the beings that are in movement and so in the possibility to change[39]. Furthermore, movement and change are fast or slow, so that they are liable to be defined on the score of time: if they were themselves time, we would obtain the absurd conclusion, by which time can be defined in terms of itself, i.e. time could be said fast or slow. The final claim on this point is then that time is not movement and change[40]. Though, it is a basic matter of observation to realize that an intimate connection between time and motion exists in deeds,

> «for when the state of our minds does not change at all, or we have not noticed its changing, we do not think that time has elapsed. [...] If, then, the non-realization of the existence of time happens to us when we do not distinguish any change, but the mind seems to stay in one indivisible state, and when we perceive and distinguish we say time has elapsed, evidently time is not independent of movement and change»[41].

Here Aristotle proceeds dialectically: the observational data and the *endoxa in fama* inform us about the intrinsic connection existing between time and movement: they seem to occur together and to define each other[42]. Though,

---

37. M. HEIDEGGER, *Grundbegriffe der Aristotelischen Philosophie, GA* 18, *op. cit.*, p. 293.
38. ARISTOTLE, *Physics,* IV, 218b10.
39. *Ibid.*, 218b12-15.
40. *Ibid.*, 218b15-20.
41. *Ibid.*, 218b20-30.
42. *Ibid.*, 220b5-10.

ΑΚΑΔΗΜΙΑ ΑΘΗΝΩΝ

Ακαδημία Αθηνών / Academy of Athens

time is not movement, but - as the quoted passage suggests - the accident of movement, i.e. something that occurs only in relation to it[43]. According to Aristotle, movement is not a being next to the others, but the basic way in which the sublunary substances exist[44]. In other words, the Aristotelian analysis of time draws upon an ontology that has in the *tode ti* its central concept: whatever exists must exist either as *ousia* or as its accident. In the sublunary world substances exist as 'beings-in-movement', so that their ontological constitution must be conceived as intrinsically kinetic[45]. Since movement and consequently time are not beings themselves[46], but they are both something of the sublunary beings, movement and time can only be known indirectly, i.e. through the observation of the *kinoumenon,* i.e. the being-in-movement[47]. Then, even though in Physics, IV, Aristotle uses the words '*kinesis*' and '*metabolé*' in a loose sense[48], it seems appropriate to say that we gain access to movement, whenever a *metabolé* occurs in the sublunary world, i.e. whenever a given substance starts the actualization process of the *dynamis* that it possesses towards the corresponding actual state[49].

Following Aristotle, there can be time only when a so conceived change occurs, so that an asymmetrical relation is to be stated: time depends in its existence on movement, while movement does not require time in order to exist. Nevertheless, even though it is only through the perception of a movement that we realize the elapsing of time[50], so that time comes to exist only when a movement occurs and is detected, still the elapsing of time brings forward the 'being', i.e. the temporal coordinates and therefore the definition of the related movement: time constitutes the access to the existence and to the description of the movement, of which it is accident[51]. Moreover, because of its

---

43. IDEM, *Physics,* IV, 223a19.

44. *Ibid.,* III, 200b33f.

45. *Kinesis* in the sublunary world is to be understood as *energeia ateles*; on this point cf. ARISTOTLE, *Physics,* VIII, 257b8f. Cf. also GEORG PICHT, *Aristoteles* De anima, Stuttgart, Klett-Cotta, 1992², pp. 294ff.

46. ARISTOTLE, *Physics,* IV, 218b18.

47. *Ibid.,* 219a3 and 219b23-5.

48. *Ibid.,* 218b18.

49. Cf. IDEM, *Physics,* III, 202a15ff., and *Metaphysics,* IX, 1046a11-13. Cf. URSULA COOPE, *Time for Aristotle. Physics IV,* 11 - 14, Oxford, Clarendon Press, 2005, p. 7: «change [is thought] as the actuality of a potential to be in some end state». On the ontology of ousia in its dynamic features as ground of the Aristotelian conception of time, cf. HARTMUT KUHLMANN, «Jetzt?». Zur Konzeption des «*nun*» in der Zeitabhandlung des Aristoteles (*Physik,* IV, 10-14), in: *Zeit, Bewegung, Handlung. Studien zur Zeitabhandlung des Aristoteles,* hrsg. von Enno Rudolph, Stuttgart, Klett-Cotta, 1988, pp. 63-96, here pp. 66-67.

50. ARISTOTLE, *Physics,* IV, 218b20 ff.

51. Cf. on this interpretation especially URSULA COOPE, *Time for Aristotle, op. cit.,* p. 5: «Time is a kind of universal order [...] within which all changes are related to one another [...]. Our counting thus introduces a kind of uniformity into the world».

ΑΚΑΔΗΜΙΑ ΑΘΗΝΩΝ

Ακαδημία Αθηνών / Academy of Athens

ontological status as accident of movement, time is a universal presence in the sublunary world[52]: whatever exists in conjunction with matter is *in* time and it is spoken of in temporal terms. Time seems to be a universal predication that applies to all sublunary beings.

The strict connection existing between time and movement and the observed 'universality' of time are the necessary presuppositions, on which Aristotle bases his epistemological definition of time. Since time as accident of the movement does not imply any kind of standard temporal measure that could be used in order to define unequivocally the movements in their internal phases and in their mutual relations and since this general measure is required in order to explain why time is present as something universal in the sublunary world, we need to analyze on what this universality depends. On the one side, time is a universal because of its being accident of the movement in a world in which whatever exists is in movement; on the other side, time is universal because it constitutes a general measure, by which movements can be counted. Since time comes to be, when and only when a given substance changes from a preceding state to a successive one[53], and since such a time does not entail a universal temporal measure, but rather describes the interval drawn by the movement of which it is accident, then time must borrow such a universal measure from a movement liable to be counted according to a parameter other than time. In this sense, the universality of time as access to sublunary movements relies upon a primary access to a change available to an objective description. The description of a change can be obtained by selecting in its movement two boundaries, by which substance's change from a former state to a successive one can be identified. Now, Aristotle believes that the only movement that can be measured without referring to temporal coordinates is local movement[54]. Then, in local movement a fundamental term is brought into play, i.e. the magnitude on which local movement occurs.

According to Aristotle, magnitude is a continuum, so that also the movement that occurs over it and time as accident of the movement must be continuous[55]. As the Stagirite has already shown in the third Book of his Physics, the continuum, that belongs to magnitude, movement, and time, must be infinite, since the finitude of the mentioned beings would raise a series of absurdities[56], related to the division of magnitude, the finitude of the series of numbers, and

---

52. ARISTOTLE, *Physics*, IV, 218b10f.
53. *Ibid.*, 219a33f.
54. *Ibid.*, 219b29ff.
55. *Ibid.*, 219a10-14, and 220a25-30.
56. *Ibid.*, III, 200b17-18. On this problem, cf. DAVID BOSTOCK, *Aristotle on Continuity in Physics VI, in Aristotle's Physics, op. cit.*, pp. 179-212.

ΑΚΑΔΗΜΙΑ ΑΘΗΝΩΝ

Ακαδημία Αθηνών / Academy of Athens

the finitude of time[57]. By definition the division of the continuum proceeds *ad infinitum*, since between two of its potential parts a third element can always be counted[58]. The existence of the infinite raises also a series of problems that Aristotle solves by claiming that, while it seems impossible for it to exist in actuality because it would conflict with the observational data[59] and with the theory of natural places[60], the infinite of the continuum must exist in a potential state. The conclusion reached by Aristotle is then that «the infinite has a potential existence»[61] only in the peculiar sense of a potentiality that does not admit an actualization[62]. The infinite that exhibits itself in time, in the generations of the beings and in the division of the magnitudes[63], does not possess the potentiality in the sense in which the sublunary substances are said to be in potency towards an actual state. In the continuum both potency and actuality[64] consist in its capability to undergo potential partitions[65].

---

57. ARISTOTLE, *Physics*, III, 206a5-10. About the four kinds of infinite that Aristotle rejects and his «potential infinite», cf. WILLIAM CHARLTON, *Aristotle's Potential Infinites, in Aristotle's Physics, op. cit.*, pp. 129-149. Cf. on these questions also E. HUSSEY, *Aristotle's Physics, Books III and IV*, Oxford, Clarendon Press, 1983, pp. xx ff.

58. *Ibid.*, III, 185b10f., and 200b20f.

59. On the importance of the dialectical method in the accomplishment of these inquiries, cf. ARISTOTLE, *Physics*, IV, 218b21ff., 219a22ff., 223a16ff. Cf. also W. WIELAND, *Die Aristotelische Physik. Untersuchungen über die Grundlegung der Naturwissenschaft und die sprachlichen Bedingungen der Prinzipienforschung bei Aristoteles*, Göttingen, Vandenhoeck & Ruprecht, 1970², p. 280, and *ibid.*, pp. 73 ff., 86 ff., 108 ff. Finally cf. M. INWOOD, *Aristotle on the Reality of Time, op. cit.*, p. 167.

60. ARISTOTLE, *Physics*, III, 204b1-205a30.

61. *Ibid.*, 206a15ff.; cf. *ibid.*, VI, 263a28-9; cf. IDÉM, *Metaphysics*, V, 1017a35-b8; IX, 1048a30-5. Cf. also W.D. ROSS, *Aristotle's Physics: A Revised Text with Introduction and Commentary*, Oxford, Clarendon Press, 1936, pp. 53 ff. and pp. 601 ff.

62. ARISTOTLE, *Physics*, III, 206a20. Cf. W. WIELAND, *Die Aristotelische Physik, op. cit.*, p. 282: «Wenn Aristoteles hier der Physik die Untersuchung von Größe, Bewegung und Zeit als Aufgabe zuweist, so ist darin impliziert, dass das Kontinuum kein zusätzlicher und gleichberechtigter Gegenstand der Physik neben jenen drei Erfahrungsformen [sc. Magnitudes, motion and time] ist. Die Kontinuität ist vielmehr eine Struktur, die jene drei Erfahrungsformen in eigenartiger Weise noch durchgreift». Cf. *also Ibid.*, p. 291: «Die Kontinuität ist insofern eine Eigenschaft, die bei jeder der drei ‚Dimensionen' Größe, Zeit und Bewegung niemals ‚an sich' zum Vorschein kommen kann, sondern nur indem man sie aufeinander bezieht».

63. ARISTOTLE, *Physics*, III, 206a25-30.

64. *Ibid.*

65. Cf. IDEM, *Physics*, IV, 219b9f. Cf. also W. WIELAND, *Die Aristotelische Physik, op. cit.*, p. 299. The centrality of the concept of continuum and the importance of the definition of time as continuum lay the fundaments for the Aristotelian demonstration of the eternity of the world and of the existence of the unmoved mover in the XII Book of the *Metaphysics:* since time is accident of movement and it is impossible that time has a beginning and then an end, since there would be a 'before' the time and an 'after' the time, then also movement will have no beginning and no end, but

ΑΚΑΔΗΜΙΑ ΑΘΗΝΩΝ

Ακαδημία Αθηνών / Academy of Athens

Now, while magnitudes are liable to a relatively easy potential partition, since their constitution is homogeneous and they can be counted in terms of themselves, movements conceived as actualization processes of the mentioned kind cannot be 'counted' in terms of themselves without referring either to magnitude or to time. Now, since we look for a universal measure of time that can be obtained through the measurement of the related movement, local movement is the one change that can be measured without making reference to temporal coordinates: a potential partition of local movement can be obtained by the projection on its continuum of the spatial section deriving from a potential division of the magnitude on which the *phorá* occurs. In this way, the delimited section of magnitude can lend its *proteron* and *hysteron*[66], i.e. its spatial coordinates, to the movement[67] that occurs over it, so that also movement will then have two boundaries (two '*nun*')[68] by which it can be 'counted' in respect to the 'before' and 'after' both in its internal phases and in relation to other local movements. From what has been said, it follows that from the section of movement delimited by the projection of two spatial boundaries on its continuum, time has also been delimited: since time comes to existence whenever a *pheromenon* passes from a first position to a second position over a magnitude, by observing the section of movement delimited by two spatial '*nun*' we realize the elapsing time, i.e. we make a potential partition of its continuum, whose limits will correspond to the boundaries that identify the spatial change. In synthesis, from a first considered local movement, potentially divided by two spatial '*nun*' and countable in respect to spatial *proteron* and *hysteron*, we can detect time considered as that potential partition of its continuum, whose boundaries are expressed by the projection on it of the two different states of the *pheromenon*[69]. On this ground, time becomes a kind of universal unit that can be applied to all other kinds of movements that are not local[70]. Thus, time can be defined as the «number of the motion in respect to 'before' and 'after'»[71].

---

it will be eternal. Thus, in view of the fact that it is absurd to imagine an infinite causal regress, then a final mover must exist that remains unmoved at his turn and that it is the eternal cause of the eternal movement: it is the Aristotelian God as 'thinking on thinking'. Cf. ARISTOTLE, *Metaphysics*, XII, 1071b-1073a, and *Physics*, VIII, 258b10ff. The unmoved mover would express according to Heidegger the culmination of the Aristotelian ontology of 'presence' *(parousia)*, in which the highest being is what is stably present as pure *entelecheia*: cf. M. HEIDEGGER, *Die Grundbegriffe der Aristotelischen Philosophie, GA* 18, *op. cit.*, p. 267.

65. ARISTOTLE, *Physics*, III, 206a25-30.

66. *Ibid.*, 219a14 f.

67. *Ibid.*, 219a17; 223a28.

68. *Ibid.*, 219a30-33.

69. *Ibid.*, 219a26 ff.

70. *Ibid.*, 219a22.

71. *Ibid.*, 219b1. It is fundamental to keep present the distinction made by Aristotle between two

ΑΚΑΔΗΜΙΑ ΑΘΗΝΩΝ

Ακαδημία Αθηνών / Academy of Athens

In the light of these considerations a very fundamental relation seems to hold between magnitude, movement and time[72]. Magnitude plays its main role in local movement, where the spatial transition of a *pheromenon* allows first to speak of motion in terms of *proteron* and *hysteron.* As pointed out at the beginning of the present section, these spatial coordinates are of a basic importance in order to define a temporal phenomenon, since time per se does not have a standard measure, but it must borrow it from a regular local movement, as for example the sand going through the clepsydra or the more universally available motion of the heavenly bodies[73]. Nevertheless, magnitude is a necessary, but not also a sufficient condition for measuring movements in their internal phases and in their mutual relations. Here at stake is the possibility to elaborate a general system of the world, by interpreting temporal relations as signs of objective causal implications. In this sense, while magnitude can provide a universally applicable measure only as far as local movements are concerned, time can offer a universally applicable 'number' that allows to count and to compare all other kinds of movements, such as, for example, the processes of growth and decay, nutrition and sensation of the sublunary beings.

The system of the world that the Aristotelian physics elaborates is based on a comparative understanding of movements[74], for which a universal parameter is required. Time can be this universal 'number' of motion, because what is counted falls under the same description of *kinoumenon*[75]: if we consider as 'number' of motion the course of the sun, then we can say that all sublunary processes can be counted by the corresponding section of time in respect to the 'before' and 'after' in an analogical way, in which a kind applies to all its species[76]. Furthermore, for the universality of time as 'number of motion' it is of the uttermost relevance the fact that only a unique series of time exists: following the irreversibility of physical phenomena, the number of motion provided by time identifies in an unequivocal way the position that a *kinoumenon* holds in the unidirectional temporal succession[77]. At last, the universality of time draws upon the homogeneity and the heterogeneity of its boundaries. On this point, Aristotle says that the '*nun*' has different definition

---

uses of the word 'number': «Time, then, is what is counted, not that with which we count» (219b5-10); cf. *Ibid.,* 220b5-10: «Time is not the number with which we count, but the number of things which are counted». Cf. W. WIELAND, *Die Aristotelische Physik, op. cit.,* p. 279.

72. ARISTOTLE, *Physics,* IV, 219a10-19; 219b15-18.
73. *Ibid.,* 223b12 -224 a2.
74. *Ibid.,* 220b32-221a4.
75. *Ibid.,* 219b5-19 and 220a14-18.
76. *Ibid.,* 224a2-15.
77. *Ibid.,* 223a6 ff.

ΑΚΑΔΗΜΙΑ ΑΘΗΝΩΝ

Ακαδημία Αθηνών / Academy of Athens

according to the position that it takes in the succession, but that it can still be thought of as 'the same' because of its *substratum*[78], i.e. of its being a potential division-point in the continuum of time. The '*nun*' is then a middle-point, so that «in so far then as the 'now' is a boundary, it is not time, but an attribute of it»[79]. The 'now' is 'the link of time', since it connects the 'before' and 'after', and it is also 'a limit of time', since it is the beginning of one and the end of another. So 'now' is potentially dividing time and also termination of its parts and their unity[80]. Therefore, time is always at a beginning and at an end[81], i.e. it is a continuum.

Time is according to Aristotle the cause of decay in the sublunary beings, «since it is the number of change, and changes remove what is. Hence, plainly, things which are always are not, as such, in time; for they are not contained by time, nor is their being measured by time. An indication of this is that none of them is *affected* by time, which shows that they are not in time»[82]. Since time is measure of motion and motion is the main ontological feature of the sublunary beings that, by definition, are *in* time, time is the measure of everything that moves and rests[83]. Time expresses a fundamental ontological feature of the sublunary world, while it remains estrange to the heavenly bodies. In this sense, time is - as accident of the sublunary beings - also a categorial determination of such beings.

3. The experience of time by a counting *nous*. Since time is accident of the movement and it exists only when a change, by which a substance passes from a former state to a further one, is perceived, then time can exist as number of the motion only if this change is first counted in relation to the spatial 'before' and 'after' and if then the projection on time of the spatial boundaries is accomplished. Thus, while magnitude and movement exist per se also without their potential partitions, time 'is' this potential partition, so that its existence depends on the 'author' of its partition. If then nothing but human soul «is qualified to count, it is impossible for there to be time unless there is soul, but only that of which time is an attribute, i.e. *movement* can exist without soul»[84]. Though, as Wieland underlines, we do not deal here with a subjective conception of time[85]. In fact, Aristotle does not say that time is exclusively allocated

---

78.*Ibid.*, 219b10-30.
79.*Ibid.*, 220a20-25.
80.*Ibid.*, 222a15-20.
81.*Ibid.*, 222b1-5.
82. *Ibid.*, 221b1-5.
83. *Ibid.*, 221b10-15; cf. *ibid.*, 221b25-30.
84. *Ibid.*, 223a25-30.
85. Cf. also W. WIELAND, *Die Aristotelische Physik, op. cit.*, p. 316.

ΑΚΑΔΗΜΙΑ ΑΘΗΝΩΝ

Ακαδημία Αθηνών / Academy of Athens

in the soul nor that time is in a very Kantian way the pure form of our perception, by which we order the multiplicity of the sublunary phenomena. Differently from Kant, Aristotle considers the soul as the necessary, but not also sufficient condition for the existence of time. The soul is - as such sublunary being – *in* time. She has a special relation to time because of her liveliness. The soul 'has' time in the sense that by being aware of the succession of her thoughts and by counting all kind of movements she gives a fundamental contribution to time's existence. Though, she can only count movements by making reference to a regular kind of local movement as for example the circular movement of the heavenly bodies[86].

It can be a temptation to suppose that the existence of time depending on a counting *nous* can find its justification in an ontology of the Aristotelian kind, in which the highest ontological being has also the characteristic of thinking[87]. But it remains true that the Aristotelian God does not think of movement and therefore he cannot conceive time. When Aristotle writes in the last lines of his IV Book of *Physics*: «It is also worth considering how time can be related to the soul; and why time is thought to be in everything both in earth and in sea and in heaven»[88], he seems to regard time as the main epistemological key that, by its intrinsic relation to movement, man has at his disposal in order to understand the being of the sublunary world[89].

4. Aristotle and Heidegger: time as access to being in movement. Both Aristotle and Heidegger make of the ordinary understanding of time the main phenomenon from which they start their philosophical accounts of time. For both of them time as it is experienced in quotidian life is the result of a partition of time that makes the world more available. Though, as for Heidegger also for Aristotle the ordinary experience of time does not express its complex nature. While for Heidegger the ontological concept of time is the 'sense' (*der Sinn*) of the being of *Dasein* as 'care', 'project', and 'possibility', so that time is for Heidegger the access to the peculiar 'movement' of *Dasein*, for Aristotle time is an accident of movement and the way by which we have access to all variety of movements and we can establish relations among them, in order to elaborate an articulated and reliable system of the sublunary world. For Aristotle the time

---

86. ARISTOTLE, *Physics,* IV, 223b10-25.

87. On this point, see GEORG PICHT, *Aristoteles,* De anima, *op. cit.*, pp. 163 ff.

88. ARISTOTLE, *Physics,* IV, 223a16 ff.

89. Cf. M. HEIDEGGER, *Grundbegriffe der Aristotelischen Philosophie, GA* 18, *op. cit.*, p. 273 and p. 287. For a retrospective analysis of the main theories elaborated on the relation existing between time and soul, cf. FRANCO VOLPI, Chronos und Psyche. Die Aristotelische Aporie von Physik IV, 14, 223a16-29, in: *Zeit, Bewegung, Handlung. Studien zur Zeitabhandlung des Aristoteles, op. cit.*, pp. 26-62.

ΑΚΑΔΗΜΙΑ ΑΘΗΝΩΝ

Ακαδημία Αθηνών / Academy of Athens

outlined by the position of two or more 'nun' allows the access to a complex ontological structure, in which beings with their changes are connected to each other in a strict causal determinism. The system of the world we possess is the outcome of man's capability to conceive and to make use of time. In this sense, as for Heidegger temporality is the fundament of ordinary time, so the epistemological use of time is for Aristotle the precondition for having a world at all, in which man can then display his activities. Thus, the Aristotelian understanding of *chronos* is much different from the Heideggerian interpretation of it as stable 'present', that allows human Dasein to have access to its daily occupations. As we have seen, the '*nun*' cannot be understood as a stable present, since this would contradict its definition as continuum[90]. The '*nun*' is a very formal concept that is not meant to indicate just the temporal predication of a being-in-movement, but furthermore to express the *einai* of the *phero-menon* in its different phases of movement. The '*nun*' cannot be considered as a part of time, but neither we must understand the present as something that undergoes a corruption when the future comes to be: this interpretation would make of time something that is certainly not, i.e. a *tode* it, instead of an accident of it.

The core of the Aristotelian analysis of time seems to ask for the way in which man can elaborate a complex system of the world, that allows him to understand it according to causes and principles. The answer should be that man, through time, can have access to the world thought of as a complex system of comparable movements that are so liable to mutual connections and general causal explanations. The 'number' that man uses to count and compare movements is noetic[91]: the Aristotelian concept of time is an operative one, that occurs together with our system of world. This concept of time is the indispensable presupposition for the existence of a world at all, where the vulgar conception of time as *jetzt* can then play its secondary legitimate role.

F. FILIPPI
(Freiburg i. Br.)

90. ARISTOTLE, *Physics*, IV, 222a12.
91. IDEM, *Physics*, IV, 223a25f.

ΑΚΑΔΗΜΙΑ ΑΘΗΝΩΝ

Ακαδημία Αθηνών / Academy of Athens

Η ΕΝΝΟΙΑ ΤΟΥ ΧΡΟΝΟΥ ΠΑΡ' ΑΡΙΣΤΟΤΕΛΕΙ ΚΑΙ Η ΠΡΟΣΒΑΣΗ ΣΤΟ ΟΝ ΩΣ *ΚΑΘ' ΑΥΤΟ ΚΙΝΗΣΙΣ*

Π ε ρ ί λ η ψ η

Ἡ ὀντολογικὴ δομὴ τοῦ χρόνου συνιστᾶ ἕνα ἀπὸ τὰ πλέον σημαντικὰ προβλήματα στὸ πεδίο τῆς δυτικῆς διανόησης. Οἱ προσπάθειες ποὺ κατεβλήθησαν πρὸς ἐπίλυσή του ἀπὸ τὸν Ἀριστοτέλη χρήζουν ἰδιαίτερης προσοχῆς, δοθέντος ὅτι ὅλες οἱ μετέπειτα ἔρευνες ἐπὶ τοῦ φαινομένου τοῦ χρόνου ἔχουν ἀντλήσει, ὡς ἐπὶ τῷ πλεῖστον, ἀπὸ τὴ δική του προσέγγιση ἐπὶ τοῦ θέματος. Ἰδιαίτερα ὁ Martin Heidegger, μετὰ τὸν Hegel, ἐπεδείξατο βαθιὰ γνώση τῆς ἀριστοτελικῆς φύσεως στὴ δυτικὴ διανόηση. Ἰδιαίτερα, ἡ ἀριστοτελικὴ ἀντίληψη τοῦ χρόνου, ἐπηρέασε σὲ τέτοιο βαθμὸ τὴν μετέπειτα φιλοσοφία ὥστε νὰ μὴν παρουσιαστεῖ καμία πρωτότυπη ἑρμηνεία ἐπὶ τοῦ φαινομένου. Ἀπὸ τὴ μιὰ πλευρὰ ὁ Heidegger ἀναγνωρίζει ὅτι ὁ Ἀριστοτέλης ἔφερε στὸ φῶς τὴν προ-ὀντολογικὴ ἀντίληψη τοῦ ὄντος ἀνάγοντάς την στὸ ἀξίωμα τῆς ἔννοιας, ἀλλὰ ἀπὸ τὴν ἄλλη, τοῦ καταλογίζει τὸ γεγονὸς ὅτι δὲν κατάφερε νὰ ὑπερπηδήσει τὸ ἐμπόδιο μιᾶς σοφιστικιστικῆς φαινομενολογίας τῆς καθημερινότητας.

Κατὰ τὸν Heidegger, πράγματι, ἡ καθημερινότητα κυριαρχεῖται ἀπὸ τὴν ἐνασχόληση μὲ τὸν περιβάλλοντα κόσμο καὶ ἀπὸ τὴν ἐνασχόληση μὲ τοὺς ἄλλους. Τέτοιου εἴδους ἐνασχόληση ἐνεργοποιεῖται στὸ πεδίο τῶν κοσμικῶν προσλήψεων καὶ κυριαρχεῖται ἀπὸ τὸ χρονικὸ σχῆμα τοῦ παρόντος. Ὅμως, ἡ ἀριστοτελικὴ ὀντολογία, ἡ ὁποία στηρίζεται στὴν ἔννοια τῆς *ἐνέργειας*, εἶναι ἀκριβῶς ἡ φιλοσοφικὴ ἀντανάκλαση αὐτῆς τῆς γνήσιας ἀντίληψης τοῦ ὄντος καὶ ἐξ αἰτίας αὐτῆς τῆς ἀντίληψης δὲ δύναται νὰ συλλαμβάνει τὸ φαινόμενο τοῦ χρόνου παρὰ μόνο ὡς ἀτέρμονα ἐνναλλαγὴ τοῦ «τώρα». Ὁ συνήθης χρόνος, ἀντίθετα, ἀποτελεῖ κατὰ τὸν Heidegger, τὴν ἁπλὴ ἐμφάνιση τοῦ πλέον συνήθους φαινομένου τῆς χρονικότητος, τὸ ὁποῖο συμπίπτει μὲ τὴν ἴδια ὀντολογικὴ δομὴ τοῦ Εἶναι.

Ἡ παροῦσα μελέτη, ἀποπειρᾶται νὰ φέρει σὲ μία ἐποικοδομητικὴ ἀντιπαράθεση τὸν Heidegger καὶ τὸν Ἀριστοτέλη, κάνοντας χρήση τῶν χαϊντεγγεριανῶν κριτικῶν ὡς ἀποδοτικοῦ εὑρηματικοῦ μέσου. Θὰ μελετηθεῖ ὁ Ἀριστοτέλης ὑπὸ τὸ φῶς τῶν ἑρμηνειῶν τοῦ Heidegger, προκειμένου νὰ ἀντλήσουμε ὅ,τι στὴν φιλοσοφία του παρέμεινε στὴ σκιά, μὲ σκοπὸ νὰ χρησιμοποιήσουμε ἀκολούθως ὅ,τι ἔχουμε ἐντοπίσει, ὥστε νὰ ἀνακαλέσουμε, ἔστω ἐν μέρει, τὴν ἐγκυρότητα καὶ τὴν εὐκρίνεια τῶν κριτικῶν ποὺ διετυπώθησαν ἐναντίον τοῦ Ἀριστοτέλη ἀπὸ τὸν Γερμανὸ φιλόσοφο.

Στὸ παρὸν ἄρθρο, αὐτὴ ἡ ἑρμηνευτικὴ μέθοδος ἐφαρμόστηκε στὸ πρόβλημα τοῦ χρόνου στὸν Ἀριστοτέλη, γιὰ τὸν ὁποῖο ἡ ἔννοια αὐτὴ φαίνεται νὰ κατέχει ἕνα ὀντολογικὸ εὖρος μεγαλύτερο σὲ σχέση μὲ ἐκεῖνο τὸ ὁποῖο κατέχεται ἀπὸ μιὰ φαινομενολογία τῆς συνήθους ἀντιλήψεως τοῦ χρόνου.

F. FILIPPI
(μτφρ. Μ. ΠΡΩΤΟΠΑΠΑ-ΜΑΡΝΕΛΗ)

ΑΚΑΔΗΜΙΑ ΑΘΗΝΩΝ