ARISTOTLE

ON COMING-TO-BE AND PASSING-AWAY (*DE GENERATIONE ET CORRUPTIONE*) SOME COMMENTS WITH REFERENCE TO BYZANTINE COMMENTATORS

Introduction

Creation, in the Christian sense of a free creation, could have had no interest for the First Philosophy, even had Aristotle believed it as a religious dogma. It would not have been reducible to a form, it would have been *per accident* and so outside the scope of science. A fundamentally new metaphysics would then be required, if it were to have a place in philosophy[1]. In a Christian context the creation freed from any empirical and spatial representation, is interpreted according to a deeper ontological relationship, in a Plotinian motif, transmitted by Dionysius the Areopagite: «all things are beings through the One» *(τῷ εἶναι τὸ ἓν πάντα ἐστὶ τὰ ὄντα)*[2]. These beings, according to Aristotle, require a first and unchangeable Mover to account for their existence, which in the *Metaphysics* functions only as a Final Cause[3].

Recent studies on the philosophy of Aristotle have drawn attention to the complex problems concerning the interpretation of concepts such as *genesis* (generation, coming-to-be) and *phthora* (passing-away, corruption), within the objects of the entire universe[4]. The full exploration of these broad

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1. Cf. J. OWENS, *The Doctrine of Being in the Aristotelian Metaphysics*, Toronto, 1978², pp. 464 ff; A.H. ARMSTRONG (ed), *The Cambridge History of Later Greek and Early Medieval Philosophy*, Cambridge U.P., 1967, pp. 402, 432; R.T. WALLIS, *Neoplatonism*, London, Duckworth, 1972, pp. 143, 164, 168.

2. Cf. DIONYSIUS AREOPAGITA, *De Divinis Nominibus*, 13, 2: *PG* 3, 977 c; cf. 3: 980 b: «εἰ ἀνέλοις τὸ ἕν, οὔτε ὁλότης οὔτε μόριον οὔτε ἄλλο οὐδὲν τῶν ὄντων ἔσται»; E.R. DODDS (ed), *Proclus, The Elements of Theology*, Oxford, 1963, p. 188; ATH. ANGELOU (ed), *Nicholas of Methone. Refutation of Proclus' Elements of Theology*, Athens - Leiden, Brill, 1984, pp. 5 ff.

3. W.K.C. GUTHRIE, *A History of Greek Philosophy, Vol. VI: Aristotle an encounter*, Cambridge, U.P., 1981, pp. 106-129, 223-242.

4. Cf. C.J.F. WILLIAMS, *Aristotle's De Generatione et Corruptione*, Oxford, Clarendon Press, 1985², pp. 8 ff; H. JOACHIM, *Aristotle, On Coming-to-be and Passing-away (De Generatione et Corruptione)* Oxford, Clarendon Press, 1922, *Introd.* pp. xiii ff.

topics, especially in the light of Aristotle's doctrine on nature and the contemporary theories of the science of nature, falls outside the scope of this essay. I simply intend here to study certain Aristotelian doctrines on the subject and to elaborate on relevant commentaries and criticism produced by thinkers such as John Philoponus, John of Damascus, Michael Psellos and John Italos. Despite opposite views which hold that Greek Philosophy ended with Aristotle, I think that the philosophical tradition of the Byzantines should be considered as the natural extension of the Greek Philosophy, started from 500 B.C.[5]. It is the period of the Byzantine era that I want to present as a philosophical one. I therefore recommend that it could be studied by philosophers — not indeed instead of the early period or the following centuries, but as well. In fact the study of Plato, Aristotle and the Neoplatonists, marks the eleventh century byzantine renaissance of letters, which is widely regarded as the turning point in the history of ideas. The existing Mss tradition reveals the special interest of the byzantine scholars in Aristotle. Yet the Aristotelian terminology has survived in their writings, such as *change* (*μεταβολή*), which is divided into *genesis* (*γένεσις*), *phthora* (*φθορά*) and motion (*κίνησις*), and furthermore into *alteration* (*ἀλλοίωσις*), *decay* (*ἀποσύνθεσις*), *diminution* (*φθίσις*), and *locomotion* (*φορά*)[6].

Concerning John Philoponus' Commentaries on Aristotle, I would notice the brilliant work: *Philoponus and the rejection of the Aristotelian science*, edited by R. Sorabji (London, 1987). As regards John of Damascus, he is held to be the last of the Great Fathers of the Church and the first of the byzantine philosophers. He was a faithful student of Aristotle and his work, entitled *Dialectica*, provides useful elaborations on certain Aristotelian concepts concerning the problem of coming-to-be and passing-away[7]. Michael Psellos is the leading figure of the eleventh century philosophical revival. His most distinguished student and successor at the University of Constantinople John Italos deserves the title of pure philosopher, and his criticism opens new ways of interpreting basic philosophical concepts[8].

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5. Cf. D.W. HAMLYN, «Greek Philosophy after Aristotle», in D.J. O'CONNOR (ed.), *A Critical History of Western Philosophy*, London, 1964, pp. 78 ff.

6. Cf. E. MOUTSOPOULOS, «Byzance et l'hellénisme médiéval», in *Bulletin de l'Association G. Budé*, 1960, pp. 389-96; IDEM, «Arts libéraux et philosophie à Byzance», in *Actes du IVe Congrés International de Philosophie Mediévale*, Montréal, 1967, pp. 79-88; IDEM, «Platon et la philosophie byzantine», in *Bulletin de l'Association des etudes byzantine*, 67, 1969-70, pp. 76-84.

7. J. DANASCENUS, *Dialectica*, in *Die schriften des Johannes von Damascus, II Capita Philosophica*, ed. B. KOTTER, *Patristische Texte und Studien*, Berlin 1969.

8. M. PSELLOS, *De Omnifaria Doctrina, Critical Text and Introduction*, ed. L. WESTERINK, Utrecht, 1949; J. ITALOS, *Quaestiones Quodlibetales*, ed. P. IOANNOU, Ettal, 1956.

Chapter I. Genesis as coming-to-be

The term *genesis* and the complementary concept of perishing (*ὄλεθρος*) were the most important implements of physical thought, whose use Parmenides had vetoed, but they were not the only ones. If *being* can only 'be', but not come *into being*, it cannot grow either. It can have neither past nor future, i.e. no temporal beginning or end. The demonstration that *being* is *unbegotten* (*ἀγέννητον*) and imperishable (*ἀνώλεθρον*), extends from fr. B 8, 5: *being was not once* (not being now) *nor will be* (not being now), *since it is at present all together*, to fr. B 8, 21, while the content of fr. B 8, 22-25 is not presupposed by the demonstration that *Being is without beginning or end*. Parmenides holds that «what is out of what is not», is nothing by the vigorous assertion that «what is not, cannot even be mentioned», and then, follows this, with the argument that «what is not» can generate *nothing* by itself[9]. In fact, *ex nihilo nihil fit*, was an axiom of Greek thought, and Aristotle himself stated that «generation from non-existent is impossible; in this opinion, all the natural philosophers concur. Simplicius, the commentator of Aristotle, points out that «true being is not generated, neither from the non-existing for not existing thing prededed it, nor from the non-existent because the non-existent is nothing. There is also evidence, preserved by Photius, according to which the Nous, as the creator, is described as having created, both the intelligible and the sensible worlds out of nothing — a doctrine unique in all pagan Greek Philosophy, which Hierocles ascribes not merely to both Plato and Aristotle, but apparently to Neoplatonists down to Plutarch of Athens[10].

The whole problem is further faced by Plato, when he distinguishes between sensible and intelligible, time and eternity, because the eternal appearing to be a separate category from everlasting set the Nous in time. In connection with the eternity of the world, Plato tends to accept a *simple genesis*, which is a rather ontological than a physical process. Thus, in this context, genesis does not seem to need an equally simple counterpart. Passing-away may be left to the ordinary mechanical processes, which can

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9. Cf. D. FURLEY, *The Greek Cosmologists, I: The formation of the atomic theory and its earliest critics*, Cambridge, U.P., 1987, pp. 49-57; L. TARAN, *Parmanides, A Text with Translation Commentary and Critical Essays*, Princeton, U.P., 1965, p. 82.

10. Cf. J. PHILOPONUS, *In Physics*, p. 189, 10-26; AMMONIUS, ap. SIMPLICIUS, In *Physics*, p. 1363, 16-25; SIMPLICIUS, *op. cit.*, p. 256, 16-25; H.J. BLUMENTHAL, «John Philoponus and Stephanus of Alexandria: two Neoplatonic Commentators on Aristotle?», in D.J. O'MEARA (ed.), *Neoplatonism and Christian Thought*, Norfolk, Virginia, 1982, pp. 58-60.

adequately account for it[11]. In *Timaeus* (52 a) Plato gives a metaphysical account of *corruption* in the essence in which he gives one of *genesis*. In fact, do the forms cause corruption, as they cause genesis? Hardly! Or, does one miss «passing-away», when Plato sums up? In fact, careful interpretation of the *Parmenides* (156 a 4) reveals Plato's distinction between: simple genesis and genesis by association and dissociation, i.e. «to become, is to acquire a share in being; to pass-away, is to lose being. Getting a share of being, implies letting go of being, since one is. To claim that a thing that *both is and is not*, comes to be, is equivalent to claiming that it perishes»[12]. In *Timaeus* (56 c 8 - 57 c 6) Plato argues that genesis and corruption of an entity occur when the elements break up and their parts recombine into the basic particles of another element. It is noteworthy that when Aristotle writes against Plato's conception of genesis, he concentrates his fire on the construction of the elements out of individual triangles[13]. But in Plato's *Phaedo* there is an element, as the unique example of Aristotle's own theory of *genesis*. In fact Plato insists that the four Empedoclean elements are not irreducible elements; since they are constantly changing, they are really qualities, even though, on the noetic level, they are forms, of these elements. Thus, for Empedocles and Anaxagoras the monistic view of Parmenides is not valid any more, because the doctrine of «opposites» attempts to restore a secondary *genesis* in terms of the interplay of these opposite qualities or elements[14]. It is evident that simple genesis (coming-to-be from non-being) is for the time being unthinkable, but by resorting to certain degrees of mixture (*μῖξις*) and association (*σύγκρισις*), compound bodies could come into being. Absolute genesis is out of the question and Anaxagoras states that nothing can proceed from nothing and so everything that seems to become something else must have been that something else to begin with. In Anaxagoras Genesis begins from a kind of mixture, whose ingredients are imperceptible and infinite in number[15]. In fr. 11 Anaxagoras excludes *nous*

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11. Fr. SOLMSEN, *Aristotle's System of the Physical World: A comparison with his predecessors*, Cornell, U.P., 1960, pp. 20 ff, cf. W.D. ROOS, *Plato's Theory of Ideas*, Oxford, 1949, pp. 248 ff.

12. ARISTOTLE, *Physics* E 2, 226 a 7-10; cf. R.E. ALLEN, *Plato's Parmenides, Translation and Analysis*, Oxford, Blackwell, 1983, pp. 262 ff, and note 205.

13. Cf. PLATO, *Timaeus* 38 c 2-3; 37 e-38 a. The creation of the world in the *Timaeus* was meant only διδασκαλίας χάριν; cf. also Aristotle's refutation in *De Caelo* 279 b 17 - 280 a 10; Simplicius, *In De Caelo*, p. 303, 33-34.

14. Cf. A. EHRHARDT, *The Beginning*, Manchester, U.P., Univ. Press, 1968, pp. 69 ff; cf. also SIMPLICIUS, *In Physics*, p. 257, 1 ff.

15. Cf. ANAXAGORAS, *fr.* 12 (D-K).

that is external to the system. Accordingly there is no such thing as *genesis* and *phthora* but only aggregation (*σύγκρισις*) and separation (*ἀπόκρισις*), which is possible only through the special arrangement of preexistent matter. The beginning of genesis depends on the principle of a primordial mixture; its ingredients are imperceptible and are infinite in number (fr. 1). It is evident that this principle of mixture remains unmoved, clasped in a Parmenidean death grip. The motion comes from outside, a similar case appears in Empedocles, and is supplied by *Nous*, which in fact causes all kinds of mixture to rotate. The speed of the rotation results in the division and final separation of the «seeds», which are qualitatively different[16]. Following to this by aggregation these are formed into compound bodies wherein predominate one or other of the actual types of «seed». Aristotle considers the fragments of Anaxagoras dealing with the condition of things when all were together[17]. It seems possible that Anaxagoras thought of the homoiomeres as formed by union of particular substances characterized by these contrary qualities, so that the latter are the fundamental elements in his whole picture of the entire universe. Zeller[18] appears to support the view that the mode of reference to the «τὸ γίγνεσθαι τοιόνδε καθέστηκεν ἀλλοιοῦσθαι», is contained in fr. 17: «τὸ δὲ γίνεσθαι καὶ ἀπόλλυσθαι οὐκ ὀρθῶς νομίζουσιν οἱ Ἕλληνες· οὐδὲν γὰρ χρῆμα γίνεται οὐδὲ ἀπόλλυται ἀλλ' ἀπὸ ἐόντων χρημάτων συμμίσγεταί τε καὶ διακρίνεται. καὶ οὕτως ἂν ὀρθῶς καλοῖεν τὸ τε γίνεσθαι συμμίσγεσθαι καὶ τὸ ἀπόλλυσθαι διακρίνεσθαι»[19]. It is certain that Aristotle did not have in mind this passage of Anaxagoras, for he insists that Anaxagoras identified *γένεσις* with *ἀλλοίωσις*; this view definitely implies the existence of a single underlying matter[20]. In fact Anaxagoras identifies *γένεσις* with *σύγκρισις*, and *φθορὰ* with *διάκρισις*. In a further attempt to clarify the actual fact of *γένεσις* Aristotle adopts the supposition that there are two kinds of seed (*σπέρμα*), which he calls *ὁμοιομερῆ* and *ἐναντία* respectively[21]. These homoiomerous are formed by union of certain substances characterized by these contrary qualities, so that the latter are the fundamental elements in his picture of the world. D. Ross

16. Th. VEIKOS, *The Presocratics* (in Greek), Athens, Zacharopoulos, 1988, pp. 253 ff.

17. ANAXAGORAS, *fr.* 12; ARISTOTLE, *Physics* A 1, 187 a 15 ff.

18. Cf. E. ZELLER, I[6], 1202 n. 1.

19. Cf. SIMPLICIUS, *In Physics*, p. 163, 20.

20. D. ROSS, *Aristotle's Physics. A revised Text with Introduction and Comentary*, Oxford, Claredon Press, 1966, p. 484.

21. ARISTOTLE, *Physics* A 4, 188 a 28-31; D. ROSS, *Aristotle's Metaphysics* I, *op.cit.*, p. 132 (A3, 984 a 13-16); cf. G. KIRK - J. RAVEN - M. SCHOFIELD, *The Presocratic Philosophers. A Critical History with a Selection of Texts*, Cambridge, U.P., 1983[2], pp. 358-59.

examines the above interpretation of Aristotle and states that the Stagirite appears to be right in calling attention to Anaxagoras' continuous reference to pairs of opposites and adds that this view is widely open to criticism concerning his interpretation of the opposites and the complex bodies resulting from the union of the contraries[22].

The actual process of genesis is further studied by the Atomists who by eliminating the powers (*δυνάμεις*) gradually simplified the operation of unifying together the atoma. Their collision is the result of the existing eternal motion which leads them to the composition of the perceptible bodies by contact (*ἀφή*)[23]. This interpretation of genesis of bodies by association reappears in Epicureanism, where there is an attempt to explain the three states of matter in terms of density expressed in the distance between the atoms in the «association»[24].

It is Aristotle's contention that Parmenides's views on «non being» had frightened his successors off the subject of the *genesis* and into reducing all becoming to either qualitative change (*ἀλλοίωσις*) or merely, shifting around the ingredients[25]. Aristotle argues that the elements are the ultimate irreducible bodies, out of which all things are made and insists that these elements interchange themselves continuously. *Genesis* is a real fact! Thus the Parmenidean *knot is cut* by an explanation of the peculiar nature of the non-being involved in *genesis*, it is not absolute non-being, but privation. This provides the final piece in the whole puzzle of coming-to-be[26]. Therefore *genesis* is possible, because the elements have their own principles, i.e. a material undefined substratum, common to them all, perceptible qualities and the privation of the opposed qualities. *Genesis* is thus defined as: *passage to the opposite*[27]. This Aristotelian statement refers back to Plato

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22. Cf. SIMPLICIUS, *In Physics*, p. 1051, 16-23; Aristotle, *Physics* G 4, 203 a 21 ff; D. ROSS, *op.cit.*, pp. 545-46. Aristotle's assignment of wetness to air rather than to water is counterintuitive, and is also, according to Joachim (Aristotle on *coming-to-be and passing-away*, Oxford, 1922, pp. 218 ff.), contrary to Aristotle's doctrine in the *Meteorologica* Δ 4, 382 a 3-4.

23. G. KIRK - J. RAVEN - M. SCHOFIELD, *op.cit.*, p. 425; H. CHERNISS, *Aristotle's Criticism of Presocratic Philosophy*, Baltimore, 1944, p. 290.

24. Cf. N. WENTWORTH DE WITT, *Epicurus and his Philosophy*, Minneapolis, University of Minnesota ı ress, 1964², pp. 160, 256.

25. ARISTOTLE, *Physics* A 3, 187a 1-10; *De Generatione et Corruptione* A 1-2; H. JOACHIM, *Aristotle on coming-to-be and passing-away, op.cit.*, pp. 62 ff.

26. ARISTOTLE, *De Generatione et Corruptione* (*G.C.*) A 2, 317 a 28 ff; B 10, 337 a 1-10; H. JOACHIM, *op.cit.*, pp. 86-87, 268-69.

27. ARISTOTLE, *Physics* A 7, 190 a - 192 a; *De G.C.* A 6, 323 a, A 10, 328 b - B 4 331 a; cf. W.J. VERDENIUS - J.H. WASZINGK, *Aristotle on coming-to-be and passing-away. Some comments*, Leiden, Brill, 1968, pp. 34 ff.

who is nearer to the Presocratic association and dissociation than one might expect after his continuous reaffirmation of *genesis*. Thus *genesis* and *phthora* of an entity occur when the elements break up and their parts come together again into the particles of a different element[28]. But Aristotle immediately ruled out this interpretation of *genesis* and stressed the errors of the above theory. Instead he introduced the view that *genesis* must have the character of an intrinsic and organic tranformation, because, as Solmsen rightly points out, what really happens is a qualitative change within the substance. Obviously mechanical composition, association, or any kind of addition could not exert any affection on the substance[29].

In *Physics* (A 7, 190 a 3 ff.) Aristotle explores genesis as 'what it becomes', in the sense that not only 'this becomes so-and-so' but also 'from this, so-and-so comes into being'. The subject undergoing *genesis* has its form as well as its matter, and when either of them really changes, then it is correct to speak of coming into being and passing away. Any other changes are of minor importance and should never be confused with the basic event[30]. Although Plato distinguishes between *genesis* and association (*σύγκρισις*), for Aristotle neither of them can be considered legitimate species of the genus change. Simplicius seems right to oppose all those who made synkrisis and diakrisis the basic principles of all locomotion and of all change, because, according to Aristotle, they are not even a separate kind of change[31].

To Aristotle the concept of *genesis* could be either one of the movements or something different, and *sui generis*. He regards *genesis* as one of the species of movement and gives it a place beside the other three — alteration, growth and decrease. But if *genesis* is a kind of aggregation, many difficulties arise, and there are certain compelling arguments to prove that *genesis* cannot be anything else. Although Plato nowhere outlines the basic errors of the «associanists», he had done much to declare their limitations. In fact the concept of an organic whole which emerges in Pato is by Aristotle played off against *genesis* by association[32].

The arguments of Aristotle against Plato's conception of *genesis* refer to the constraction of elements out of «indivisible» triangles. In the *Physics* Aristotle contrasts his own theory on hylomorphism and privation with the Platonic principles, i.e., the Forms and the Great and the Small[33]. No doubt

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28. Cf. PLATO, *Timaeus* 56 c 8 - 57 c 6; 58 a-c.
29. Cf. Fr. SOLMSEN, *op.cit.*, pp. 322 ff.
30. *Ibid.*, p. 323, and note 10; cf. D. ROSS, *op.cit.*, p. 492.
31. Cf. ARISTOTLE, *Physics* H 2, 243 b 11; SIMPLICIUS, *In Physics*, p. 1051, 16-23.
32. ARISTOTLE, *De G.C.* A 2, 317 a 20-22; Fr. SOLMSEN, *op.cit.*, p. 324.
33. Cf. ARISTOTLE, *Physics* A 9, 192 a 1-25; cf. Plato, *Sophistes* 254 d.

Aristotle's formless matter and Form are further «developments» of the indeterminate receptacle (*χώρα, ὑποδοχή*) and the Platonic Forms[34]. It is certain that this notion of receptacle includes the germ of the Aristotelian doctrine that something completely devoid of any kind of form and specific quality underlines the actual process of *genesis*. This fact has made it possible for him to overcome certain difficulties concerning the mechanical theories of a coming to be by coalescence. I think that Plato's theory of the construction of the elementary particles out of indivisible «triangles» aims at the approach to becoming from a different point of view. Thus Aristotle attacks Plato's mathematical doctrine of *genesis*, because it is unsuitable for accounting for physical qualities[35], although he makes reference to the *Timaeus*, especially when he examines the problem of the substratum needed for the origin of the elements. In *De Caelo* (B, 1, 329 a 15-24), Aristotle criticizes several of Plato's arguments and especially in a 23 he adds *καὶ τὴν ὕλην τὴν πρώτην*, mainly because Plato's *τιθήνη* or *ὑποδοχὴ* fulfils in the *Timaeus* a function analogous to that of first matter (*πρώτην ὕλην*) in the Stagirite's theory of the *genesis* of the perceptible things[36]. Plato was right in making the receptacle shapeless and entirely devoid of Form, because it will be best for modelling, i.e., for receiving Form[37]. Here Aristotle recognises his debt to Plato, but he does not hesitate to stricture his predecessor's theory and nearly accuses him for failing to avoid the mistake of the Presocratics, who considered their first principle as an absolutely separate entity. In addition to this, Plato is condemned by Aristotle for neglecting the receptacle as the source of the construction of the elements; instead he composes them out of triangles and certainly «it is impossible for the nurse and primary matter to be identical with the triangles[38]». Plato's doctrine of the *Timaeus* covers the gap between

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34. PLATO, *Timaeus* 52 b; Plato's χώρα (*Timaeus* 48 e-50 d) is a substratum but not as real principle in things, nor as matter; it is a kind of space, wherein coming-to-be happens to take place. So, Aristotle does not introduce a second principle next to Plato's principle of the Great and the Small; instead he introduces two different principles.

35. Cf. ARISTOTLE, *De Caelo* A 2, 316 a 4 ff; Fr. SOLMSEN, *op.cit.*, p. 325.

36. Cf. H. JOACHIM, *op.cit.*, pp. 194 ff; W. VERDENIUS - J. WASZINGK, *op.cit.*, pp. 51-52; C. WILLIAMS, *op.cit.*, pp. 154-155.

37. Cf. ARISTOTLE, *De Caelo* Γ 8, 306 b 18 ff.

38. *Ibid.* Γ 7, 306 a 21-29; *Physics* Δ 2, 209 b 11; A 9, 191 b 35 ff; cf. H.G. GADAMER, *The Idea of the Good in Platonic-Aristotelian Philosophy tr. with an Introduction and annotation* by P.C. SMITH, New Haven, Yale U.P. 1986, passim. Plato in his lecture «On the Good» designated the Great and the Small as *τόπος* or *χώρα*. In *Physics*, Δ1, 209 b Aristotle states that although Plato in his «Unritten Doctrines» gave an account of the 'participant' (*μεταληπτικόν*) which differs from the *Timaeus* «ὅμως καὶ τὴν χώραν τὸ αὐτὸ ἀπεφήνατο». Philiponus and Themistius understand an identification of *ὕλη* and *τόπος*; cf. A.E. TAYLOR, *A Commentary of Plato's Timaeus*, Oxford, U.P., p. 668. For this identification of Plato's *χώρα* with his own *ὕλη* Aristotle

the Presocratics and Aristotle. The latter starts from Plato's rehabilitation of *genesis* and proceeds to the establishment of *genesis*, yet in a different sense, i.e., to make clear the difference between *genesis itself* on the one hand and qualitative change on the other[39].

The *genesis itself* remains the main subject of Aristotle's theory on becoming. He argues that if *genesis* is the way from not-being to being, it cannot be movement, because «not being cannot be moved». Thus *genesis* is the destruction of not-being; destruction is the *genesis* of not-being[40]. Commenting on this John Italos, the eleventh century Byzantine philosopher, argues that motion proceeds from a *form* to an opposite *form*, while *genesis* occurs from *matter* towards *form*, including the activity of motion[41]. If *genesis*, he asks, proceeds from matter, motion then, cannot move always from *form* to an opposite *form*. When this happens, matter is moved in a twofold motion: a) simple, and b) complex. The latter applies to plants, animals etc., while the former creates a circle or a straight line. Yet, a circle would be defined as heaven and a line as one of the cosmic elements without matter[42]. In fact formless matter cannot move, as there is no form to which motion proceeds, because there is nothing in the becoming from matter to form[43]. These arguments of Italos against Aristotle's theories could be understood better if we take into account that, for Aristotle, *genesis* must have the character of an entirely intrinsic and organic transformation, for it works a change in the actual substance. Mechanical composition, addition and association, could not affect the substance. Thus, a thing which is to be transformed into another thing must possess not only the quality which determines this transformation, but in a degree, also in the contrary, the actual quality, which determines this transformation. Hence, every element potentially possesses the contraries of its own qualities. It is obvious, that *genesis* takes place between the contraries, like white and non-white, and that one of these contraries was the negation of the other; thus, non-being, with reference to it, i.e. a relative non-being. Indeed, for Aristotle *genesis*, the destruction of non-being, is in itself the destruction by which things do

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has often been criticized; cf. H. CHERNISS, *The Riddle of the Early Academy*, Berkeley and Los Angeles, 1945, pp. 16 ff.

39. ARISTOTLE, *De G.C.*, A 2, 315 a 26 ff; cf. PLATO, *Timaeus* 52 d; C. WILLIAMS, *op. cit.*, pp. 63 ff; W.K. GUTHRIE, *A History of Greek Philosophy II, The Presocratic Tradition from Parmenides to Democritus*, Cambridge U.P. 1974, pp. 454-465.

40. ARISTOTLE, *De G.C.* A 3, 319 a 28 ff; A 2, 317 a 32; H. JOACHIM, *op.cit.*, pp. 89, 104.

41. J. ITALOS, *op.cit.*, p. 148, 6-10; 85, 16 ff; cf. PLATO, *Republic* VI 493 b.

42. J. ITALOS, *op.cit.*, p. 148, 11-13.

43. *Ibid.*, p. 148, 18 ff; 86, 19 ff.

come into being by emerging from non-being, and Parmenides' veto could not be violated more flagrantly. No doubt this leads us to see how Aristotle thought of it as the type of *absolute genesis*, i.e., *genesis* deprived of any additional elements and qualifications[44].

To Aristotle the *genesis* of a thing from not-being is a necessary assumption, because the *genesis* always happens between the contraries like white and non-white, each of them containing the negation of the other and thus not-being with reference to it, i.e., a relative not-being[45]. In fact the above mentioned query of Italos concerning the relation of non-being with the realm of substances remains unanswered in the *Physics* and the *genesis* out of not-being requires more clarification since for Aristotle absolute *genesis* is merely the genesis of substances and not of other elements of qualities or quantities[46]. In de *Generatione et Corruptione* (A, 3, 317 b 18 ff) Aristotle discusses the problem of *simple genesis* precisely because of the vagueness of the 'concise restatement' in 317 b 14-18. In fact the whole problem is centred in the question whether the basis of the *genesis* is the proximate matter or the prime matter. In the former case the proximate matter is itself already formed-matter, i.e., a substance, while in the latter the prime matter confronts us with serious problems. In the *simple genesis*, as Aristotle thinks of it, genesis of an *οὐσία* (or *εἰς οὐσίαν*) and *genesis* out of not-being coincide[47]. Aristotle believes that *ex nihilo nihil fit*. Thus the difference between *γένεσίς τις* and *γένεσις ἁπλῆ* is more of a substance which persists through the change and in the second (simple genesis) is only matter incapable of existing without the element of form. In *simple genesis*, Aristotle states, a substance becomes mainly out of a state in which the substance simply was not, while in *genesis* a substance which already was in a different status receives now a brand new qualification[48]; this theory, that genesis is only *per accidents* from not-being, does not reappear in the argumentation of de *Generatione et Corruptione*; instead Aristotle discusses «potential being» in 317 b 19-33, a premiss without certain purposes. It is quite impossible for elements to arise from «potential being» and consequently pass-away into it. Thus what kind of being should one assign to such «potential being» which in some way must be not-being? In this case what is necessary is prime matter which never exists by itself as well as another

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44. Cf. R.E. ALLEN, *op.cit.*, pp. 261, 284-86.

45. Cf. ARISTOTLE, *Physics* A 6-9, 189 b - 192 a; cf. J. ITALOS *op.cit.*, pp. 119, 251 ff.

46. Cf. ARISTOTLE, *Physics* B 1, 193 b 20; A 7, 190 a 32.

47. ARISTOTLE, *Physics* E 1, 225 a 15-17: «ἡ δ' ἐκ τοῦ μὴ ὄντος ἁπλῶς εἰς οὐσίαν γένεσις ἁπλῶς, καθ' ἣν ἁπλῶς γίγνεσθαι καὶ οὐ τὶ γίγνεσθαι λέγομεν».

48. Cf. D. ROSS, *op.cit.*, p. 617.

element by which the «absolute» *genesis* occurs[49]. The basis of *genesis*, qua only potentially 'this', only potentially 'is': and, qua not actually 'this', it has no actual 'being'. Hence the ultimate logical presupposition of *genesis* is a *substratum*, i.e., *materia prima*, which by itself does not exist. Thus, the *materia prima* cannot be the real antecedent of given *genesis*[50]. It is clear that Aristotle has no intention of reintroducing absolute *genesis*, because the substratum persists and nothing new comes into existence. Quite patently, genesis is tied to not-being. In the essential sense, *genesis* does not come to pass out of not-being. Aristotle shows that all elements have the same substratum and that the change from one element into another, does not involve the arising of something new, that previously «was not»[51]. This Aristotelian doctrine was fully employed by John Italos, who posed the question: what is being in the realm of substance? How can there be in this realm a «genesis of not-being?». In fact Parmenides' not-being has already been split and broken down from one absolute into countless relative not-being[52].

Aristotle identifies absolute *genesis* with *genesis* of a substance, but he soon finds it necessary to make a sharp distinction even within substances and events. In simple *genesis*, i.e., *genesis* of a substance, Aristotle thinks of a *genesis* out of not-being. While other things become this or that, it is only substances that come to be simply (*ἁπλῶς γίγνεσθαι*)[53]. Here he is concerned with becoming something, with the copulative meaning of the verb rather than the existential. Thus, Aristotle points out the difference between being and being something. Finally the question of absolute *genesis* would take the form of whether substance can come into being out of not substance or being out of not-being — a difficult proposition because: where could be found a not-being to serve this function? When certain elements come into being, we should regard this process as absolute genesis; in the case of others, it is a qualified genesis[54]. The theory of eternity of *genesis* seems to be unsuitable here. If the elements themselves come-to-be and pass-away, the predicate of eternity must be attached to *genesis* as such. It

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49. Cf. H. JOACHIM, *op.cit.*, pp 92-93; C. WILLIAMS, *op.cit.*, pp. 83-84.

50. ARISTOTLE, *De G.C.* A 3, 317 b 17-28.

51. Cf. IDEM, *Physics*, E 2, 225 a, 5 ff.

52. Cf. J. ITALOS, *op.cit.*, p. 145, 1 ff.

53. ARISTOTLE, *De G.C.* A 3, 317a 32 ff; cf. PLATO, *Phaedo* 70 d ff; C. WILLIAMS, *op.cit.* pp. 80; H. JOACHIM, *op.cit.*, pp. 80 ff; W. VERDENIUS - J. WASZINK, *op.cit.*, pp. 14-15.

54. Cf. ARISTOTLE, *De Caelo* Γ 2, 301, 31 ff; cf. SIMPLICIUS, *In De Caelo*, p. 538, 3 ff. Aristotle mentions as a reason why generation in an absolute sense is impossible the fact that there could not have been a void in the place where the cosmos is now.

need not be divine, for the physicists had long been in the habit of positing eternal entities, without granting them the highest honour in their gift[55].

Aristotle's main concern is to answer the *Eleatic Aporia*: «what comes to be must come forth, either from being or from non-being. Both are impossible[56]». But Aristotle doubts whether the statement «ἢ ἐξ ὄντος ἢ ἐκ μὴ ὄντος» means 'either from what is or from what is not'[57]. He says that it is possible, namely if both are admitted at the same time and in a special sense. If it is taken in the absolute sense, when, then, surely nothing springs fron non-being; but accidentally it does. For a being springs from privation. Which in itself is non-being. It springs from privation accidentally, because the 'pre-existing' non-being is not admitted into the being that comes-to-be. And in the same way being springs from being, not essentially, but accidentally. For it is not the pre-existing being, which is generated in that, which comes to be. But the new being springs from the pre-existing, as far as the latter contained a non-being in itself, which is now filled with a new determination[58]. The above solution is based primarily on logical terms. The distinction between using a term *essentially* and *accidentally* is referred to here and illustrated by the instance: «the doctor builds a house not *qua* doctor, but *qua* housebuilder, and turns grey, not *qua* doctor, but *qua* dark-haired[59]».

For Aristotle, relative non-being, which is accidentally identical with matter, but essentially different, does not solve the difficulties of the eleatic theories. Plato neglected this distinction because he formally attributed to matter a kind of non-being, which does not belong to it, and seems to reduce it to absolute non-being. The impossibility thus of an absolute *genesis* results from the absence of a void, in the place, where the entire cosmos exists now. Aristotle considers 'place' as non-existing in reality, but it can be conceived by mind[60]. Further, if place is itself an existent, where will it be? Aristotle argues that Zeno's difficulty demands some explanation: for if everything that exists has a place, it is clear that place too will have a place and so on *ad*

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55. Cf. ARISTOTLE, *De Caelo* Γ 5, 304 b 25 - 305 a 11.

56. IDEM, *Physics* A 8, 191 a 23-24; cf. E.E. ALLEN, *op.cit.* pp. 66 ff; D. ROSS, *Aristotle's Physics, op.cit.* pp. 494 ff; see also J. PHILOPONUS, *In Physics*, p. 169, 1 ff.

57. ARISTOTLE, *Physics* A 8, 191 a 28.

58. *Ibid.* A 8, 191 b 13-23; cf. J. PHILOPONUS, *In Physics* p. 178, 1 ff, 179, 16-17.

59. ARISTOTLE, *Physics* A 8, 191 b 4-5; J. PHILOPONUS, *In Physics*, pp. 176-177; cf. SOPHOCLES, *Ajax*, 625.

60. Cf. ARISTOTLE, *De Caelo* Γ 2, 304 b 33: «ἀδύνατον γὰρ παντὸς σώματος εἶναι γένεσιν, εἰ μὴ καὶ κενὸν εἶναί τι δυνατὸν κεχωρισμένον· ἐν ᾧ γὰρ ἔσται τόπῳ τὸ νῦν γινόμενον ὅτε ἐγένετο, ἐν τούτῳ πρότερον τὸ κενὸν ἀναγκαῖον εἶναι σώματος μηδενὸς ὄντος».

infinitum[61]. Zeno's question «if place is something, in what will it be?» received a proper answer from Simplicious, who states that what is in something is in place. Place therefore will be in a place, and so on *ad infinitum*: therefore place does not exist[62]. In addition, Philoponus records that Zeno's difficulty demands some explanation and counter-argument. For if everything that exists is in a place, as some supposed, and place is an existent, place also will be in a place, and that again in another and so on *ad infinitum*[63]. This conclusion —that place is in a place, and so on *ad infinitum*— leads to an absurd statement: «οὐκ ἄρα ἔστιν ὁ τόπος». We think that Philoponus is probably right when he says that clearly by showing the conception of place as self-contradictory Zeno would *a fortiori* be making a pluralistic position untenable[64]. There is a notable argument in Plato's *Parmenides* (138 a-b) which has much in common with this argument of Zeno on place. *Τὸ ὄν* (in Plato τὸ ἕν) is supposed to be *ἄπειρον*; thus what is *ἄπειρον* cannot be anywhere, in any place[65]. It is conceivable that the argument that «*τὸ ἄπειρον* is nowhere» might occur as a *reductio ad absurdum* of the actual belief in anything infinite[66]. We observe here a significant transition from the order of thought to reality. Another instance of such transition is that where Aristotle 'proves' the ingenerability of time: if we say that time had a beginning, we already use the word 'before' which in itself implies time[67].

Taking into account the whole problem of place and time in accordance with the simple or absolute *genesis*, Aristotle faces the question of the spontaneous generation. As D.M. Balme points out in his article on «Aristotle's Theory of Spontaneous Generation», spontaneity is unusual and random[68]. It is caused incidentally by chance, as the by-product of some

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61. Cf. IDEM, *Physics* Δ 2, 209 a 23; cf. G. KIRK - J. RAVEN - M. SCHOFIELD, *op.cit.*, pp. 263 ff.

62. SIMPLICIUS, *In Physics*, p. 562, 1 ff; cf. ARISTOTLE, *Physics* Δ 3, 210 b 23; D. ROSS, *op.cit.* pp. 570-71.

63. Cf. J. PHILOPONUS, *In Physics*, p. 510, 2 (ARISTOTLE, *Physics* Δ 1, 209 a 23); cf. THEMISTIUS, *In Physics*, 105, 13; SIMPLICIUS, *In Physics*, p. 534, 7-8.

64. Cf. H.D.P. LEE, *Zeno of Elea: A Text with translation and Notes*, Cambridge, U.P. 1936, pp. 38 ff. For a reference to the construction of nature and infinity see: G.A. TOURLIDES, *The definition of the philosophy of 'ethos' in De Rerum Natura of Lucretius*, Athens, 1975, pp. 13 ff. and note 16 (in Greek).

65. Cf. SEXTUS, *Adv. Mathematicos*, VII 69, 70 (Diels 76 A 3)/ R.E. ALLEN, *op.cit.*, pp. 202 ff.

66. Cf. Fr. SOLMSEN, *op.cit.*, pp. 160-73; PLOTINUS, *Enneads* II 4, 15.

67. *Ibid.*, pp. 156-57; cf. J. ITALOS, *op.cit.*, p. 25, 30; J. DAMASCUS, *Instit.* 22, 5-20.

68. Cf. D.M. BALME, «Development of Biology in Aristotle and Theophrastus: Theory of Spontaneous Generation», in *Phronesis* 7 (1962), 91 ff.

other action accidentally («κατὰ συμβεβηκός, ὡς ἔτυχε»). Hence its cause is indefinite[69]. Aristotle endeavours to support his definition of *spontaneity* (*ταὐτόματον*) as the kind of case in which an unintended result is produced, by deriving *αὐτόματον* from *μάτην*, which refers to cases in which an intended result is not produced[70]. Further, Aristotle states that the *αὐτόματον* in the case in which the event itself has happened in vain, i.e., when in its own causal character (*καθ' αὑτό*) it has been ineffective. Aristotle proceeds to the distinction between of *τὸ ἀπὸ αὐτομάτου* (in the specific sense) and of *τὸ ἀπὸ τύχης*[71]. In *Metaphysics* (1032 a 28-32) he makes clear the doctrine of spontaneous generation, where an end-like result is produced. In fact, chance simulates the action of art or, more generally, of thought, while in spontaneity the action of thought is simulated, or the normal action of nature is simulated by nature, thus producing in an exceptional way what it normally produces otherwise[72].

The genesis of things which come-to-be by natural process is uniform. Breaches of the uniformity, when they occur, are not attributed to nature as their cause, but to chance. Empedocles ought to solve the problem of what determines this uniformity in the *genesis* of natural products[73]. But the theory of Empedocles on *genesis* seems to Aristotle absolutely inadequate[74]. The generation of the compound physical bodies cannot be explained by a fortuitous, but only by a proportionally determinate, combination of elements[75]. Aristotle disagrees with Empedocles on the assumption that

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69. Cf. ARISTOTLE, *Physics* B 4, 196 a 1 ff; 197 a 12; *De Caelo* B 5, 287 b 25; B 8, 289 b 22, 26.

70. The term *αὐτόματος* derives from *μάομαι*; cf. STESICHORUS, 47; AESCHYLUS, Ch. 918; this term in its earlier sense (e.g. *Iliad* 2, 408, 5, 749, 18; HEDIOD, *Op.* 103) means simply acting of one's own will.

71. Cf. ARISTOTLE, *Physics* B 6, 197 b 32 - 198 a 7. «Τύχη is αἰτία κατὰ συμβεβηκὸς ἐν τοῖς κατὰ προαίρεσιν τῶν ἕνεκά του»· (cf. *Ibid.* 197 a 9), i.e. chance is found when a certain action incidentally and exceptionally produces a result which might naturally have been the object of deliberate action (cf. *Ibid.* 196 b 6). *Τὸ αὐτόματον* occurs in events that normally happen for an end whenever something whose cause is external happens not for the sake of the actual result which in fact follows (cf. *Ibid.* 197 b 18). *Τὸ αὐτόματον* also occurs when an internal cause i.e. nature, procudes an exceptional result (cf. *Ibid.* 197 b 33).

72. Cf. D. ROSS, *AristotleS Metaphysics* Vol. II, Oxford, U.P., 1970, pp. 182-83.

73. Cf. EMPEDOCLES, *frs.* 10, 11 (D-K); H. JOACHIM, *op.cit.*, pp. 234-35; also see: ARISTOTLE, *De Anima* A 4, 408 a 12-18; R. D. HICKS, *Aristotle, De Anima, Amsterdam, Hakkert,* 1965, pp. 270-71.

74. Cf. W. VERDENIUS - J. WASZINK, *op.cit.*, p. 5; Th. Veikos, *op.cit.*, pp. 226-27. Also see: EMPEDOCLES, *fr.* B 17, 1-5 (D-K).

75. ARISTOTLE, *De G.C.* B 6, 333 b 7-11; *Metaphysics* A 3, 984 a 17; *De Anima* A 5, 410 a 1-6; cf. EMPEDOCLES, *fr.* B 96 (D-K).

Love and Strife determine the actual existence of elements, because Love, in bringing all things together, destroys the individuality of each and Strife, in dissociating, brings into distinctive being the elements of the universe[76]. Both Love and Strife act in a mechanical way[77]. According to Empedocles what is supposed to be *genesis* and *phthora* is really only a mingling and a divorce of what has been mingled. Joachim states that Aristotle is here parodying the last time of Empedocle's *fragment* 8: «φύσις δ' ἐπὶ τοῖς ὀνομάζεται ἀνθρώποισιν». Yet, he has altered the construction and the basic meaning[78]. In fact, the temporary compounds of the four elements have no substantial nature of their own, as they are subject to 'association' and 'substance' is only a name given to them by ignorant people who do not know that real substance resides only in the elements themselves[79]. No doubt Aristotle has misunderstood Empedocles' concept on nature and interprets it as 'substantial nature'[80].

Although Aristotle does not hold any specific doctrine concerning the spontaneous genesis, he does not exclude the possibility of spontaneity, which is basically related to the theory of everlastingness. In fact Aristotle has rejected the theory of perpetual process in the world, and turns against those, like Empedocles, who have this process of change interrupted occasionally, but claim the elements to be eternal. Indeed, Plato and Aristotle agreed that the frame of the world took up the whole of each of the four elements. Plato in particular shows how the destruction of one elementary body is the coming-to-be of another[81]. While synthesis consists of addition, the analysis dissolves the compound element, but leaves intact the particles. Empedocles appears to have the process of analysis come to a stop,

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76. Cf. ARISTOTLE, *Metaphysics* A 4, 985 a 21-29; B 4, 1000 a 24 - b 12; *De G.C.* B 5, 12-16, 20-22; also see: EMPEDOCLES, *fr.* B 8.

77. Cf. W. VERDENIUS - J. WASZINK, *op.cit.*, pp. 58-59; Th. VEIKOS, *op.cit.*, pp. 220-26; D. Furley, *The Cosmic Cosmologists, op.cit.*, pp. 98 ff; G. KIRK - J. RAVEN - M. SCHOFIELD, *The Presocratic Philosophers, op.cit.*, pp. 286 ff; J. BARNES, *The Presocratic Philosophers*, vol. II, London 1979, p. 13.

78. Cf. G. KIRK - J. RAVEN - M. SCHOFIELD, *op.cit.*, pp. 291-92; also see: PARMENIDES, *fr.* B 9, 2-3: «αὐτὰρ ἐπειδὴ πάντα φάος καὶ νὺξ ὀνόμασται / καὶ τὰ κατὰ σφετέρας δυνάμεις ἐπὶ τοισὶ τε καὶ τοῖς,...».

79. Cf. CH. KAHN, *Anaximander and the Origins of Greek Cosmology*, New York, 1960, p. 6; cf. Th. VEIKOS, *op.cit.*, pp. 220 ff; E. MOUTSOPOULOS, *The Presocratic Thought*, Athens 1978, pp. 46 ff (in Greek).

80. ARISTOTLE, *Metaphysics* Δ 5, 1014 b 35 - 1015 a 3. Aristotle quotes this fragment 8 of Empedocles as an illustration of *φύσις* in the actual sense of «ἡ τῶν φύσει ὄντων οὐσία».

81. Cf. PLATO, *Timaeus* 32 c 5; ARISTOTLE *De Caelo* A 9, 278 b 21 - 279 a 11. J. ITALOS, *op.cit.*, 117, 1 ff; J. PHILOPONUS, *In Physics*, 1, 9.

and then makes it reverse. Aristotle argues against Empedocles' statement and insists that smaller bodies are more corruptible than the larger ones[82]. Thus, destruction and coming-to-be play into each other's hands. In fact, if everything might pass out of existence, genesis itself would cease, and this is the most dreadful of all possibilities that a physicist may contemplate[83]. Plato conjures up this hypothetical and utopian possibility with reference to what Aristotle regards as the 'other' cause, i.e. the moving or efficient cause of *eternal genesis*[84].

Aristotle's system of the physical world does not include eternal beings, i.e. things comparable to Empedocles' divine elements, Anaxagoras' powers or Democritus' atoms, because such eternal principles would support the argument of guaranteeing the eternity of *genesis*. In *De Caelo* Aristotle offers his fallacious proof that nothing which is eternal is even capable of not existing, and therefore cannot be generable (*γενητός*), since in order to have come into existence is to have been at some time non-existent. Nothing that comes to be can be either eternal or necessary[85]. In fact we are reminded here that the necessity Aristotle is now concerned with is the necessity of facts, not of objects. Thus, a thing that comes-to-be cannot be eternal, nor in Aristotle's view, necessary. The whole problem of the eternity of the world is discussed in the *De Caelo* and is primarily based on the expression 'always is' in the sense of 'always exists'. The verb 'is' has a wider use in Greek than the verb 'be' in English. In fact 'nothing which can not-always be, always is' can mean what Aristotle takes it to mean in the *De Caelo* passage[86]: 'nothing that

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82. Cf. ARISTOTLE, *De Generatione Animalium*, 785 b 36, 777 a 9; C. WILLIAMS, *op.cit.*, pp. 145 ff.

83. The horror at the mere thought of it is vividly brought out by Plato cf. *Phaedo* 245 d; *Laws* X 895 a.

84. Cf. ARISTOTLE, *De Caelo* A 3, 317 b 3 - 318 a 8; cf. Fr. SOLMSEN, *op.cit.*, pp. 330, 380, 385, 387.

85. ARISTOTLE, *De G.C.* B 11, 337 b 29 ff; cf. A. EHRHARDT, *The Beginning*, Manchester, U.P. 1968, pp. 114-40; C. WILLIAMS, *op.cit.*, pp. 204-205.

86. ARISTOTLE, *De Caelo* A 3, 317 b - 318 a 8; cf. Fr. SOLMSEN, *op.cit.*, pp. 272-74, 420-24. J. Philoponus offers an extensive discussion concerning the eternity of the world. He is based on Aristotle's arguments and relates it with the infinity which exists through a process of one thing coming into being after another (*Physics* Γ 6, 206 a 21-23; 30-33; 7, 207 b 14). Philoponu's attack on the pagans refers to the fact that the universe must have a beginning, or it would by now have traversed, or gone right through, an infinity of years. Simplicius penned his replies to Philoponus and stated that Aristotle had already anticipataed Philoponus' objections and answered them in advance. Cf. Philoponus, *De Aeternitate Mundi contra Proclum*, ed. RABE, Leipzig 1899, pp. 9-11, 619; *In Physics*, pp. 428, 14 - 430, 10; 467, 5 - 468, 4; *In Meteorologica*, pp. 16, 36 ff; *Contra Aristotelem*, apud SIMPLICIUS *In Physics*, p. 1179, 12-26; also see: SIMPLICIUS, *In Physics* 506, 3-18; 1180, 29-31, relying on Aristotle *Physics* Γ 6, 206 a 33 - b3 and 8, 208 a 20-21. For a more

can not always exist, always exists' and 'nothing which can not-always be the case, is the case'. We think that the arguments of the *De Caelo* rest mainly on the modal and temporal concepts used and thus leading to a *reduction ad absurdum* proof, and aims to show that «something which can not-always be, always is» is absurd[87].

Aristotle's main concern is to prove that if generation is determined by necessity (*generatio simpliciter*), this *genesis* must have the infinity of a circle[88]. Finally, in *De G.C.* 338 b 6 ff, Aristotle makes clear that in the case of perishable things in the sublunary world, it is the species, not the individual, that participates continuous, eternal, necessary being[89]. Concerning the sensible things, which are compound, John Philoponus pinpoints what Empedocles considered to be imperishable and unbegotten. He states that the cyclic process of the elements according to Empedocles, i.e. if water comes down as rain, it had previously gone up, on his view, as water, can be admitted, if necessary, without prejudice to his thesis that the returning on itself of corruptible things can only be in form. In this case, both air and water, like the heavenly bodies, are things whose substance does not come to be and therefore is not capable of not-being. Obviously they are incorruptible and their behaviour does not give a relevant example suitable to the entire nature of the corruptible things[90].

Plato has dealt at length with the *genesis* and transformation of the elements before he remembers that an impulse is needed to keep these processes in continuous operation. It would be unfair to deny Aristotle the right to do the same. A generic explanation is as necessary in the one case as in the other. The moving and the formal cause do not interlock very closely in Plato[91]. In Aristotle these two cases have drifted farther apart. The transformation of the elements remains as the basic cause of *genesis*, an idea fully employed by both M. Psellos and J. Italos, together with addition, abstraction, composition and alteration, but not in the Empedoclean

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detailed analysis of Philoponus' treatment of the eternity of the world, cf. R. SORABJI, «Infinity and the Creation», in *Philoponus and the rejection of Aristotelian Science*, ed. R. SORABJI, London, Duckworth, 1987, pp. 164-178.

87. Cf. ARISTOTLE, *Nicomachean Ethics* VI 3, 1139 b 19-24, where Aristotle argues that what is known is eternal: 'is eternal = always is', which in the context of knowledge clearly means, 'is always the case'; also see: C. WILLIAMS, *op.cit.*, p. 206.

88. ARISTOTLE, *De G.C.* A 3, 317 a 32 ff; B 11, 338 a 4; 337 b 25-29.

89. IDEM, *De Generatione Animalium* B 1, 731 b 24 - 732 a 1.

90. Cf. J. PHILOPONUS, *In De G.C.* pp. 314, 1-8; C. WILLIAMS, *op.cit.*, p. 210.

91. Cf. PLATO, *Timaeus* 49 a ff; 49 d; ARISTOTLE, *Physics* A 7, 190 b 5; also see: J. ITALOS, *op.cit.*, 53, 15.

meaning. In fact they argue, when we speak of genesis, we speak of *genesis* of something; we definitely mean that everything that becomes is composite, resulting in its dissolution through corruption. In itself *genesis* presupposes in any case the pre-existence of something from which it springs, for the actual fact of becoming of not being is completely impossible[92]. This statement reminds us of the already mentioned Aristotelian distinction between the pre-existing cause of becoming («τὸ ἐξ οὗ γίγνεταί τι ἐνυπάρχοντος») and the species (*εἶδος*) of archetype (*ἀρχέτυπον*). Aristotle now includes both under the «ἐξ οὗ»[93]. Matter and form are similarly called the existing causes («ἐνυπάρχοντα αἴτια») of becoming. Especially in *Metaphysics* Aristotle states that in certain processes of causality, species and moving cause appear to coincide[94], thus, in a sense, there are three causes. Not only does the efficient cause presuppose the efficient cause, but it happens between the contraries, resulting in corruption, and Italos is fully determined on the need of the pre-existence of something before *genesis*[95].

Chapter II. Genesis as a process

1. Genesis as alteration

In *Physics*[96] Aristotle gives a strict definition of alteration (*ἀλλοίωσις*), which would disqualify the examples of alteration, given in the *De Generation et Corruptione*[97]. Alteration differs, in fact from *genesis*, for in it matter is not corrupted, but it is a sort of a passion of something, and the

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92. Cf. ARISTOTLE, *Physics* B 3, 194 b 23; J. ITALOS, *op.cit.*, 85, 2 ff.

93. ARISTOTLE, *Physics* B 3, 194 a 24-26: «ἕνα μὲν οὖν τρόπον αἴτιον λέγεται τὸ ἐξ οὗ γίγνεταί τι ἐνυπάρχοντος, οἷον ὁ χαλκὸς τοῦ ἀνδριάντος καὶ ὁ ἄργυρος τῆς φιάλης καὶ τὰ τούτων γένη».

94. IDEM, *Metaphysics* Λ 4, 1070 b 22; cf. Δ 1, 1013 a 4-7; 2, 1014 a 26.

95. Cf. J. ITALOS, *op.cit.*, 85, 2 ff: «Διὰ γοῦν ταῦτα... ὑποκείσθω δὲ ἡμῖν ὡς διομολογούμενον καὶ τοῦτο, τὴν ῥητορικὴν γεγενῆσθαι· ἀνάγκη τοίνυν ἢ ἐξ ὄντων αὐτὴν ἢ ἐκ μὴ ὄντων τὴν ἀρχὴν εἰλημέναι· ἀλλ' ἐκ μὴ ὄντων πῶς ἂν εἴη ἡ γένεσις; καὶ εἰ πᾶσα γένεσις ἐξ ὄντων, ἐξ ὄντων ἄρα καὶ αὐτή».

96. Cf. ARISTOTLE, *Physics* H 3, 245 b 3ff: «ὅτι δὲ τὸ ἀλλοιούμενον ἅπαν ἀλλοιοῦται ὑπὸ τῶν αἰσθητῶν, καὶ ἐν μόνοις ὑπάρχει τούτοις ἀλλοίωσις ὅσα καθ' αὑτὰ λέγεται πάσχειν ὑπὸ τῶν αἰσθητῶν». Aristotle has in 244 b 5-6, 245 a 2-3 assumed that alteration is performed by the sensibles, i.e. the αἰσθηταὶ or παθητικαὶ qualities of one body by the immediate action on them of the corresponding qualities of another body; cf. D. ROSS, *Aristotle's Physics, op.cit.*, p. 674.

97. Cf. IDEM, *De G.C.* A 4, 319 b 10-14; cf. H. JOAVHIM, *op.cit.*, pp. 107 ff; C. WILLIAMS, *op.cit.*, pp. 84-85; J. ITALOS, *op.cit.*, 53, 16.

thing remains unaffected, e.g. the musician man, when he is not musician any more, still remains man, and the unmusician man is created. In the case of the unmusician man, being unmusical, is an affection *per se* of the man. This example contrasts with that of cold or hot water when it becomes steam. Such contrast is not like that between a man's being two footed (*per se*), and his being white (per accident), but like that between a man's being musical (*per se*), and a white object's being musical: in the latter case, being musical, belongs, not directly to the white, but to that to which being white, also belongs[98]. Yet the change of colour may well, to Parmenides' mind, have sympolised «qualitative alterations». All things that undergo change, not only by virtue of some local movement of their materials, but in respect of their matter[99].

In *De Generatione et Corruptione* (A 3, 319 b 6 ff) Aristotle states the difference between accidental and substantial change, i.e. generation and corruption, where there is a change of *affection*[100]. In order for a change to be a case of alteration there must, as Aristotle states, be a perceptible substratum which persists through the change, and the affections which come and go must belong to it. Further, the distinction between generation and alteration was expressed by the terms 'whole' and 'entirely'[101]. The 'partial generation' of the text *De G. et C.* (A 3, 317 b 35) was contrasted with 'generation *simpliciter*', which in fact reveals the antithesis between the copulative and the existential use of 'come-to-be' as it appeared to be in other cases by the phrases 'come to be something' and 'come to be *simpliciter*'. Again, in *Posterior Analytics* (B 2, 89 b 39 - 90 a 5) and in *De Sophisticis Elenchis* (166 b 37 - 167 a 4), the two expressions 'being something' and 'being in part' are frequently used in order to make the contrast with 'being *simpliciter*'. Dr C.F. Williams refers to Jonathan Barnes' commentary on the relevant passage of the *Analytics* in order to establish his argument that the origin of the expression 'being in part' is merely to be found in the fact that, «whereas in 'X is' 'is' forms the whole of the predicate, in 'X is Y» it is only a part of the predicate». Obviously the contrast is descriptive of the same

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98. Cf. ARISTOTLE, *Metaphysics* Δ 7, 1017 a 2-22; D. ROSS, *Aristotle's Metaphysics*, Vol. I, *op.cit.*, pp. 306-08; also see: ARISTOTLE, *Posterior Analytics* A 4, 73 b 5-10.

99. Cf. ARISTOTLE, *De Partibus Animalium* 670 b 14; Er. SOLMSEN, *op.cit.*, p. 121.

100. Cf. ARISTOTLE, *Physics* H 3, 245 b 3ff (cf. note 96). Aristotle gives a stricter definition of 'alteration' than he does here, a definition which would disqualify the examples of alteration given in *De G.C.* A 3, 319 b 12-14. Cf. J. ITALOS, *op.cit.*, 53, 15 ff, where he defines alteration mainly as the substantial change of matter, i.e. the seed of the animals.

101. Cf. C. WILLIAMS, *op.cit.*, pp. 97 ff.

linguistic phenomenon, which appears in the contrast between 'being something' and 'being *simpliciter*'[102]. Yet in *De Interpretatione* the same phenomenon is described by use of the phrase 'when «is» is predicated additionally as a third thing'[103].

Aristotle regards *genesis* as itself a further subdivision of the wider category 'change'. Thus, 'change' as genus, includes generation, alteration, growth and locomotion as species[104]. John Philoponus indicates that Aristotle by alteration suggests another kind of genesis, coming-to-be, as opposed to coming-to-be *simpliciter*, in the sense that the term *simpliciter* refers back to the phrase 'as a whole'[105]. There is a sort of ambiguity in Aristotle's phrases, like: «ἄνθρωπος ἄμουσος ἐγένετο», which is based on the distinction between the copulative and the existential senses of «be» (*εἶναι)* and «come-to-be» (*γίγνεσθαι)*. In *Metaphysics* he distinguishes different kinds of being in the existential, not the copulative sense of 'be'. In fact a sentence literally translated: 'a man musical is' will be interpreted as 'a musical man exists', and not merely as 'a man is musical'[106].

The basic sentence which includes the principles of alteration is: «ὁ μουσικὸς ἄνθρωπος ἐφθάρη, ἄνθρωπος δ' ἄμουσος ἐγένετο, ὁ δ' ἄνθρωπος ὑπομένει τὸ αὐτό. εἰ μὲν οὖν τούτου μὴ πάθος ἦν καθ' αὑτὸ ἡ μουσική· καὶ ἡ ἀμουσία, τοῦ μὲν γένεσις ἦν ἄν, τοῦ δὲ φθορά· διὸ ἀνθρώπου μὲν ταῦτα πάθη, ἀνθρώπου δὲ μουσικοῦ καὶ ἀνθρώπου ἀμούσου γένεσις καὶ φθορά. νῦν δὲ πάθος τοῦτο τοῦ ὑπομένοντος. διὸ ἀλλοίωσις τὰ τοιαῦτα[107]». Joachim follows John Philoponus in transposing «νῦν... ὑπομένοντος» to b 28 after «τοῦ δὲ φθορά», «I shall question the argument of Verdenius who agrees with Schramm, that it is hard to imagine how the coming-to-be of a musical man could be a conclusion from the transposed sentence[108]». In fact the musical man passed-away and an unmusical man came-to-be, and that the

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102. Cf. IDEM, *op.cit.*, p. 98; also see: W. VERDENIUS - J. WASZINK, *op.cit.*, pp. 17 ff.

103. ARISTOTLE, *De Interpretatione*, 19 b 19-20.

104. IDEM, *De G.C.* A 5, 319 b 31 - 320 a 2; H. JOACHIM, *op.cit.*, pp. 118-119.

105. Cf. L. JUDSON, «God or Nature? Philoponus on Generability and Pershability», in *Philoponus and the Rejection of the Aristotelian Science* ed. R. SORABJI, London, Duckworth, 1987, pp. 179 ff.

106. Cf. ARISTOTLE, *Metaphysics* Δ 6-7, especially 1017 a 7ff; cf. D. ROSS, *Aristotle's Metaphysics*, Vol. I, *op.cit.*, pp. 306-08; also see: *Posterior Analytics* A 4, 73 b 5-10.

107. Cf. ARISTOTLE, *De G.C.* A 4, 319 b 25-31; cf. the interpretation of this text by both H. JOACHIM, *op.cit.*, pp. 109 ff, and W. VERDENIUS - J. WASZINK, *op.cit.*, pp. 18-19. J. Italos argues that human passion exceeds up to the alteration, cf. *op.cit.*, 120, 1ff; ARISTOTLE, *Eudemian Ethics* Γ 1, 1229 a 34. Πάθος is alteration and not complete corruption.

108. Cf. H. JOACHIM, *op.cit.*, pp. 109 ff; W. VERDENIUS - J. WASZINK, *op.cit.*, pp. 18-19; also see; J. PHILOPONUS, *In de G.C.*, pp. 68-69.

man persists as something identical. Now, as Aristotle insists, if «musicalness and unmusicalness» had not been a property essentially inhering in man, these changes would have been a coming-to-be of unmusicalness and a passing-away of musicalness: but in fact «musicalness and unmusicalness» are properties of the persistent identity, viz. man. Evidently, these changes are mainly «modifications», and concerning musical man and unmusical man, they are a passing-away and coming-to-be. Thus, these changes are a mere alteration.

Joachim rightly points out that according to Aristotle's doctrine: (i) If 'musicalness and unmusicalness' were not a mere property of man, the change in which 'a musical man becomes unmusical' would be a *φθορὰ* of musicalness and a *γένεσις* of unmusicalness. (ii) Since 'musicalness and unmusicalness are properties of man, the change is in fact a real alteration of this particular man from the one state to the other respectively. (iii) Thus, immediately this change is a *φθορὰ* of musical man and a *γένεσις* of unmusical man[109]. Similarly Philoponus states that both corruption and generation coincide simultaneously, as real *ἀλλοίωσις*[110]. In *Metaphysics* Δ 21, 1022 b 15-19 *ἀλλοίωσις* is in turn defined by reference to *ποιότης* and *πάθος*, a sense of the term expressly recognized in *De G.C.* A 4, 319 b 29. This interpretation is helped by the antithesis, «ἀνθρώπου μὲν... πάθη, ἀνθρώπου δὲ μουσικοῦ... γένεσις καὶ φθορά». In fact, 'musical or unmusical' is a disjunctive proprium of Man, and is an itself passion of Man in that sense[111]. Further, man can 'alter' from musical to unmusical, because man is the 'owner' of this passion — the so called substratum, in which it inheres, and not merely a subject of which it can literally be predicated[112].

Commenting on these Aristotelian arguments, John Italos states that no doubt genesis leads to gradual corruption of that which has been born, while passions give rise to alteration. Whereas genesis corrupts immediately the preexisting substratum and creates something different from that which was before, passions do not create a new thing, i.e. a white body maintains its identity even it becomes black[113].

It is evident that basically alteration is very close to genesis and Aristotle is very determined in arguing that *ἀλλοίωσις* follows *γένεσις*. The argument

109. ARISTOTLE, *De G.C.* A 4, 319 b 25ff; H. JOACHIM, *op.cit.*, p. 109.

110. Cf. J. PHILOPONUS, *In De G.C.*, pp. 68, 30-69, 3.

111. Cf. H. JOACHIM, *Introduction*, § 8; Aristotle, *Metaphysics* Λ 1, 1069 b 12, N 1, 1088 a 32; *Physics* E 2, 226 a 26-27. In fact change with respect to a quality which is *ἐν τῇ οὐσίᾳ* would be not *ἀλλοίωσις* but *γένεσις* and *φθορά*.

112. Cf. ARISTOTLE, *De G.C.* A 4, 319 b 27-28; *Posterior Analytica* 83 a 1-21.

113. Cf. J. ITALOS, *op.cit.*, 120, 1 ff; ARISTOTLE, *Eudemian Ethics* Γ 1, 1229 a 34.

of the pluralists consists in the fact that alteration is distinct from genesis. Joachim fails to avoid the error in regarding the passage of *De G.C.* (314 b 8-12) as a recapitulation of the pluralist position. He does not seem, as Verdennius rightly says, to have realized that the phrase: «τὴν ἀλλοίωσιν εἶναί τι παρὰ τὴν γένεσιν», means something totally different from «διαφέρειν τὴν ἀλλοίωσιν τῆς γενέσεως[114]». Aristotle, and Italos follows him, argues that alteration, in this case, can be identical to genesis. In effect, both becoming and mutation form part of a continuous process in the world and consequently in its contents. Here, Italos makes a substantial distinction between motion in an entity and motion in the entire universe; the former is the motion of alteration, while the latter of becoming and corruption. The alteration itself is purely pathological, in the broad sense of passion[115].

The actual fact of alteration does not affect the body as a whole. If a black body becomes white, there is no alteration to its nature. Yet, if blood, by being corrupted, becomes gall, resulting in putrefaction, contrary to its own nature, it can no longer be recovered in its proper state; it is gone, and there needs to be rebirth, rather than alteration. In other words, corruption remains as the presupposition of rebirth, while alteration is a real fact, being impossible by mechanical pluralism[116].

Alteration, usually, appears, when the substratum persists, and the change confines itself to the passion. But the question, whether there is genesis or alteration, depends on the entire nature of the persisting element: if this is the substratum, there is alteration; if it is a mere property, there is genesis, because not every property is a substratum. This substratum, normally consisting of the four elements, includes a special kind of stuff, which could move the elements without undergoing alteration, since the «natural bodies» engage in a process of reciprocal dominance overcoming each other and changing each other[117]. Aristotle declares that this special kind of stuff is the so called *πνεῦμα*, which itself means warm air[118]. Some critics such as Balme, Rüsche and Moraux, and in accordance with them Nussbaum, are in any case correct to dissociate themselves from any facile

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114. Cf. J. ITALOS, *op.cit.*, 47, 8; 53, 16; W. VERDENIUS - J. WASZINK, *op.cit.*, p. 17.

115. Cf. ARISTOTLE, *De G.C.* A 4, 319 b 26-29; J. ITALOS, *op.cit.*, 120, 4ff; J. DAMASCUS, *Dialectica* § b *περὶ κινήσεως*, ed. KOTTER, p. 129.

116. Cf. J. ITALOS, *op.cit.*, p. 120, 1 ff.

117. Cf. ARISTOTLE, *De G.C.* A 4, 319 b 16-27; M. NUSSBAUM, *De Motu Animalium. Text with Translation, Commentary, and Interpretive Essays*, New Jersey, Princeton U.P., 1978, pp. 160-61.

118. ARISTOTLE, *De Generatione Animalium* B 2, 736 a 1-3: «Ἔστι μὲν οὖν τὸ σπέρμα κοινὸν πνεύματος καὶ ὕδατος, τὸ πνεῦμά ἐστι θερμὸς ἀήρ».

identification of *pneuma* with *aither* on the basis of the GA analogy[119].

Aristotle distinguishes, in the *Categories* (15 a 13), the following species of change: «γένεσις, φθορά, αὔξησις, μείωσις, ἀλλοίωσις and κίνησις κατὰ τόπον». More often, he employs a fourfold classification: «κατὰ τὴν οὐσίαν or κατὰ τὸ τί (γένεσις and φθορά), κατὰ τὸ ποιόν (ἀλλοίωσις), κατὰ τὸ ποσόν (αὔξησις and φθίσις), and κατὰ τόπον[120]». In fact nothing is responsible for its own growth and qualitative change[121]. We observe here that Aristotle attempts to demonstrate that qualitative change depends on local motion. In *Physics* H 7, he claims for local motion priority in (a) separate existence, (b) time, and (c) over both *ἀλλοίωσις* and *αὔξησις*. The latter is shown to be dependent on *ἀλλοίωσις*, *ἀλλοίωσις* on condensation and rarefaction, hence local motion[122].

Concerning the whole problem of local motion within an entity, Aristotle argues that: (1) If there is a first motion, it is the cause of genesis and of all other changes. (2) There is a first motion in each mature animal just as in the universe. (3) So once the certain animal reaches a point of further development (if it ever does) at which we can say its growth and qualitative change are self-caused, not caused by the parent, local motion will be the main cause of these changes as well as of genesis[123].

2. Genesis as growth and as motion

Both growth and diminution are the two complementary forms of a process which is confined to the ensouled bodies[124]. Aristotle discusses the problem of growth and concludes that it occurs in: (a) food and the bodily organs, (b) the organs of reproduction, and (c) the soul, as the efficient cause of nutrition, growth, and reproduction[125]. In fact growth is closely connected

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119. Cf. M. NUSSBAUM, *op.cit.*, p. 161; D. BALME, *Aristotle's De Partibus Animalium I and De Generatione Animalium I*, Oxford, Clarendon Press, 1972, pp. 163-164; P. MORAUX, «Quinta Essentia», in *RE* 47 (1963), 1196; F. RÜSCHE, *Plut, Leben und Seele*, Paderborn, 1930, p. 194; H. CHERNISS, *Aristotle's Criticism of Plato and the Academy*, Baltimore, 1944, pp. 601-02.

120. Cf. ARISTOTLE, *Metaphysics* Λ 1, 1069 b 9-13; N 1, 1088 a 31-33; *De G.C.* A 2, 317 a 25-26; A 3, 319 b 31 - 320 a 2; 320 a 12-15; *Physics* H 2, 243 a 8-10.

121. IDEM, *De Generatione Animalium* B 1, 735 a 13-14: «οὐδὲν γὰρ αὐτὸ ἑαυτὸ γεννᾶ· ὅταν δὲ γένηται, αὔξει ἤδη αὐτὸ ἑαυτό».

122. IDEM, *Physics* Θ 7, 260 a 29 - b 15.

123. Cf. M. NUSSBAUM, *op.cit.*, pp. 329 ff.

124. ARISTOTLE, *De G.C.* A 5, 302 b 34 - 321 a 29.

125. Aristotle had planned a special treatise *περὶ τροφῆς* or *περὶ αὐξήσεως καὶ τροφῆς*, see BONITZ, *Ind.* 106 b 16-18.

with both genesis and qualitative change. But it is wrong to assume that the origin of growth should lie in a matter which is actually incorporeal and devoid of magnitude. In fact a matter which has an independent existence apart from body and magnitude, may be supposed either to exist alone by itself, or to be contained in an actual body, for both ways are totally impossible[126]. Verdenius states that this «separate» matter creates some difficulties as is demonstrated with these words: «ἀλλὰ μὴν οὐδὲ στιγμὰς θετέον οὐδὲ γραμμὰς τὴν τοῦ σώματος ὕλην διὰ τὰς αὐτὰς αἰτίας[127]». Aristotle maintains a special interpretation by using certain phrases in order to clarify his actual meaning[128].

In *De G.C.* 320 a 8 Aristotle says that since growth, unlike generation or alteration, involves change of place, it includes local motion and revolution of a sphere. He compares the growing thing with metal that is beaten into a different shape — not altogether successfully, as Philoponus rightly points out, since such a piece of metal would have to get smaller in one dimension if it grew in another[129]. In fact the metal would be undergoing a change of shape, i.e. alteration[130]. According to Philoponus' definition the growing thing occupies a different place than that of the becoming one[131].

The passage in the *De Anima* (B 4) supplements Aristotle's account on this matter[132]. In fact the primary soul is the 'efficient cause' of all those vital acts which in themselves operate with food. Thus, we have soul *θρεπτική*,

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126. IDEM, *De G.C.* A 5, 320 a 34 - b 3: «χωριστὴ μὲν γὰρ οὖσα ἢ οὐδένα καθέξει τόπον ([ἢ] οἷον στιγμή τις), ἢ κενὸν ἔσται καὶ σῶμα οὐκ αἰσθητόν· τούτων δὲ τὸ μὲν οὐκ ἐνδέχεται, τὸ δὲ ἀναγκαῖον ἔν τινι εἶναι».

127. IDEM, *De G.C.* A 5, 320 b 14-16; cf. W. VERDENIUS - J. WASZINK, *op.cit.*, p. 19.

128. ARISTOTLE, *Metaphysics* H 2, 1043 a 7-9: «εἰ οὐδὲν δέοι ὁρίσασθαι, ξύλον ἢ λίθον ὠδὶ κείμενον ἐροῦμεν, καὶ οἰκίαν πλίνθους καὶ ξύλα ὠδὶ κείμενα· ἢ ἔτι καὶ τὸ οὗ ἕνεκα ἐπ' ἐνίων ἐστίν»; *or a purpose may exist as well in «some cases»*, Θ 5 1048 b 21-22: «οὐκ ἔστι ταῦτα πρᾶξις ἢ οὐ τελεία γε».

129. IDEM, *Categories* 11 a 5 ff; *De G.C.* A 5, 320 a 8; PHILOPONUS, *op.cit.*, pp. 71, 26-72, 45.

130. ARISTOTLE, *De G.C.* A 4, 319 b 13-14; cf. W. VERDENIUS - J. WASZINK, *op.cit.*, p. 17.

131. Cf. PHILOPONUS, *op.cit.*, p. 72, 41-43, *In Aristotle's De G.C.* 320 a 23 it is shown that 'place' is not always the correct tranlation for the term *τόπος*. 'Place' is a count-noun, 'space' a mass-noun. 'Place' doew not admit of 'more' or 'less'. *Τύπος* like 'cakes' in English, is capable of functioning both as a count — and aw mass-noun. See: C. WILLIAMS, *op.cit.*, p. 103.

132. Cf. ARISTOTLE, *De Anima* B 4, 416 a 19 - b 31; *Physics* Θ 6, 260 α 29 «ἀδύνατον γὰρ αὔξησιν εἶναι ἀλλοιώσεως μὴ προϋπαρχούσης· τὸ γὰρ αὐξανόμενον ἔστι μὲν ὡς ὁμοίῳ αὐξάνεται, ἔστι δ' ὡς ἀνομοίῳ τροφὴ γὰρ λέγεται τῷ ἐναντίῳ τὸ ἐναντίον· προσγίνεται δὲ πᾶν γινόμενον ὅμοιον ὁμοίῳ· ἀνάγκη οὖν ἀλλοίωσιν εἶναι τὴν εἰς τ'ἀναντία μεταβολήν. ἀλλὰ μὴν εἴ γε ἀλλοιοῦται, δεῖ τι εἶναι τὸ ἀλλοιοῦν καὶ ποιοῦν ἐκ τοῦ δυνάμει θερμοῦ τὸ ἐνεργείᾳ θερμόν». cf. also, R.D. HICKS, *Aristotle, De Anima*, Amsterdam, Hukkert, 1965, pp. 344-45.

i.e. that which originates the whole process of nutrition; soul *αὐξητική*, i.e. that which originates and finally control the actual process of growth; and soul *γεννετική*, i.e. that which originates and controls the reproductive process. This primary soul remains as the main formative cause of all living beings. It is the reproductive soul *par excellence*, since its other functions are subservient and instrumental to reproduction[133]. R.D. Hicks argues that any attempt to determine the nature of nutriment meets with certain difficulties, such as: a thing is fed by its opposite and that feeding, like growth, is a matter of addition and therefore that like is fed by like. The advocates of the former view state that like is impassive to like because change will be to an intermediate situation, when it is not to a contrary and food in digestion undergoes a change. In addition they still insist that that which is in itself nourished is not affected by the nutriment as the nutriment is affected and changed in the process of nutrition, appealing to the example of the craftsman and his material: «if he is said to be affected by his material, what is meant is only that he changes from inactivity to activity». Truly speaking here all depends on what exactly is meant by «nutriment». Is it the food in its original state? Or is it in its state after digestion? If the former, then it is true that «contrary is nourished by contrary»; if the latter, then «like is nourished by like». Thus both views are correct and nourishment, as such, of the living being is relative to the animate being[134]. In *De Anima* B 4 Aristotle has described reproduction as being, along with nutrition, a function of the nutritive soul. In 432 a 10 he again links the two functions together, but nowhere in the *De Anima* discusses *genesis*[135].

The difference between «growth» adn «nutrition» is: in so far as the food is potentially flesh of a certain amount, it normally tends to increase flesh, whereas, in so far as it is potentially flesh only it is nourishment; τὸ συναμφότερον is the predicate, i.e. 'that which combines both the substance and the new quantity'. This new actual body is potentially another actual body and its actual size is potentially a different size. Thus what comes-to-be in growth is not *quantum-in-general* out of the mere potentiality of *quantum*, but a tissue or an organ of a determinate size out of, e.g. a piece of bread of a different determinate size. We observe that a similar principle holds in *genesis*, because what comes-to-be is not *animal-in-general*, but such and

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133. The first soul (*πρώτη ψυχή*), is mainly the soul whose functions distinctively characterize the lowest grade of *ἔμψυχα*, viz. the plants; cf. H. JOACHIM, *op.cit.* p. 111.

134. Cf. ARISTOTLE, *De Anima* B 4, 416 a 19 - b 11; R.D. HICKS, *op.cit.* p. 345. Aristotle summarises his main argument in *Physics* Θ 6, 260 a; cf. note 132 above.

135. Aristotle reserves the concept of genesis to discuss more thoroughly in *De Generatione Animalium*; cf. also D. ROSS, *Aristotle De Anima*, Oxford, 1967, p. 230.

such a specifically determinate animal[136]. John Philoponus points out that the parallel, according to Aristotle, breaks down if pressed. For man, e.g., comes-to-be out of matter which is not an 'animal', whereas a piece of flesh of such-and-such a size does not come-to-be in growth out of matter devoid of magnitude[137]. But here Aristotle is thinking mainly of the resultant and not of the matter. He states that the matter out of which the new body comes-to-be, is itself an actual body[138]. Nutrition continues through life: whether there is growth (or diminution) as well, depends upon whether the living thing is able to assimilate more food than is required to repair the waste of tissues[139]. Aristotle states that the form which grows in every part of itself as a kind of power immersed in matter — a duct as it were. If, then, a matter accedes —a matter, which is potentially a duct and also potentially possesses determinate quantity— the ducts to which it accedes will become bigger[140]. Aristotle calls the food which causes the growth of the flesh (1) «τὸ προσιόν[141]», and (2) «δυνάμει ποσὴ σάρξ[142]», and adds: «ἐὰν δή τις προσίῃ ὕλῃ, οὖσα δυνάμει αὐλός, ἔχουσα καὶ τὸ ποσὸν δυνάμει[143]». It is evident that the «potential duct» is finally conceived as a kind of food. Since the Aristotelian *εἶδος* is mainly defined as «δύναμίς τις ἐν ὕλῃ», obviously this 'form' denotes the acceding matter. Verdenius argues here that the words «τοῦτο τὸ εἶδος» refer to the preceding «τὸ προσιόν», and thus the two sentences are closely connected[144]. Joachim takes the form of the continuously growing thing as the main cause of growth. He then states that «as the animal grows old, this 'power' —the efficient cause of nutrition and growth— becomes weaker, i.e. unable to assimilate sufficient food to balance the waste of the tissues[145]». In fact the form is the embodied *ψυχὴ αὐξητική*, the actual *δύναμις αὐξητικὴ* which is essentially immersed in matter[146]. Here Aristotle compares the enfeeblement of the *αὐξητικὸν* to the weakening of wine when more and more water is mixed with it. But the parallel is not exact: for the 'form' of the tissue remains, whereas the wine is ultimately

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136. Cf. H. JOACHIM, *op.cit.*, pp. 134-35.
137. Cf. J. PHILOPONUS, *In De G.C.*, *op.cit.*, pp. 119-120.
138. ARISTOTLE, *De G.C.* A 5, 322 a 16-20.
139. *Ibid.* 322 a 24.
140. *Ibid.* 322 a 28-31; 321 b 22-34.
141. *Ibid.* 322 a 26.
142. *Ibid.* 322 a 27.
143. *Ibid.* 322 a 29-30.
144. Cf. W. VERDENIUS - J. WASZINK, *op.cit.*, pp. 29-30.
145. Cf. J. JOACHIM, *op.cit.*, p. 135.
146. ARISTOTLE, *De G.C.* A 6, 322 a 31-33; cf. 321 b 25-28.

converted into water[147]. No doubt the meaning of Aristotle is very clear: but the illustration is rather loosely attached to the main sentence. Joachim rightly asks: what has to be illustrated is the decay of the power embodied in the tissue: but what is expressed in the illustration is the action of the water in weakening the wine[148].

We observe that the water is at last no longer increasing the quantity of the wine is caused by the circumstance that at a certain moment the water begins to prevail over the wine, especially from the moment the mixture should be called «water»[149]. In any case the constituents of a mixture remain potentially what they were before the mixing took its actual place: «ἐνεργείᾳ μὲν ἑτέρου ὄντος τοῦ γεγονότος ἐξ αὐτῶν, δυνάμει δ' ἔτι ἑκατέρου ἅπερ ἦσαν πρὶν μιχθῆναι[150]». It is evident that that water retains its *εἶδος* i.e. it remains «δυνάμει ποσὸς οἶνος», just as the food is always «δυνάμει ποσὴ σάρξ[151]».

Aristotle distinguishes between growth and such a change as the production of air out of water. While similar in various aspects such expansion differs from growth in that: (a) there is no accession of fresh material, and (b) there is no perceptible substance persisting through the change. It is thus a case of growth, but of corruption and genesis. The Atomists claimed that the void enabled them to explain growth without introducing the paradox of there being two things in the same place: the growing body and the food that nourishes it[152]. In fact void, although it is identified as what is not, is accorded existence. One can hardly understand how the atomists justified this paradox. Perhaps their point was that, when a place is occupied by nothing, then insofar as the occupant —'the empty'— is nothing it does not exist, but insofar as it occupies a place it does exist. Thus, void is not 'space' or 'place' but a more mysterious entity, the negation of substance; obviously growth cannot exist here[153]. Aristotle refutes the arguments of the Atomists by positing four alternatives, one or other of which they must accept, yet none of which they can accept:

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147. *Ibid.* 322 a 32-33.

148. Cf. H. JOACHIM, *op.cit.*, p. 136.

149. ARISTOTLE, *De G.C.* A 10, 328 a 26-28: «μεταβάλλει γὰρ θάτερον εἰς τὸ κρατοῦν (διὸ σταλαγμὸς οἴνου μυρίοις χοεῦσιν ὕδατος οὐ μίγνυται, λύεται γὰρ τὸ εἶδος καὶ μεταβάλλει εἰς τὸ πᾶν ὕδωρ)».

150. Cf. *Ibid.* 327 b 24-26.

151. Cf. W. VERDENIUS - J. WASZINK, *op.cit.*, p. 30.

152. Cf. ARISTOTLE, *Metaphysics* A 4, 985 b 4 (D-K 67 A 6).

153. Cf. D.N. SEDLEY, 'Two conceptions of vacuum', in *Phronesis* 27 (1982), 179-83; G. KIRK - J. RAVEN - M. SCHOFIELD, *The Presocratic Philosophers, op.cit.*, pp. 416 ff.

(a) Not every part of the growing body grows. This will not do, for it is common knowledge that: the growing body grows proportionally in all its parts.

(b) Every part of the growing body grows, but what nourishes it is not body. This again will not do, says Aristotle, since both experience, and the atomistic theory imply that what nourishes, is something bodily.

(c) Every part of the growing body grows, and is nourished by certain bodily parts of it, and the growing thing is body. But then, the bodily parts and the body they are nourished by are in the same place; so, the Atomists fall into the same difficulty that they accuse us of falling into.

(d) Every part of the growing thing grows, and is nourished by something bodily, and all of its own parts are voids. This, no doubt, indicates the difficulty of two bodies in one place, but at what a price[154]?

The fact that matter is devoid of magnitude leads to the conclusion that: growth may be supposed, either to exist alone by itself, or to be contained in an actual body. One of the main principles of growth is that: any and every part of the growing magnitude is made bigger. Terms like 'flesh' and 'bone' are ambiguous, because, sometimes they mean the matter and at other times the form of these tissues[155].

In any case Aristotle states that growth is the coming into existence of a quantity. Since in general, A comes to be from not-A, the coming-to-be of a quantity might, supposedly, be from what is not a quantity. But this would only be the case if what came to be was quantity, considered as a universal. What comes to be in growth, however, is no more quantity. This interpretation of the relevance of *De G.C.* 322 a 16-20 is due to Philoponus[156], who suggests that «rather we may say that what accedes to the growing thing is a given quantity[157]».

3. Genesis as contact and as continuity

In *De Generatione et Corruptione* A 6, 322 b 1 ff., Aristotle states that any examination of both generation and corruption is impossible without the study of the notion of contact. He begins his examination of the notion of

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154. ARISTOTLE, *De G.C.* A 5, 321 a 9-29; H. JOACHIM, *op.cit.*, pp. 124-25.

155. *Ibid.* 320 b 17; *Metaphysics* Z 7, 1032 a 12, Z 7-9, 1034 b 16-19. A helpful discussion of this passage can be found in Professor G.E.M. ASCOMBE'S *Collected Philosophical Papers*, Oxford, Blackwell, 1981, Vol. I, pp. 64 ff.

156. Cf. J. PHILOPONUS, *In De G.C. op.cit.*, p. 119.

157. ARISTOTLE, *De Anima* B 4, 416 b 11-13.

contact mainly by allowing for certain variations in the actual sense of the world. In particular the extensive use of the adverb *ὁμώνυμος* (equivocal) declares the way in which words are used of things rather than the way in which things are described by words[158]. Certain philosophers are confused when they attach importance to the fact that Aristotle usually calls things rather than words *ὁμώνυμα*, or conclude it is misleading to translate «τὸ δ' ὂν πολλαχῶς καὶ οὐ καθ' ἕνα λέγεται τρόπον[159]», as 'the word «being» is used in many senses' because «it suggests that Aristotle is talking about a word[160]». Aristotle's terminology varies, because sometimes he makes the distinction between *ὁμώνυμος - συνώνυμος* too exhaustive, and, sometimes he makes the *ὁμώνυμα* a subdivision of the *πολλαχῶς λεγόμενα*. The actual meaning of the notion of contact given in *Physics* E 3, 226 b, 23: «ὅσα ἐν ἑνὶ τόπῳ ἐστὶ πρώτῳ, χωρὶς δὲ ὅσα ἐν ἑτέρῳ, ἅπτεσθαι δὲ ὧν τὰ ἄκρα ἅμα», is enlarged here to all things which will be in contact with each other and in themselves are discontinuous objects having both size and certain position holding their extremities together. According to Aristotle whatever has position has place; thus all things that are in contact with each other will possess heavings or lightness, either both or just one[161]. Sir D. Ross states that according to Aristotle *prima facie* two things cannot be «ἅμα κατὰ τόπον», for the place which contains nothing but A cannot contain nothing but B. Yet Aristotle evidently means that in some sense two things can be «ἅμα κατὰ τόπον». In fact the term *ἅμα* defines not the continuity but the less close relation of contact[162] the unity of the two extremes is distinguished from their being *ἅμα;* thus two things are *ἅμα* if they are in one place which contains nothing but *the two,* i.e. where there is nothing between them[163].

In *De Generatione et Corruptione* A 10 (327 a 30 ff), Aristotle discusses the problem of mixing or, according to Joachim, combination[164]. *Mixing* is distinguished by Aristotle from genesis, growth, alteration and corruption, as well as from mechanical mixture (*σύνθεσις*). In fact *μίξις* means the coming

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158. Cf. G. WILLIAMS, *op.cit.,* pp. 112-13.

159. ARISTOTLE, *Metaphysics* K 2, 1060 b 32-33; 1059 a 20-23; W. ROSS, *Aristotle's Metaphysics*, *op.cit.,* Vol. II, pp. 312 ff.

160. Cf. W. CHARLTON, *Aristotle's Physics, op.cit.*, p. 54; J. ACKRILL, *Aristotle's Categories and De Interpretatione*, Oxford, 1963, pp. 71 ff.

161. ARISTOTLE, *De G.C.* A 6, 322 b 33 - 323 a 1; cf. *Physics* E 3. Sometimes there is a confusion between the terms *ἁπτόμενον* and *ἐφεξῆς*. Cf. D. ROSS, *Aristotle's Physics, op.cit.*, p. 626.

162. ARISTOTLE, *Physics* E 2, 226 b 23.

163. Cf. D. ROSS, *Aristotle's Physics, op.cit.*, p. 627; cf. also H. JOACHIM, *op.cit., Introd.* § 10.

164. Cf. H. JOACHIM, *op.cit.*, p. 175.

together of two separate bodies in order to form a single resultant in which they are merged. Evidently the properties of the resultant are different from those of the constituents. Every part of these particulars, however small, possesses exactly the same properties as the whole. It is noticeable that the modern theory on this matter is partly alien to Aristotle's thinking; for in 'chemical combination the atoms of the combining substances remain intact and change only in respect of their relation to each other. For Aristotle this would be a case of mere 'composition', but for modern chemistry it is a matter of atomistic approach[165].

Combination or mixing for Aristotle is that which gives rise to homoiomeres[166], it is distinguished from growth[167]. The food by which a living body grows was said, tentatively, to be 'mixed' with the body[168]. Certain thinkers argue that mixture seems to be a rather vague case. Joachim states that either both constituents are preserved in the compound or both are simultaneously destroyed, whilst the other is preserved. Evidently, if both constituents survived unaltered, there is no mixture, because mixture implies that the constituents have finally merged in an entirely new resultant[169]. Yet, if both are destroyed, 'they' are not at all and *a fortiori* are not combined: whilst if one is destroyed and the other is preserved, the two do not contribute to constitute a joint resultant, because they have not 'combined', but one is and the other is not[170].

Aristotle insists in pointing but the difference between combination and (i) growth and (ii) alteration. Growth is a mere illustration of the third alternative, and alteration illustrates the first alternative, viz. the preservation of both constituents. Incidentally Aristotle criticizes those thinkers who postulated a primordial 'togetherness' of all things and termed this as a mixture (*μῖγμα*), because all 'things' would include passions, and obviously these cannot 'combine'. In fact combination implies combinables which exist *per se* before the forthcoming combination, but no passion can exist *per śe*. Every passion is an 'adjectival', its *esse* is *inesse*[171].

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165. Cf. C. WILLIAMS, *op.cit.*, p. 142; H. JOACHIM, *op.cit.*, 176.

166. ARISTOTLE, *De G.C.* A 10, 327 a 30; cf. H. JOACHIM, *op.cit.*, pp. 178-79.

167. ARISTOTLE, *De G.C.* A 10, 327 b 13.

168. *Ibid.* A 7, 322 a 9; 327 a 25.

169. *Ibid.* A 10, 327 a 30 - 328 b 22.

170. Cf. H. JOACHIM, *op.cit.*, p. 178; C. WILLIAMS, *op.cit.*, p. 143.

171. ARISTOTLE, *De G.C.* A 5, 320 b 17-25; cf. J. PHILOPONUS, *In De G.C.* pp. 84-85. It is evident here that Philoponus supposes the thinkers like Anaxagoras, but Aristotle probably refers to Empedocles as well as to Anaxagoras; cf. *De G.C.* B 7, 334 a 26 - b 2; *Physics* A 4, 187 a 20-23.

Further, the concept of mixture seems to be self contradictory, because it demands both the constituents shall merged (i.e. destroyed) in the resultant, and that they shall survive (i.e. not merged), since they are to be recoverable by analysis. Aristotle states that a thing must either be or not-be x: but in fact we must recognize a distinction in the grade of a thing's *being*[172]. For a thing, which is x, may be-potentially x or may be-actually x; and a thing, which is-not x actually, may nevertheless be-potentially x. Joachim argues that if this distinction be applied, the conception of mixture ceases to be self-contradictory, because the different characteristics of 'combination' are compatible with one another, and he is right[173]. There are certain difficulties concerning the reference of Aristotle to «τὰ μιγνύμενα» as «δυνάμενα χωρίζεσθαι πάλιν». Perhaps he is thinking of the interpretation of a genuine chemical compound, a hypothesis adopted by Philoponus who refers to the recovery of wine by filtering: «φασὶ γοῦν διὰ τῶν καλουμένων ἐν τῇ συνηθείᾳ στρατιωτῶν ποταμοῦ διηθούμενον τὸν κεκραμένον οἶνον διακρίνειν τοῦ ὕδατος τὸν οἶνον[174]».

In addition Aristotle asks: in what precise sense are the constituents preserved potentially in the compound? But, as Joachim argues, what is the actual meaning of the phrase that 'each of the constituents may still be-potentially what it was before they were combined[175]? Joachim discusses the whole problem and attempts to clarify certain obscurities, but Williams makes reference to those commentators who 'are much puzzled about what facts Aristotle can have in mind when he says that things that are mixed manifestly... are capable of being separated again'. He adds: «it is easier to sweeten tea than to get the sugar out of it again[176]».

The whole process of movement and the relation between genesis and corruption implies the notion of contact, mainly as an essential condition for the mutual interaction of things —«acting and suffering» as the Platonists call it— and that continuity is the basic characteristic of every movement and, with one exception, of every change. In the *Parmenides* 'contact' is among the relationships between 'the one' and the others that Plato takes up for scrutiny[5], i.e. the one is and is not in contact with other entities[177]. In the *Physics* itself the 'continuous', the 'together' and the 'contact' are assigned

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172. ARISTOTLE, *De G.C.* A 10, 327 b 22-31; 326 b 30.
173. Cf. H. JOACHIM, *op.cit.*, pp. 179-80.
174. ARISTOTLE, *De G.C.* A 10, 327 b 22 ff; J. PHILOPONUS, *In De G.C.* p. 191.
175. ARISTOTLE, *De G.C.* A 8, 325 b 25-26, especially b 30-31: «σώζεται γὰρ ἡ δύναμις αὐτῶν;» cf. J. PHILOPONUS, *In De G.C. op.cit.*, p. 180.
176. Cf. H. JOACHIM, *op.cit.*, p. 181; C. WILLIAMS, *op.cit.*, pp. 144-45.
177. Cf. PLATO, *Parmenides* 148 d 5.

important functions within the process of movement. The great store which Aristotle set by the concept of contact may account for another piece of doctrine which does not, however, have its proper place in his physics but is incidental to his psychology[178]. In bulding up his concept of continuum Aristotle states that its «component elements», the 'extremities' differ from the 'contact', in that: in contact these extremities need only be together whereas to form a continuum they must grow into 'one'[179]. Extremities are parts, and if the smaller units of which a continuum is composed must have extremities, it follows that no continuum can be composed of partless or indivisible units[180].

4. Phthora as passing-away

In definite contrast to Empedocles and Anaxagoras, Plato had never subscribed to the Parmenidean doctrine that «becoming is extinguished and passing-away unknown». In the *Phaedo* (42 c) we read that «the nature of things is destroyed as a result of comparison, distinction, growth and decay». In the *Laws* (I 897 a) the meaning of complete corruption seems to be used as an eqivalent of complete disappearence. The context and the wording of the *Philebus'* text in general suggest processes, like the destruction or corruption of a constitution, through disease[181]. In *Parmenides* growth and decrease or diminution are understood as *genesis*, larger and smaller, appearing to treat qualitative change, as becoming, similar or dissimilar[182].

To Aristotle, *genesis* is not motion, since motion implies the existence throughout the motion of that which is moved, while *genesis* implies the original non-existence of that which becomes. Thus corruption is not motion either, because the contrary of a motion is always a rest, while the contrary of corruption is becoming, and especially a simple genesis, the «coming into being of a substance»[183]. In fact, corruption, as the term of the process known as motion, is a correlative of *genesis*, the beginning of the process, and must be seen in that context[184]. Anaximander's doctrine on the coming-to-be

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178. ARISTOTLE, *De Anima* B 7, 419 a 13 ff, 18, 25, 32; B 8, 418 a 13 ff. In Aristotle's *De Sensu* some further developments of the theory are put forward (438 a 12 ff); cf. Fr. SOLMSEN, *op.cit.*, pp. 195-96.

179. Cf. ARISTOTLE, *Physics* E 3, 226 b 23; Z 1, 231 a 21 ff.

180. Fr. SOLMSEN, *op.cit.*, p. 199.

181. Cf. R. HACKFORTH, *Plato's Examination of Pleasure*, Cambridge, 1945, pp. 83 ff.

182. Cf. R.E. ALLEN, *Plato's Parmenides*, *op.cit.*, pp. 286 ff.

183. Cf. Fr. SOLMSEN, *op.cit.*, pp. 321 ff.

184. ANAXIMANDER, fr. 12 B 1; Th. Veikos, *op.cit.*, p. 57.

and passing-away is important, but there exist certain gaps in explaining the structure of the cosmic causality. Prof. Veikos attempts a reconstruction of the text of Siplicius and he proceeds to a substantial explanation of those elements which serve as the very beginning of genesis[185]. The interrelation between genesis and corruption is evident in Anaximander's argument, who accepts the perceptible body to be actually infinite, that it is possible for the destruction of one thing to be the genesis of the other. This was precisely Anaximander's view of physical change that there is no wastage: opposed substances make retribution to each other for their encroachments[186]. Thus, beings that are without motion, like the «being» of Parmenides[187] and the «forms» of Plato[188] lack both *genesis* and *passing-away*[189]. The reason why the «being» of Parmenides is *ἀκίνητον* is asserted to be the absence of *γένεσις* and *ὄλεθρος*. In fact *κίνησις* does not imply both change and movement because if by *ἀκίνητον* Parmenides had been thinking of the denial of *γένεσις* and *ὄλεθρος* it would be tautological to say that Being is *ἀκίνητον* because *γένεσις* and *ὄλεθρος* are impossible[190]. But Parmenides asserts here that change as a phenomenon is included among the things that require *γένεσις* and *ὄλεθρος* and therefore has to be denied as the main characteristic of Being[191]. This *ὄλεθρος* receives a rather metaphysical interpretation from Plato, in the essence in which he gives one of genesis[192]. Do the forms cause corruption as they cause genesis? Hardly! Or does one miss «passing-away» when Plato sums up[193]? Both Plato and Aristotle are agreed that the frame of the world took up the whole of each of the four elements or constituents[194]. In particular Plato shows how the destruction of one elementary body is the coming-to-be of another and Aristotle argues that destruction and coming-to-be play into each other's hands. In fact, if everything might pass out of existence, genesis itself would cease, and this is

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185. Cf. PLUTARCHUS, *Strom.* 2; SIMPLICIUS, *In Physics*, p. 24, 17; Th. VEIKOS, *op.cit.*, pp. 58-59.

186. G. KIRK - J. RAVEN - M. SCHOFIELD, *op.cit.*, pp. 114-15.

187. Cf. PARMENIDES, *fr.* 8, 26.

188. Cf. PLATO, *Phaedo* 78 a.

189. Cf. PARMENIDES, *fr.* 8, 27; L. TARAN, *Parmenides, A Text with Translation, Commentary and Critical Essays*, Princeton, N.J., 1965, pp. 109 ff.

190. PLATO, *Parmenides* 138 b-c; *Theaetetus* 182 a-b.

191. Cf. L. TARAN, *op.cit.*, pp. 112-13; W.J. VERDENIUS, *Parmenides: some comments on his Poem*, Groningen, 1942, pp. 54 ff.

192. Cf. PLATO, *Timaeus* 52 a; A.E. TAYLOR, *A Commentary on Plato's Timaeus*, Oxford, U.P. 1962, pp. 343 ff.

193. PLATO, *Timaeus* 52 d.

194. *Ibid.* 32 c 5; ARISTOTLE, *De Caelo* A 9, 278 b - 279 a.

the most dreadful of all possibilities that a physicist may contemplate[195].

Prof. M. Nussbaum elaborates the important Aristotelian distinction among the various stages of both *genesis* and *corruption* of a being, which are dependent on the prior local motion of the parent organism, in the ensouled beings[196]. Aristotle employs a fourfold classification: according to essence, or to quality, or to quantity or to place[197]. In fact, nothing is the reason for its own genesis or corruption, apart from growth and alteration. In *De Generatione Animalium* (735 a 13-14), he indicates the dependence of this change on local motion. M. Nussbaum insists that the cause of both genesis and corruption is the first motion. This argument is based on Aristotle's *Physics*[198] and she agrees with relevant views of Burley and Albertus. The local motion causes the genesis, the corruption, the growth and the alteration of all perishable creatures.

Aristotle argues that the corruption of a thing is the simultaneous generation of another and vice versa. But what sort of identity is this? He will not allow that things come-to-be out of nothing, just as they perish-into nothingness. The identity formula clearly makes *generation simpliciter* analogous to *alteration*: coming-to-be something, just as something ceasing to be pale, is a case of something's coming to be dark so something's ceasing to be *simpliciter*. But the first case involved just one thing, while in the second, the ceasing to be one thing is said to be the coming to be of something else[199].

In *De Generatione et Corruptione* (B 9, 335 b 6 ff) Aristotle identifies the final cause, the cause by way of 'that for the sake of which', with the formal cause. The form of each thing, e.g. an animal, which is expressed in the definition of what it is to be an animal of that species, is also the goal at which its processes of development are aimed[200]. Aristotle attacks the theory: that the phenomena of generation and corruption are all to be explained in terms of the defining qualities of the elements. In his eyes the elements may not be prime matter, but from the point of view of homoiomeres and natural bodies which are compounded out of them, they are matter in relation to the form

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195. The horror at the mere thought of it is vividly brought out by Plato, especially in his *Phaedrus* 245 d 7 and *Laws* I 895 a 6 ff. Plato conjures up this hypothetical and utopian possibility with reference to what Aristotle regards as the other cause of eternal genesis; cf. *De Caelo* A 3, 317 b - 318 a; Fr. SOLMSEN, *op.cit.*, pp. 330-31, cf. note 84 supra.

196. Cf. M. NUSSBAUM, *De Motu Animalium*, *op.cit.*, p. 327.

197. ARISTOTLE, *Metaphysics* Λ 1, 1069 b 9-13; N 1, 1088 a 31-33; *De G.C.* A 2, 317 a 25-26; Λ 4, 319 b 31 - 320 a 2, 12-15.

198. Cf. ARISTOTLE, *Physics* Θ 7, 261 a 7-10.

199. Fr. SOLMSEN, *op.cit.*, pp. 330-31.

200. This is a doctrine frequently expounded by Aristotle in *Metaphysics* H 4, 1044 b 1 and *Physics* B 6, 198 a 24-35, where the identification includes the efficient cause as well.

which is constituted by the proportions in which they are mixed and the arrangement of the parts of the complex bodies. The inadequacy of this theory is to be ascribed, according to Aristotle, to the absence of the efficient cause. In fact Aristotle's theory of the efficient cause of γένεσις and φθορὰ presupposes his astronomical system, which is a reflection of the ideas of Eudoxus[201]. This theory is mainly based on the fact that motion (a) is eternal and (b) is the primary form of change, of which all other forms, including *genesis*, are derivatives[202]. Thus, motion causes coming-to-be[203], and the *eternity* of motion causes the continuity of coming-to-be[204]. Joachim argues that since *genesis* and *corruption* (a) occur continuously in the lower world and (b) are contrary to one another; the motion, which is their efficient cause, must be (a) eternal and continuous, and (b) in some sense *dual* or internally diverse, since it has to cause a pair of contrary effects[205]. The internation of both *genesis* and *corruption* is primarily ascribed to the sun's zodiac circle in *Meteorologica* 346 b 16 ff[206]. This doctrine is implied in *Metaphysics* (1071 a 15-16; 1072 a 10-18)[207].

Aristotle's argument of the efficient cause of genesis and corruption reveals a certain 'metaphysical' or 'theological' background[208]. The continuity of generation is expressed by the process which begins with what is called 'generation' or coming-to-be, coming —into existence, and continues with what is more properly called 'growth'— the whole process of development from the conception or germination of a thing to its real attainment of maturity. The term 'corruption' is similarly extended to include decay, hence the term 'diminution' (*φθίσις*) occurs in *De G. C.* 336 b 18, with the meaning of corruption.

Scholars debate whether or not it is ever Aristotle's view that the material cause necessitates its effect and whether his distinction between it and the final cause coincides with that which he makes between what is

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201. Cf. ARISTOTLE, *Metaphysics* Λ 8, 1073 b 18 - 1074 a 17; cf. also T.L. HEATH, *Mathematics in Aristotle*, Oxford, 1949, pp. 190 ff.

202. Cf. H. JOACHIM, *op.cit.*, p. 254.

203. ARISTOTLE, *De G.C.* B 10, 336 a 25; cf. C. WILLIAMS, *op.cit.*, pp. 186-87.

204. ARISTOTLE, *De G.C.* B 10 336 a 15-18.

205. *Ibid.* 336 a 23-31; J. PHILOPONUS, *In De G.C.*, *op.cit.*, pp. 304-05; H. JOACHIM, *op.cit.*, pp. 254-55.

206. ARISTOTLE, *De G.C.* B 10, 336 b 6-7.

207. Cf. IDEM, *Physics* B 3, 194 b 13.

208. *Ibid.* Θ 7 and 8; H. JOACHIM, *op.cit.*, pp. 255-56; also see: *Metaphysics* Λ 6-7, 1027 a 19 - 1073 a 13; *De Caelo*, A 9, 279 a 16-30; B 6, 288 a 13-17; B 12, 292 a 18 - b 25; J. PHILOPONUS, *In De G.C. op.cit.*, p. 288, 24-26.

necessary *simpliciter* and what is necessary *ex hypothesi*[209]. When one predicate in the category of substance ceases to hold of a thing and another comes to hold of it we have corruption and generation simpliciter. But this argument is valid only if one and the same thing is subject of both predicates. If, however, the thing of which the first predicate held persists and finally remains the subject of the second, it does not cease to be at all, and we have alteration rather than corruption and generation[210]. Evidently, we see that which persists has, in a sense, to be different from what ceases to be. It has also to be something which in some sense 'is not'. The actual sense in which it is different is described by these rather mysterious phrases 'in being', 'in definition'. The sense in which it 'is not' is described by the word translated 'in actuality'. 'In potentiality' it 'is', and qua potential it persists[211]. When Aristotle says 'nothing' he means 'nothing actual'. What is actually nothing is nothing. If prime matter is nothing in actuality there is no such thing. What there is, is a real confusion in Aristotle's thinking, a notion of prime matter which is internally incoherent and to which nothing therefore corresponds, even potentially[212].

The whole problem of corruption is closely related to the question of the difficulty of accepting the perpetual genesis. The perpetuity of genesis depends on the assumption that *τὸ φθειρόμενον* passes-away into *τὸ μὴ ὄν*, and that *τὸ μὴ ὄν* is nothing[213]. The substratum never exists as *bare* matter, but always is formed, there always is a positive actual substance. Hence *φθορὰ* is not annihilation. In other words there is no passing-away into nothing and therefore no gradual exhaustion of *τὸ ὄν*. Matter is eternal, but it exists always, and only, as formed-matter: thus the succession of generations is perpetual, for matter is always being transformed, though never annihilated[214]. John Italos queries the Aristotelian argument and asks: if not being is according to form and the being according to matter, how can beings be many? Then matter will be 'being' and the form not being. But, he says, all beings, while in movement and time, are said to be beings and not

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209. Cf. W. CHARLTON, *Aristotle's Physics, op.cit.*, p. 115; D.M. BALME, *Aristotle, De Partibus Animalium* I, Oxford 1972, p. 76; J. BARNES, *Aristotle's Posterior Analytics*, Oxford 1975, pp. 221 ff.

210. ARISTOTLE, *De G.C.* A 3, 319 a 8-14; C. WILLIAMS, *op.cit.*, p. 96.

211. Cf. S. MANSION, *Le jugement d'existence chez Aristote. Editions de l'Institute Superier de Philosophie*, Louvain, 1976, pp. 75 ff.

212. ARISTOTLE, *De Anima* B 2, 414 a 22; cf. D. ROSS, *Aristotle De Anima, op.cit.*, pp. 218-19.

213. ARISTOTLE, *De G.C.* A 3, 318 a 14-15.

214. Cf. H. JOACHIM, *op.cit.*, p. 97.

beings; they are beings according to their forms and not beings according to their matter. This kind of corruption is not the complete disappearence («οὐκ ἀπόσβεσις») of matter, for it does not occur suddenly[215]. In fact Aristotle insists on the presupposition that since substantial genesis and corruption are not in themselves creation and annihilation, but transformation, given *materia prima* —a transformable subject, which is able to accept every form and always exists under some form— these processes can happen and can perpetually continue: and they can do under no other condition. Thus, prime matter is the *conditio sine qua non* of their being and their perpetuity[216]. Italos apparently does not follow the Aristotelian doctrine that each creature is the cause of its corruption and generation, with the corrupted object leading to a further rebirth, because for him, corruption leads to an inferiority, in the lowering scale of gradation of the process of corruption[217]. Similarly John Philoponus argues that the incorruptible beings serve as the archetypes of all other beings, taking into account that corruptibility is closely related to the created or uncreated beings[218]. So the corruption of a being appears to be the immediate transference from one status to another, through local motion, and exists apart from the prime mover. The two complementary elements of a thing result in dissolution, which in fact is corruption. The form remains incorruptible, but despite the corruptibility of the sensible objects there remains in them a continuous desire for everlastingness, which springs from the first creative principle[219].

John Italos, among other scholars, argues that the everlastingness of the world creates many difficulties in interpreting the entire universe. Although the distinction in terminology is not always maintained by the philosophers, the concepts of everlasting production in time is separate and quite different from 'eternal', i.e. belonging to the order of time, but to the order of

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215. Cf. J. ITALOS, *op.cit.*, p. 26, 9-12: «οὐ γὰρ οὕτω πέφυκεν, οὐδ' ἔχει εἰς ὃ τὴν μεταβολὴν ποιήσεται, ἀλλ' ἀπό τινος εἴς τι κίνησίν τε καὶ μετάβασιν· τοῦτο γὰρ ἴδιον αὐτῆς, ὡς καὶ τοῦ πρώτου τὸ ἀκίνητόν τε καὶ ἀμετάβλητον...» 18: «οὐκ ἄρα κατὰ τὴν ὕλην ἡ αὔξησις, ἀλλὰ κατὰ τὸ εἶδος, ὡς δέδεικται».

216. ARISTOTLE, *De G.C.* A 3, 318 a 25-27; cf. M. PSELLOS, *De Omnifaria Doctrina, op.cit.*, p. 53, ch. 91.

217. ARISTOTLE, *De G.C.* A 3, 318 a 23-24; J. ITALOS, *op.cit.*, p. 118, 5: «κόσμος φαῖεν ἂν τὴν ἑαυτοῦ φθίσιν οἰκείαν κέκτηται φύσιν... ἀλλ' οὐρανὸς ἴσως ἀΐδιος, τὴν γὰρ ἐκείνου φθίσιν τροφὴν ἑαυτοῦ ἔφασαν». Also cf. PLATO, *Timaeus* 33 c; AETIUS, *Plac.* II 16: 346 a 16, II 5, n. 2: 333 a 4. In accordance with Plato's doctrines on the growth and corruption of the world, Psellus argues that the continuous diminution of the world leads to its gradual entry into void; cf. IDEM, *De Omnifaria Doctrina, op.cit.*, p. 81, ch. 158.

218. J. PHILOPONUS, *In De G.C.*, p. 1, 9: *In De Anima*, p. 7, 14-15.

219. Cf. J. ITALOS, *op.cit.*, p. 118, 5 ff; 26, 7.

eternity. Thus, everlastingness is a question of the occurrence or the possibility of occurrence of corruption[220]. In fact, if the world is everlasting, its corruption must be due to its own weakness and imperfect structure, and not that of its creator. No doubt, corruption refers to matter, which is like a temporal flux and transition of the substratum, and secondly to form, which signifies the departure from this world. Italos is not convinced of whether matter should be considered partly corruptible and partly incorruptible. In matter's corruption the source of being is not involved, for it exists apart from it. As the form of beings is contained in matter, it would be absurd to imagine that the world would remain in an imperishable state, while matter was undergoing corruption. It is evident here that Italos accepts the coexistence of form with matter in all grades of mutation, which occurs in matter[221]. The desire for everlastingness exists in creatures and springs from the First Principle, in which every being fully participates[222].

The problem now to be faced is: How can the world exist in one entity, though being a synthesis of two contradicting principles, that of beings and that of not-beings? Italos argues that what is corrupted and emerges again from the corruption is not the same thing, but constitutes a plurality within the world. In fact what is one in number refers to matter and applies to not-being and therefore it cannot be called «being». It is obvious that the world preserves its unique nature, by its form, which is the unifying power[223]. Granted that the universe is to be corrupted, which world do we mean? This existing world or some other? If it is this world, will there be something left afterwards? If what is left still belongs to this world, then the corruption will be in vain. But if what is left is a part of a different world, it must be either something greater or worse or similar. It is impossible for this remaining part of the world to be greater, as in that case it would have been created previously; thus the demiurge would be denied the chance of creating a better world; nor can it be similar, since the corruption and creation of a similar world would be meaningless; neither can it ben worse, for this would prove an inferior creator. Therefore, the sensible world appears to be both everlasting and incorruptible[224].

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220. *Ibid.*, p. 122, 10 ff; M. PSELLUS, *op.cit.*, p. 81, ch. 157; p. 82, ch. 161. Also cf. PLOTINUS, *Enneads* III 7, 3.

221. Cf. J. ITALOS, *op.cit.*, p. 122, 19; ARISTOTLE, *Eudemian Ethics* 1229 a 34.

222. J. ITALOS, *op.cit.*, p. 122, 11-13; cf. L.J. ROSAN, *The Philosophy of Proclus. The Final Phase of Ancient Thought*, New York, 1949, pp. 94-95; 141-42.

223. Cf. J. ITALOS, *op.cit.*, p. 147, 10 ff; cf. C. NIARCHOS, *God, the World and Man in the Philosophy of John Italos, op.cit.*, pp. 207 ff.

224. Cf. J. ITALOS, *op.cit.*, p. 123, 6 ff; cf. also C. NIARCHOS, *op.cit.*, pp. 278 ff.

According to the above mentioned argument Italos states that since matter itself is not-being, it becomes being by receiving its form, and as such, in no case can it be everlasting. Obviously, the cause of its corruption is not the creator, but its dual composition. In other words matter introduces corruption in the world, which does not affect the forms, for it would be absurd to consider the forms partly corruptible and partly incorruptible. If it would have so happened, then matter and bulk, quantity and quality, as well as the condition of form and bodies would all be purposeless[225].

This analysis and argumentation of Italos and Psellos concerning matter and form tends to rescue the creator from the responsibility for the corruption of the world, which is his creature; thus the entire universe is twofold: being in its form and not-being in its matter. Nevertheless the corruption of the world is not complete, but it undergoes continuous alteration, change and mutation. The corrupting process, being both a dissolution of the composite parts and the mutation of the forms, does not affect the soul, which preserves its own incorruptibility. This intepretation excludes any possibility of dualism, with one part of the world seen as created by the demiurge and the other derived by another separate creator[226].

Psellos and Italos' interpretation of the Aristotelian doctrine of coming-to-be and passing-away is a contribution towards the interpretation and understanding of certain cosmological problems. It is clear that nature is not everlasting and everything that becomes within it underdoes corruption, not in the sense of complete disappearance. Both coming-to-be and passing-away is the necessary process of all beings, whose decay in no sense serves as their nourishment, for such a thing, according to Italos, would result in the everlastingness of the world, which is absurd, mainly due to the presence of the corruptible matter in it. The soul is not affected by any change and corruption and preserves its identity, because it is not composite like the corruptible bodies. It is true that when Plato in the *Timaeus* proves the necessity of never ceasing genesis, he places it besides being and the receptacle as the third eternal reality. The doctrine of everlastingness of the world includes the theory on the eternity of the entire universe. Proclus understands Plato to be arguing that the cosmos is imperishable, in the sense that it is ungenerable —and hence ungenerated— as well, because Proclus insists that everything which is imperishable is also ungenerable[227]. Philopo-

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225. J. ITALOS, *op.cit.*, 122, 28; 123, 14 ff; M. PSELLOS, *op.cit.*, p. 51, ch. 86; p. 53, ch. 92.

226. J. ITALOS, *op.cit.*, 122, 35/ H. JOACHIM, *op.cit.*, pp. 98 ff.

227. Cf. L. JUDSON, «God or Nature? Philoponus on Generability and Perishability» in *Philoponus* etc. *op.cit.*, pp. 181 ff.

nus attacks some of Proclu's ideas, but he does not, however, attack the rather dubious idea that imperishability entails ungenerability. In fact Aristotle himself had used the closely related doctrine that imperishability and ungenerability entail each other to declare that a kind of Timaean world is absolutely impossible in *De Caelo* 1, 12. Obviously, according to Aristotle, this argument also rules out even the possibility of a *finite* world, as this world is defined by Philoponus[228].

Conclusion

Aristotle's physical scheme does not include eternally 'being' things comparable to Empedocle's divine elements, Anaxagoras' powers and Democritus' atoms. Such eternal principles would suffice to guarantee the eternity of genesis with the relevant implications to corruption. We doubt whether Aristotle has finally refuted the possibility of a finite Democritean cosmos, composed of the atoms. If the elements themselves come-to-be, grow, alter and pass-away, the predicate of eternity must be attached to the cause of genesis as such. It need not be fully divine; for the physicists had long been in the habit of positing eternal entities without granting them the highest honour in their gift. Even «immortal» seems too good a word, an indication, perhaps, that Aristotle could give more of his personal enthusiasm to movement than to *genesis*[229].

In Plato's *Phaedo* 102 b-105 b there is an element as the example of Aristotle's own theory of genesis. The immanent forms are not themselves subject to genesis, for it has to do with things and nothing more than the replacement in a subject of one form by its opposite. In fact it is Aristotle's contention that Parmenides' views on not-being had frightened his successors off the subject of true genesis and into reducing all becoming to either qualitative change (*ἀλλοίωσις*) or merely shifting around the ingredients[230].

Creation, in the Christian sense of a free creation, could have had no interest for the Primary Philosophy, even had Aristotle believed it as a religious dogma. J. Owens argues that it would not have been reducible to a form, it would have been 'being per accidents' and so outside the scope of

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228. Cf. *Ibid.*, p. 181 and note 9; also cf. PLATO'S, *Timaeus* 29 e. The creation of the world is due to the benefaction of God.

229. PLATO, *Timaeus* 52 d 3; cf. C. WILDBERG, «Prolegomena to the Study of Philoponus's *contra Aristotelem*» in *Philoponus* etc. *op.cit.*, pp. 197 ff.

230. Cf. ARISTOTLE, *Physics* A 4, 187 a-b; *De G.C.* A 1-2.

science. A fundamentally new metaphysics would be required if it were to have a place in philosophy[231]. Hence, a necessary creation would place the actuality of the finite separate entities outside themselves, resulting in the inevitable destroying of their entire nature; Aristotle argues that the actuality of an efficient cause as such is in the patient and not in the agent. The Owens interpretation of the *Metaphysics* is correct, because the finitude of the Aristotelian perfect Beings must, in any case, bring them under a strict application of this norm[232].

Evidently there is no room for efficient cause, concerning the whole process of coming-to-be and passing-away of beings. Perfection is usually equated with finitude, actuality coincides with form. Thus, there is no access to the theory of an omnipotent Christian God, as the source of creation. Aristotle was under no obligation to posit a strict unity as the foundation of things, because he saw a plurality of forms and categories and finally reduced them to a *πρὸς ἕν* unity. The main problem Aristotle faced here was to reduce the plurality to a unity sufficient for a science. Accordingly, nor does the process of coming-to-be and passing-away require or even allow a temporally first efficient cause. It has been argued that the series of generations is due to its nature eternal, hence requiring an unchanged first mover to account for its eternity. The problem now is that that immovable mover functions only as a final cause[233].

John Philoponus, Michael Psellos and John Italos, among other thinkers have discussed certain problems concerning the process of coming-to-be and passing-away. It is more than clear that nature, and the world in a broad sense, is not everlasting and everything that becomes within it undergoes corruption, not in the sense of complete disappearence. Both coming-to-be and passing-away is the necessary process of all beings, whose decay in no sense serves as their nourishment, for such a thing, according to Italos, would

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231. Cf. J. OWENS, *The Doctrine of Being in the Aristotelian Metaphysics, op.cit.*, p. 467.

232. ARISTOTLE, *Metaphysics* Θ 8, 1050 a 30-31; K 9, 1066 a 27-34. Aristotle uses *ποιεῖν* in speaking of separate entity (cf. *De Anima* Γ 5, 430 a 12, 16, 19). The expression «God and nature do nothing in vain» seems proverbial and figurative, since there is not elsewhere any specific reference to the matter (cf. *De Caelo* A 4, 271 a 33: «ὁ δὲ θεὸς καὶ ἡ φύσις οὐδὲν μάτην ποιοῦσιν»).

233. Creation of all things by God in Aristotle has been defended by A. BULLINGER, *Des Aristotles Erhabenheit über allen Dualismus*, München, 1978, pp. 19-21 and Fr. BRENTANO, «Über den Creationismus des Aristoteles», in *Wien Sitzb.* 101. X (1882), 95-126; cf. J. OWENS, *op.cit.*, pp. 468 ff; J. AERTSEN, *Nature and Creature. Thomas Aquinas' Way of Thought*, Leiden, Brill, 1988, pp. 310-322.

result in the everlastingness of the world, which is absurd, mainly because of the presence of the corruptible matter in it. The soul is not affected by any change and corruption, and preserves its identity, because it is not composite like the corruptible bodies.

C. NIARCHOS
(Athens)

ΑΡΙΣΤΟΤΕΛΗΣ. *ΠΕΡΙ ΓΕΝΕΣΕΩΣ ΚΑΙ ΦΘΟΡΑΣ*. ΣΧΟΛΙΑ

ΠΕΡΙΛΗΨΗ

Τὸ πρόβλημα τῆς γενέσεως καὶ φθορᾶς τῶν ὄντων ἔχει ἀντιμετωπισθῆ κυρίως ἀπὸ τὸν Ἀριστοτέλη στὸ ὁμώνυμο ἔργο του, καθὼς καὶ ἀπὸ τοὺς σχολιαστὲς τοῦ Σταγιρίτη. Στὴ μελέτη μας αὐτὴ θὰ ἐπιχειρήσουμε τὴν ἀνάλυση τῶν σχετικῶν πρὸς τὸ ὅλο θέμα ἐννοιῶν τοῦ ἀριστοτελικοῦ κειμένου ἐν σχέσει πάντοτε πρὸς τὶς παρατηρήσεις καὶ τὰ σχόλια κυρίως τοῦ Ἰωάννου τοῦ Φιλοπόνου, τοῦ Ἰωάννου τοῦ Δαμασκηνοῦ, τοῦ Μιχαὴλ Ψελλοῦ καὶ τοῦ Ἰωάννου τοῦ Ἰταλοῦ. Οἱ ἔννοιες αὐτές, ὅπως γένεσις, φθορά, μεταβολή, κίνησις, ἀλλοίωσις, ἀποσύνθεσις, φθορὰ καὶ φθίσις, ἐκφράζουν πολλὲς σημασίες ἀπὸ τὴν ἑρμηνεία τῶν ὁποίων ἐξαρτᾶται καὶ ἡ πορεία τῆς σχετικῆς ἐρεύνης.

I. Ὁ ὅρος γένεσις καὶ ὁ συμπληρωματικὸς ὅρος ὄλεθρος ἀποτελοῦν τὴ βάση τῆς φυσικῆς φιλοσοφίας σὲ συνάρτηση πρὸς τοὺς ὅρους *ἀγέννητον* καὶ *ἀνώλεθρον*. Ἡ διδασκαλία τῆς ἐκ τοῦ μηδενὸς δημιουργίας τοῦ Χριστιανισμοῦ θεωρεῖται ἀσυμβίβαστη πρὸς τὸ ἀξίωμα «ἐκ τοῦ μηδενὸς οὐδὲν γίγνεται» τῆς ἑλληνικῆς φιλοσοφίας, καθ' ὅσον, ὅπως ὑποστηρίζεται ἀπὸ τὸν Ἀριστοτέλη «γένεσις ἐκ μὴ προϋπαρχούσης αἰτίας εἶναι τελείως ἀδύνατη». Ἡ γένεσις συνδέεται ἄμεσα πρὸς τὴν μῖξιν καὶ τὴν σύγκρισιν, ὁπωσδήποτε ὅμως συναρτᾶται καὶ πρὸς τὴν ἀλλοίωσιν ὡς τὴν μετὰ τὴν γένεσιν πορείαν τοῦ ὄντος. Ὑπὸ τὴν ἔννοια αὐτὴν ἡ γένεσις εἶναι ἡ πορεία τοῦ ὄντος ἀπὸ τὸ μὴ εἶναι στὸ εἶναι, μέσω τῆς ἀρχῆς τῆς κινήσεως, ἄνευ τῆς ὁποίας τὸ γεγονὸς τῆς γενέσεως δὲν εἶναι νοητόν. Ὁ Ἰωάννης ὁ Ἰταλὸς ὑποστηρίζει πὼς ἡ κίνησις χωρεῖ ἀπὸ ἕνα εἶδος πρὸς τὸ ἀντίθετό του εἶδος, ἐνῶ ἡ γένεσις ἀπὸ τὴν ὕλη πρὸς τὸ εἶδος, μέσω τῆς κινήσεως.

II. Ἡ ἀλλοίωσις διαφέρει τῆς γενέσεως κατὰ τὸ ὅτι ἡ ὕλη δὲν φθείρεται παρὰ μόνον ὑφίσταται τροποποίηση μέσω τῶν παθῶν. Ἡ

ἀλλαγὴ συμβαίνει μόνο στὰ γνωρίσματα καὶ ὄχι στὴν οὐσία, ὅπως τοῦτο γίνεται ἐμφανὲς στὸ παράδειγμα τοῦ μουσικοῦ ἀνθρώπου. Συνέπεια τῆς συντελουμένης στὸ ὂν ἀλλοιώσεως εἶναι ἡ αὔξησις, ἡ ὁποία ἄρχεται ἀπὸ τὴν γένεσιν καὶ χωρεῖ μέσω τῆς ἀλλοιώσεως στὴ νέα διαμόρφωση καὶ ὄχι μόνον τοῦ ὄντος. Κυρία αἰτία τῆς αὐξήσεως εἶναι ἡ λεγομένη αὐξητικὴ ψυχή. Ὁ Ἀριστοτέλης προβαίνει στὴ διάκριση μεταξὺ αὐξήσεως καὶ θρέψεως.

III. Ἡ μετάβαση τοῦ ὄντος ἀπὸ τὴ γένεσή του στὴν ὁλοκλήρωσή του συντελεῖται κυρίως μέσω τῆς συνεχείας καὶ τῆς ἁφῆς, καθὼς καὶ τῆς μίξεως. Ὁ ὅρος μῖξις σημαίνει τὴν συνένωση σ' ἕνα διαφορετικῶν στοιχείων, τὰ ὁποῖα συνέρχονται διὰ τῆς συνεχείας καὶ τῆς ἁφῆς μεταξύ τους, καθ' ὅσον τὸ ὂν πολλαχῶς καὶ οὐ καθ' ἕνα λέγεται τρόπον.

IV. Τὸ πρόβλημα τῆς γενέσεως κατανοεῖται μόνο ἐφ' ὅσον συνδεθῆ ἀρρήκτως πρὸς τὸ πρόβλημα τῆς φθορᾶς τῶν ὄντων. Ἡ φθορὰ δὲν εἶναι κίνησις, οὔτε τὸ ἀντίθετό της, ἠρεμία, ἀλλὰ εἶναι τὸ τέλος μιᾶς πορείας τοῦ ὄντος. Τὸ ὅλο πρόβλημα τῆς φθορᾶς τῶν ὄντων συνδέεται πρὸς τὴν ἐρώτηση τῆς αὐτομάτου γενέσεως, καθὼς καὶ τοῦ τελικοῦ αἰτίου. Ἄλλωστε ἡ θεωρία τῆς ἀενάου γενέσεως δὲν ἔχει σήμερα πολλοὺς ὑποστηρικτές. Τὸ ἀέναον τῆς γενέσεως ἐξαρτᾶται ἀπὸ τὴν προϋπόθεση ὅτι τὸ φθειρόμενο καταλήγει στὸ μὴ ὄν, τὸ ὁποῖον εἶναι τίποτα.

Κ. ΝΙΑΡΧΟΣ
(Ἀθήνα)