

## HERACLIDES OF PONTUS AND HIS COSMIC THEORY: An Innovator or a Revisionist of the Ancient Cosmology?

*Heraclides' Life and Writings: A general but necessary idea.*

If we were to name the most enigmatic and ambiguous figures in the history of philosophy Heraclides of Pontus would have been given a distinguished place, both due to his work and to his way of life. A short biographical introduction is indispensable in order to understand the personality of the philosopher who, miraculously, managed to be one of Plato's trusted students and, at the same time, a man of wealth, subjugated to exaggeration and desire.

Heraclides was born in Heraclea Pontica, a city on the coasts of Black Sea and he was a member of one of the most distinguished families in the area. Chronologies, concerning facts of his life, could not be totally confirmed but it is generally accepted that he became a member of the platonic Academy early enough to be entrusted with the supervision of the School during Plato's third trip to Sicily. He remained in the Academy until Speusippus' death in 339 BC when he put himself as a candidate for the direction of the School and was narrowly defeated by Xenocrates<sup>1</sup> in the election followed. He probably returned to his home city after that, where it is said to have established a school of his own, and stayed there until his death.

Diogenes Laertius in his *Vitae Philosophorum*<sup>2</sup> informs us that Heraclides was big and tall, always well dressed and that his walking was slow and majestic. This is probably the reason why Athenians gave him the nickname *Pompikos* (pompous) instead of *Ponticus* (from Pontus). His various and wide knowledge on a numerous of subjects and his dramatic and elegant way of writing along with the mythical elements and extravagant stories presented in his dialogues as well as his love for everything exotic<sup>3</sup>, impressed the scholars and had had an important effect until late in the Roman times.

Heraclides wrote a number of dialogues and developed many theories throughout his works but two of them still attract the interest, even in our times:

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1. For a more thorough study on Heraclides' life see H. B. GOTTSCHALK, *Heraclides of Pontus*, Clarendon Press, Oxford, 1980.

2. DIOG. LAERT., V 86.

3. For anecdotes and mythic instants concerning Heraclides' life see *ibid.* V 89.23-91.23.



(a) his theory of astronomy, where we come across a possible novelty of his, concerning the movement of the Earth and

(b) his theory of matter including the very much discussed theory of the «*anarmoi onghoi*», both assumed as successful anticipations of modern ideas.

Any information we have about the latter one derives entirely from the doxographical tradition. In this paper we are going to deal with this theory in two ways: *First*, we will try to illuminate the meaning of the terms used and their application to Heraclides' cosmic theory and *second*, we will try to show that this doctrine is not a simple revision of platonic or atomic ideas but a novelty used by Heraclides in at least two fields of his entire work.

*The theory of «anarmoi onghoi»: An examination of the term- meaning.*

Since the words have reached our hands exclusively by the doxographs, there is not any reference, whatsoever, as to what the exact meaning of the term might be. The first problem must be traced consequently, in the word «*anarmoi*» («*anarmos*» meaning «without joints or not constrained» in the majority of the ancient written tradition but newly used, as we will see, in philosophy) and the second problem seems to be as to whether the term «*onghoi*» (particles) always refers to the same particles or perhaps, at times, to particles of a different kind.

As far as it concerns the first problem, the use of word «*anarmos*» eventually means without joints or un-fastened. The real question though, lies in the sense in which these particles are joint-less. They must either lack hooks that keep them together, unlike what happens with the democritean atoms or the platonic *gomfoi* (γόμφοι) by which God jointed the elements together<sup>5</sup> or they would be «*ἄναρθροι*» that is to say (a) unarticulated or (b) weak or frail.

The way in which Gottschalk<sup>6</sup> tries to solve the problem and find the most likely meaning of the term, through all the possible meanings of it and through all its uses in ancient grammarology, is of course an effort worth mentioned but leads us to believe that a word, used for instance in a Euripides' tragedy<sup>7</sup> or as a technical term in doors or pistons, must have the same meaning in philosophy. However, a word in literature or in technical terminology doesn't always have the same use in science and even more in philosophy, especially when it comes to ancient cosmology. One might find several words (i.e. *κόσμος*, *πολύ*, *έν*, *νοῦς*, *σπέρμα* etc.) whose meanings differ from the common ones and are used

4. Cf. GOTTSCHALK, *op. cit.*, p. 37, f. 1. for the most important books and articles referring to Heraclides' fragments and testimonies.

5. DEMOCR., *FV*, 68 A37 ff. and *PL.*, *Tim.*, 43a.

6. Cf. GOTTSCHALK, *op. cit.*, Ch. 3, pp. 38-42.

7. Such as in *Medea* 1314 f. or *Hippolytus* 809 f. where the actual term *ἄναρμος* is indeed never used; instead we come across the word *ἄρμούς*.



to express something totally new. Sometimes, words vary even in the contexts of the same philosopher. It is reasonable to think after all that we cannot keep or reject the meaning «joint» of the term «armos» (and consequently the meaning «jointless» of the word «anarmos») by adopting its meaning through examples taken from fields such as medicine, literature or mechanics.

For the word «anarmos» the only direct testimony we have comes from a passage of Galen's *De elementis secundum Hippocratem*<sup>8</sup>, where it seems to have the meaning of *minimum* and *indivisible*. Even if so, the passage does not end to the conclusion that «anarmoi onghoi» are not actually particles that do not have any joints to keep them constraint to one another. They may be monolithic and seamless, as supported by Gottschalk but still, they may be «anarmoi» because they are not coalesced, unlike the democritean atoms and the platonic triangles<sup>9</sup>.

This engages the danger for Heraclides' particles to be weak, being in lack of joints, according to the meanings the term had in the grammarology mentioned above, Gottschalk implies. This does not seem like a very powerful argument and surely not enough to support the idea that particles would not be functional if not jointed together. Even if we suppose that they are indivisible and monolithic as they may, it is possible that, not being strictly united to each other might just be their way of being free to move and to make their own combinations<sup>10</sup>.

This interpretation surely distinguishes Heraclides' minimal bodies from the democritean ones and gives us space to mention the fragment given by Sextus<sup>11</sup>, in a reference to Heraclides' theory, where the «anarmoi onghoi» are described as «anomoioi te kai pathetoi» (different from each other and subjected to changes) unlike Democritus' atoms that are «anomoia apathe» (different from each other but not changeable). Subjected to changes may even mean that they may change into one another<sup>12</sup>. In another fragment, cited by Stobaeus<sup>13</sup>, Heraclides' particles are called «thrausmata» (fragments). This might be a resemblance to the basic triangles that form platonic bodies<sup>14</sup> and if so, this is a connection between the heraclidean and the platonic theory that

8. I. 416 K and 417.

9. For a well established critic on Gottschalk's point of view on the matter see also: J.D. EVANS, Notices of Books, *The Journal of Hellenic Studies*, Vol. CII, 1982, p. 250, or A.A. LONG, *Classical Review*, New Series, Book reviews, Vol. XXXII, 1982.

10. For a similar kind of interpretation see J. DILLON, *The Heirs of Plato A Study of the Old Academy (347-274 8 C)*, Oxford Univ. Press, 2003, p. 210.

11. SEXT., *AM*, X 318.

12. Cf. J. DILLON, *op. cit.*, p. 211.

13. STOB., *Ecl.* I 14, 4.

14. For more information about the basic triangles in *Timaeus*' passage 53c-54d see ANTOINETTE VIRIEUX-REYMOND, *Platon ou la géométrisation de l'univers*, eds. Seghers, Paris, 1970, pp.128-131.



leads many to believe that perhaps Heraclides postulates two levels of entity like Plato. Yet again, there is not enough evidence to support such a position.

Still, there is also a controversy between Caelius and Sextus about whether particles have qualities or not and about the kind of particles that would possess these qualities, in case there were two kinds of them. In fact, such a controversy cannot be applied to Heraclides but has strictly to do with Asclepiades of Bithynia, who is so many times referred along with Heraclides in the doxographic tradition, as for many to believe that the two were even the same person. In this case nor Caelius' position nor Sextus' might be overruled argumentatively but that does not necessarily lead us to the conclusion that Asclepiades and even more Heraclides had two kinds of particles.

It is quite extravagant, I think, to follow the syllogism that:

- (a) because Heraclides is sometimes mentioned with Asclepiades
  - (b) because we cannot accept either of the controversial interpretations of Sextus and Caelius for Asclepiades particles and
  - (c) because we think that perhaps Heraclides' particles are similar to Plato's,
- so
- (d) (*conclusion*) Heraclides must have two kind of particles, too<sup>15</sup>.

Furthermore, the higher ones are said to be the smallest carriers of the sensible properties while the lower ones are the ultimate constituents of the material world and in that case, sense perception would be achieved through the symmetry of the pores<sup>16</sup> and due to an emanation passing from the object to the sense organ<sup>17</sup>. Yet, to say that Heraclides adopted and used the divine εἰδωλα (reflections) of Democritus, is certainly wrong<sup>18</sup> and if we take into consideration that all the other philosophers named in this passage given from Aetius, did not share the same opinion as to the character of the emanation, I do not see any

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15. Gottschalks' syllogism (*op. cit.*, pp. 50-56) on this matter is quite indefensible not to mention that it all begins with "ifs". To further understand why it is not advisable to think that Heraclides and Asclepiades shared the exactly same ideas see *The Classical Journal*, 1983, Vol. 79, No1, p.168 and *The Journal of Hellenic Studies*, Vol. CII, 1982, p. 250, where J. SCARBOROUGH and J.D.G. EVANS present their criticism on Gottschalk's theory of total analogy and resemblance between Heraclides and Asclepiades. Moreover, there is not any evidence, anywhere in Heraclides to guide us to the conclusion that he thought of two kind of entities or further more of two kinds of worlds.

16. For the sensibilia and their work in Plato's cosmology see D. O'BRIEN's excellent work, *Theories of Weight in the Ancient World*, Vol. 2, Paris & Leiden, Les Belles Lettres & E.J.Brill, 1984, pp. 182-185.

17. Cf. AET. 4.9,6; CLEMENT ALEX., *Protr.*, 5.66,4.

18. GOTTSCHALK, *op. cit.*, 97 f.



point in keeping half of the passage as correct and not simply think of it as something which we can't be utterly sure of.

All these thoughts lead us to the point that perhaps Heraclides' theory of the «anarmoi onghoi» isn't exactly what is usually supposed to be: a simple copy of the platonic prototype of *Timaeus*' theory or at least a development of the platonic doctrine. And this is precisely the second issue of this paper that aims to prove Heraclides did not necessarily followed Plato slavishly and that perhaps we may see an innovator in his face instead of a revisionist of all the ancient cosmic theories.

*Some arguments on Heraclides' possibility of having created a new theory.*

In the introduction of this paper we saw that Heraclides was certainly a student in the Academy and that he had personally attended Plato's lectures. In addition we know that he was very close to Plato so that the latter entrusted him with the management of the School while he was in his third trip to Sicily during the years 361-360. If we take into consideration that *Timaeus*, according to what we are able to know<sup>19</sup>, was probably written some when between the years 360-347 and that Heraclides wrote his own dialogues between the years 355-339 (mostly when he was a student of the Academy and some later) we cannot exclude the possibility that the use of the terms «anarmoi onghoi» we met across our examination is his own contribution to cosmology and might as well have given Plato an idea to compose the doctrine of *Timaeus* later.

Besides, it is generally accepted that Plato most likely wrote *Philebus* as an account of controversy against Heraclides' *On Pleasure*<sup>20</sup>. In addition to that, a simple examination of Plato's dialogues, informs us that there exists no use of these terms or similar ones neither in his primary (before *Timaeus*) nor in his later dialogues. Moreover, this would not be the first time for Plato having been influenced by another student of the Academy; Speusippus had affected Plato's thought in about the same period of time, with his deep knowledge of the Pythagorean theories and his own theories as well<sup>21</sup>.

On the other hand, Heraclides does not seem to have been affected by the theory of Forms in any way<sup>22</sup>. This may be happening because his contact both with platonic philosophy and with Plato himself, took place during the latter's

19. See A.E.TAYLOR, *Plato. The man and his work* (Πλάτων. Ὁ ἄνθρωπος καὶ τὸ ἔργο του, μτφρ. Ι. Ἀρζόγλου, Μ.Ι.Ε.Τ.) Athens, 1990, p. 496.

20. GOTTSCHALK, *op. cit.*, p. 89.

21. See J. DILLON, *The heirs of Plato*, Clarendon, Oxford, 2003, Ch. 2, pp. 50-55 and 88. See also T. CROWLEY, *History of Philosophy*, Book Reviews, Vol. 30, 2003, p.155

22. See above p. 3, f.14



later period, when the theory of Forms was more or less to be abandoned. It is sure however, that Heraclides was very well acquainted with it just by being a student of the Academy. The fact that despite that, he wasn't inspired by it and he did not mention any of its parts in his work shows, if not anything else, that he was an inquisitive spirit who did not uncritically repeat the theories, the arguments and the terminology of his Teacher<sup>23</sup>.

In addition to that, the doxographs connect Asclepiades, who as we saw adopted the theory of «anarmoi onghoi» and applied it successfully to his medical theory and to his explication of diseases, with Heraclides without implying any connection of the latter to any part of the platonic theory though it is generally anticipated for anyone who «borrows» his theory to at least be connected by the commentators to the one whom he took the theory from (something that happened with Heraclides and Asclepiades but did not happen with Heraclides and Plato<sup>24</sup> or even with Plato and Asclepiades).

To conclude the whole issue, we must say that it is not entirely impossible for Heraclides to have been stirred by *Timaeus* and Plato's theory of the dissolution of geometric particles into component triangles. Hence, he might as well be indebted for his idea of «anarmoi onghoi» to the atomism of Democritus. But the real truth is that Heraclides' doctrine differs in its use of the particles as well as in their characteristics and qualities and of course in its terminology. I.M. Lonie<sup>25</sup> successfully showed that Heraclides not only used his theory as a general philosophical approach but he also used it in other aspects of science in explaining diseases and medical procedures.

Sometimes it is the easiest and safest way to attribute all important or innovative ideas to great and famous philosophers such as Plato definitely was and to occasionally ignore «minor» ones like Heraclides of Pontus. If this is what happened in our case, we must at least give Heraclides a fair chance to prove his significance in ancient philosophers' panel.

What is worthwhile noting about him, apart from his philosophical work, is the fact that being pompous and self-centric as he was, as well as a great mythologist, even concerning some incidents in his own life, yet he was a favourite student to Plato and a man respected and admired by many. In a severe platonic Academy, known for its strict moral values and its unbreakable rules, he was one of the few that really enjoyed life, in many aspects, succeeding in combining pleasures with the life of a philosopher; a significant example for everyone.

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23. See I.M. LONIE, The «ἀναρμοὶ ὄγκοι» of Heraclides of Pontus, *Phronesis*, Vol. IX, No 2, 1964, p. 163 and RONALD H. EPP, *The American Historical Review*, Vol. 87, No 4, 1982, p. 1058.

24. For more information about Asclepiades' use of the theory of «ἀναρμοὶ ὄγκοι» see I.M. LONIE's, Medical Theory in Heraclides of Pontus, in *Mnemosyne*, Vol. XVIII, 1965, pp. 126-143.

25. *Ibid.*



# ΗΡΑΚΛΕΙΔΗΣ ΠΟΝΤΙΚΟΣ ΚΑΙ Η ΘΕΩΡΙΑ ΤΟΥ ΠΕΡΙ ΚΟΣΜΟΥ:

*Νεωτεριστής ή απλώς αναθεωρητής της αρχαίας κοσμολογίας;*

## Π ε ρ ί λ η ψ η

Ο Ήρακλείδης Πόντικός γεννήθηκε στην Ήρακλεια του Πόντου και υπήρξε μαθητής της πλατωνικής Ακαδημίας και αργότερα του αριστοτελικού Λυκείου. Ο Πλάτων του εμπιστεύθηκε την επίβλεψη της Σχολής κατά τη διάρκεια του τρίτου του ταξιδιού στη Σικελία, ενώ το 339 π.Χ. ήττήθηκε με ελάχιστη διαφορά ψήφων από τον Ξενοκράτη, στην υποψηφιότητά του για Διευθυντής της Ακαδημίας. Ασχολήθηκε με όλους σχεδόν τους κλάδους της φιλοσοφίας και το γλαφυρό και πρωτότυπο ύφος του άσκησε επίδραση μέχρι και την ύστερη αρχαιότητα. Δύο είναι τα βασικά σημεία της κοσμολογίας του: Οι μελέτες του για την κίνηση των πλανητών (όπου ή άποψή του για την κίνηση της γης θεωρείται καινοφανής) και η γενικότερη διδασκαλία του για την ύλη, με πυρήνα τη θεωρία των *αναρμων όγκων*. Η δεύτερη αυτή, που συνιστά και το κύριο πεδίο της προβληματικής μας, σε καμία περίπτωση, όπως αποδεικνύεται, δεν αποτελεί απλή μίμηση προηγούμενων θεωριών, όπως λ.χ. των πλατωνικών τριγώνων του *Τίμαιου* ή των δημοκρίτειων γόμφων. Τόσο από τη γλωσσική-ετυμολογική προσέγγιση των όρων και την ιστορική τους χρήση, όσο και από τη φιλοσοφική εξέταση, την επιχειρηματολογία και την έρμηνεία της θεωρίας που επιχειρείται εδώ, γίνεται φανερό ότι ο Ήρακλείδης υπήρξε έμπνευστής και δημιουργός μιās νεωτερικής θέσης, ή όποια μάλιστα δεν είχε αποκλειστική εφαρμογή στο κοσμολογικό πεδίο αλλά και σε άλλους κλάδους της φιλοσοφίας καθώς και της ιατρικής.

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