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“Upward Levelling” of Plants – Early Greek Perspective

ABSTRACT

In this paper the author considers scientific and bioethical requirements triggered by existing environmental, and not just environmental issues, that it is necessary to regulate differently the relationship between humans and other living beings. Attempts are being made to establish a new relationship by relativizing the differences between the man and non-human living beings, often by attributing specifically human traits and categories, such as dignity, moral status and rights to non-human living beings, but also, especially in regards to plants, the ability of sight, feeling, memory, communication, consciousness, and thinking. In the process of levelling of these differences, presented are the findings of researches showing that plants have extremely sensitive and complex sensory mechanisms, that they lead complex, dynamic and eventful lives, react to signals from other plants, i.e. there is interaction between them, and have a short-term and long-term memory. Regarding the “consciousness” of plants, it is concluded that it is in an analogical connection with the human consciousness. The author then analyzes whether these findings are new, surprising and revolutionary, as commonly asserted, or whether their anticipation can be already found in some Presocratics, philosophically based on the similarity of all the varieties of life. Pythagoras, Parmenides, Empedocles, Anaxagoras, and Democritus, in this context, were of the opinion that the plants are driven by natural yearning, that they breathe, feel joy and sorrow, that they have a soul, discernment, consciousness, ability to think, reason, and mind. Eventually, the author illuminates the limits of non-anthropocentric approaches, i.e. their non-reflected establishment of the very anthropocentrism, the difficulty of relocating the man from the centre of the world while he himself does not remain the patron of that same world.

Key words: anthropocentrism, non-anthropocentrism, humans, animals, plants, sensibility, memory, communication, consciousness, thinking, understanding, reason

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The basis of modern civil epoch is founded on logocentric and homocentric image of the world, the meaning of which, in Aristotle's trail, originates from the high level of confidence in human *logos* abilities. Logocentrism, in other words, represents the view that the principle of understanding and reason is the basis of the man's world but also the universe as a whole. Homocentrism, on the other hand, as a modern worldview is based on Stagirites' vision of man as a separate being among other natural beings. Such an understanding comes from the belief that the ultimate basis of our world is not determined by nature, god, accident or coincidence, but that the man, as a free individual, with his powers is the basis of human historic world.

At the same time, the advocates of questioning the dominant anthropocentric² view of the cosmos by non-anthropocentric expansion of ethics, are becoming increasingly louder in raising (bio)ethical³ requirements for a new resolution of the relation between humans and other living beings. Attempts are being made to establish a new relationship by relativizing the differences between the man and non-human living beings, i.e. by attributing specifically human properties and categories, such as dignity, moral status and rights, to non-human living beings, but also, especially in regards to plants, of the ability of sight, feeling, memory, communication, consciousness and thinking. It seems just as inspiring today as it was in ancient times to ask and to look for the answer to the question of how a sunflower "knows", at any moment, where the Sun is. How do trees and flowers "know" it is springtime? Will there be any significance or difference in the response of a plant if the Vivaldi's "Four Seasons" or AC/DC's "Highway to Hell" are played in its vicinity? Do plants have a sense of smell? Does a dodder (lat. *Cuscuta sp.*) rather parasitize on tomato than on wheat because it "prefers" the scent of chemicals released by a tomato? Can plants memorize, and if so, which form of "memory" they have? When a maple (lat. *Sapindaceae* or *Aceraceae*) releases pheromones into the air, due to a beetle attack, is it a way of informing and "communication" with the surrounding trees? Is, finally, the plant a "conscious" being which can think and which has a kind of "neurology"?⁴

If some of the answers to these questions are positive or positively inclined, we usually talk about a discovery of a surprising world, of plants as complex organisms that live rich and sensual lives, of the analogy between brain-like functions in plants

² On the roots of the anthropocentrism in the modern age see more in the eponymous chapter of T. Krznar's book *Znanje i destrukcija*. T. Krznar, *Znanje i destrukcija*, PERGAMENA, Zagreb 2011, pp. 85-134.

³ F. Jahr coined the original term Bioethics and formulated a Bioethics Imperative: '*Respect every living being on principle as an end in itself and treat it, if possible, as such!*'. F. Jahr, "Reviewing the ethical relations of humans towards animals and plants", p. 4, in: A. Muzur, H.-M. Sass (Eds.), *Fritz Jahr and the Foundations of Global Bioethics. The Future of Integrative Bioethics*, Lit Verlag, Berlin – Münster – Wien – Zürich – London 2012.

⁴ More elaborately on these and similar dilemmas see in the book of the famous biologist D. Chamovitz, *What a Plant Knows, A Field Guide to the Senses*, 2012, Scientific American / Farrar, Straus and Giroux; Reprint edition (April 30, 2013).

and human brain, and finally about a revolutionary concept that is not older than half a century. Is it really so? Leaving aside, for the moment, a deeper discussion about the meaning of certain terms, such as "communication", "consciousness" and "opinion", in order to be able to talk about their truthfulness in regards to plants, the author of this paper believe that the departure from mainstream Western thought and philosophy is not a novelty of the second half of the XX century, but that its roots, however, can be found in ancient Greece. The search of antecedents of levelling the differences between humans and other living beings, including plants, stems from the very *arche* of science i.e. from the first philosophers of nature. On the basis of their fragmentary surviving documents it can be established that they anticipated most of the latter modalities of non-anthropocentric approaches.

In order to understand the views of philosophers of nature who were active in the so-called cosmological period, it is necessary to leave the dualistic conceptions, especially those that on the Cartesian trail emphasize the sharp distinction between matter and mind. For early *physicists*, in particular, there was no inert substance that due to the logical necessity would require the division of the first principle into the material and efficient element.⁵ When accepting any principle as the sole source of origin, at the same time, automatically, at least to the same extent, its inherent mobility was borne in mind as well. In short, the standing point of the first philosophers still belonged to the age when there was no serious distinction between body and soul, organic and inorganic.⁶ In their minds rather figured some kind of obfuscation of corporeal and mental elements, as this is the time when it was difficult to imagine the body without a soul or the soul without matter. The first philosophers, consequently, understood thinking as something corporeal, such as sensation and generally understood that like is understood as well as perceived by like. The expected consequence of such approach is the assertion of some Presocratics that not only people but also all other beings have consciousness, thinking and practical wisdom.

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One of the universally known facts about Pythagoras is that he was the first to bring to Greece the teachings that all living beings that were born are kindred (ὁμογενῆ) (DK14, 8a). The idea that all forms of life are kindred brought into connection not

⁵ For more details see: Ž. Kaluđerović, "Stagiratinova aitiologija", in: *Znakovi vremena*, Vol. XVI, No 59, Sarajevo 2013, pp. 73-92.

⁶ As it is evident from Aristotle's statement that Thales thought that the stone (magnet) has a soul because it can cause movement. Diogenes Laertius (I, 24), relying on the authority of Aristotle (*De An.* 405a19-21) and of Hippias (DK86B7), claims that Thales and ascribed to non-living beings, i.e. to non-ensouled beings (ἀψύχους) to have soul (ψυχή) as well, repeating the example with stone magnet and adding the amber.

only humans with animals and plants, but also indicated that the human soul, however the truth is only after purification, can achieve oneness with the eternal and divine soul, to which it belongs by its own nature. This connection and the analogy that can be established between man and the universe is referred to in the Aristotle's statement (*De An.*407b22-23) that according to the Pythagoreans it is possible that any soul could be clothed in any body. This kinship of all varieties of life was a necessary prerequisite for Pythagorean teaching on the transmigration of souls (*παλιγγενεσία*). Xenophanes reported about *palingenesia* as the Pythagoras' doctrine in fragment 7 (DK21B7):

Once they say that he (Pythagoras) was passing by when a dog was being beaten and spoke this word: "Stop! don't beat it! For it is the soul of a friend that I recognised when I heard its voice."⁷

καί ποτέ μιν στυφελιζομένου
σκύλακος παριόντα
φασὶν ἐποικτίραι καὶ τόδε φάσθαι
ἔπος·
ἴπαῦσαι μὴδὲ ῥάπιζ', ἐπεὶ ἧ φίλου
ἀνέρος ἐστὶν
ψυχῆ, τὴν ἔγνων φθεγξαμένης αἰών'.

This fragment shows that the Pythagorean belief in renewal or rebirth of the soul was already too well known in the sixth century BC in order to be parodied. Pythagoras' recognition of the friend's soul embodied in a dog illustrates, on the other hand, the transfer of personal identity on the *psyche*, which means that a personality somehow survives in the migration of souls and that there is a continuity of identity. The conclusion that can be derived, at least implicitly, is that ensouled beings, and therefore some plants, in a sense, are conscious beings.

A structural difficulty of this view is how to fit the kinship of entire *physis* with the logical implications that plants should not be consumed then either since they, according to Pythagoreans, are living beings and part of the communion of nature.⁸ In the notes of Alexander Polyhistor, reported by Diogenes Laertius

⁷ Trans. J. Burnet. J. Burnet, *Early Greek Philosophy*, The World Publishing Company, Cleveland and New York 1962, p. 118. Germ. ed. H. Diels, W. Kranz, *Die Fragmente der Vorsokratiker I*, Strauss & Cramer GmbH, Weidmann 1985, s. 131, B7. From this fragment it is evident why kinship of all beings which is associated with the doctrine of the transmigration of souls is at the basis of the Pythagorean ban on the eating of animal flesh. Since the topics discussed in the Pythagorean fraternity caused great controversy, and that they themselves are very difficult to systematize and interpret consistently, it is not surprising that attitudes about (non) use of animal meat are not uniformly understood in the latter times. In short, the views of Pythagoreans ranged from the belief in a complete ban on the use of animal meat in the fraternity, through refraining from eating just certain species of animals, to a categorical denial of any bans on meat consumption. For more details see: W. K. C. Guthrie, *A History of Greek Philosophy I*, Cambridge University Press, Cambridge 1962, pp. 182-195; J. Burnet, *Early Greek Philosophy*, The World Publishing Company, Cleveland and New York 1962, p. 93-96; B. Pavlović, *Presokratska misao, ΠΛΑΤΩ*, Beograd 1997, pp. 101-103; J. F. Mattéi, *Pitagora i pitagorovci*, Jesenski i Turk, Zagreb 2009, pp. 19-28.

⁸ Pythagoras, for example, forbade eating mallows (lat. *Malvaceae*), on the grounds that this plant is the first messenger and signal of the sympathy of celestial with terrestrial nature. Jamblich, *Pitagorin život*, DERETA, Beograd

(VIII, 28), it is mentioned that in the *Memories of Pythagoras* he found the solution to the paradox. Pythagoreans believed that everything participating in the heat is living, and that is why the plants are living beings (ζῷα),⁹ but not everything has a soul (ψυχὴν). The soul is a torn-off fragment of *aither*, one hot and one cold. The soul is different from the life¹⁰, it is immortal because immortal is also that from which it separated. Plants, therefore, have a life, but not all of them have souls so some of them are suitable for consumption. The reason why the Pythagoreans abstained from eating broad beans (lat. *vicia faba*) possibly lies in the fact that they believed in its ensoulment.¹¹

Concerning Parmenides, paradigmatic is his fragment 16 (DK28B16):

For just as thought stands at any time to the mixture of its erring organs, so does it come to men; for that which thinks is the same, namely, the substance of the limbs, in each and every man; for their thought is that of which there is more in them.¹²

“ὥς γὰρ ἑκάστος ἔχει κρᾶσιν μελέων
πολυπλάγκτων,
τὼς νόος ἀνθρώποισι παρίσταται· τὸ
γὰρ αὐτό
ἔστιν ὅπερ φρονέει, μελέων φύσις
ἀνθρώποισιν
καὶ πᾶσιν καὶ παντί· τὸ γὰρ πλέον
ἔστι νόημα.”

This doctrine, laid out in the third part of the Eleatic's poem *On Nature* on the so-called “the way of opinion”, has a rather physiological than epistemological dimension. The sensation and thought are identical according to Parmenides, as well as all existing has a kind of cognition (πᾶν τὸ ὄν ἔχειν τινὰ γνῶσιν).¹³ It is evident that in the fragment 16 (DK28B16) two principles are suggested, the principle of mixing and the principle of “same by same”. The man, as well as the cosmos is composed of a mixture

2012, p. 69.

⁹ According to Aristotle (*Phys.* 213b22-27), the sky (οὐρανῶ) was also a living creature that breathes, in the eyes of the Pythagoreans.

¹⁰ W. Jaeger makes a similar conceptual distinction interpreting Anaximenes. He says that Anaximenes uses the word ψυχή in the sense of “soul” and not in the sense of “life,” and this he explains by the fact that the air (ἀήρ) is bearer of life. For Anaximenes the basic substance, according to Jaeger, is already alive and it refers to the visible corporeal world as the soul to the human body. W. Jaeger, *The Theology of the Early Greek Philosophers*, Oxford University Press, Oxford 1967, p. 79.

¹¹ Iamblichus as a motive why Pythagoras prescribed not to eat broad beans, in addition to points that concern the soul, adds, “many sacred and physical causes”. English translation taken from: <https://archive.org/details/lifeofpythagoras00iamb>.

¹² Trans. J. Burnet. J. Burnet, *Early Greek Philosophy*, The World Publishing Company, Cleveland and New York 1962, pp. 177-178. Germ. ed. H. Diels, W. Kranz, *Die Fragmente der Vorsokratiker I*, Strauss & Cramer GmbH, Weidmann 1985, s. 244, B16.

¹³ DK28A46. Parmenides view that “all things have some kind of cognition” can be relatively easily brought into connection with Empedocles view from the end of 110 fragment (DK31B110) that “for now that all things have practical wisdom and a share of thought”.

of light and darkness, although the man at the same time is the one who cognises. The first principle is primarily ontological while the other is epistemological, though they should not be sharply separated as they intertwine. Thinking is receptive as well as sensation and there is no difference between them. Thinking and sensation are determined by the “composition” of those who think, i.e. perceive. Since the principle of cognition (i.e. thinking, i.e., sensation) “same by same”, the consequence that follows is that everything, including plants, has some kind of cognition, since it is a kind of mixture ratio, even that which is dead. The dead, according to Parmenides, due to the loss of the fire does not register light, heat and sound, but notes that what is contrary to them, coldness and silence. This attitude is understandable if one assumes that what thinks and what is thought are equal in composition. The man in whom light predominates, of course, will see better and truer, which is probably the meaning of the claim from the end of the fragment “for their thought is that of which there is more in them”. This applies to all people in relation to animals and for anyone in relation to other people.¹⁴

Empedocles, then, believes that the intelligence in men increases according to what is present, and his fragment 108 (DK31B108) serves to confirm the thesis that the thought¹⁵ is corporal and under the influence of corporal changes. The thesis that for Empedocles sensation and thought are only special cases of the universal principle that like impacts like, is well illustrated by the following fragment 109 (DK31B109). This fragment underlines that it is with earth that we see Earth, and Water with water; by air we see bright Air, by fire destroying Fire, By love do we see Love, and Strife by baneful strife.

In fragment 103 (DK31B103) the Sicilian says that all beings have thought (πεφρόνηκεν), i.e. that they have understanding or consciousness, and adds that this is so by the will of Fortune. Related to this is previously mentioned Empedocles’ statement at the end of fragment 110 (DK31B110), that everything have practical wisdom and have its share of thought. In the introduction to this fragment it is even possible to find the thesis that all parts of fire, whether they are visible or not, can have practical wisdom (φρόνησιν) and the ability to think (γνώμην), rather than a share of thought (νόματος).

¹⁴ Parmenides is thinking within a framework that is as material as it is ideal. His significance is in the fact that he is trying to get out of the circle of “corporeal-psychical”, focusing primarily on what Plato would later call “beingness of being”. For the Eleatic philosopher it is irrelevant whether the being is material or psychical, real or ideal, so his ontology occupies a kind of intermediate position between animism of predecessors and metaphysics of those who came after him. For more details see: Ž. Kaluđerović, “Parmenidova poema i teškoće kauzalne shematike”, in: *Godišnjak Filozofskog fakulteta u Novom Sadu*, Volume XXXVII-1, Novi Sad 2012, pp. 359-372.

¹⁵ Theophrastus, in his comments on Empedocles (DK31A86), says the people in the last instance, think by their own blood, because in it all body parts and all the elements are most completely blended.

Sext Empiricus adds the following (DK31B110):

It is even more astounding that Empedocles held that everything has a discernment facility, not only living beings but plants as well.¹⁶

Ἐμπεδοκλῆς ἔτι παραδοξότερον πάντα ἡξίου λογικὰ τυγχάνειν καὶ οὐ ζῶια μόνον ἀλλὰ καὶ φυτὰ’.

This view shows that also according to Empedocles, more explicitly than according to Pythagoras, the idea of kinship of all living not only has a vital-animal meaning but to a certain extent the mental meaning.

Empedocles in his verses is also telling about the sacrifice by using water, honey, oil and wine,¹⁷ i.e. he sings about old times when love and compassion for the kin were above everything else, about absence of killing and the treatment of other living beings as one’s own household members. Instead of living beings i.e. animals people, according to him, tried to propitiate the queen Cyprus by sacrificing¹⁸ myrrh, frankincense, honey, statues and “with painted figures” (γραπτοῖς τε ζῳιοῖσι). In these times, says the philosopher of Akragas, everything was tame and gentle towards people, including birds and wild animals. The sacrificing, Empedocles mentioned, included neither the destruction of plants, which is probably due to the fact that the fragment 117 (DK31B117) records:

For I have been ere now a boy and a girl, a bush and a bird and a dumb fish in the sea.¹⁹

ἤδη γάρ ποτ’ ἐγὼ γενόμεν κοῦρός τε κόρη τε θάμιος τ’ οἰωνός τε καὶ ἔξαλος ἔλλοπος ἰχθύς.

¹⁶ Trans. Ž. Kaluđerović. Germ. ed. H. Diels, W. Kranz, *Die Fragmente der Vorsokratiker I*, Strauss & Cramer GmbH, Weidmann 1985, s. 352, B110. That this is not so unusual view as Sextus Empiricus writes, confirm quoted paragraphs of Pythagoras and Parmenides as well as the fragments following Anaxagoras and Democritus.

¹⁷ Pythagoras was the first philosopher who sometime after 530 BC practiced the use of barley cakes, honey and olive oil instead of animal sacrifice (Iamblichus, in the part when he is talking about everyday life of Pythagoreans says that before dinner they used to make sacrifice of “fumigations and frankincense”, and adds that “flesh of sacrificial animals, as they rarely fed on fish” was also placed before them. Jamblich, *Pitagorin život*, DERETA, Beograd 2012, p. 63. Earlier in the book Iamblichus notes that it is incorrectly attributed to Pythagoras that he instructed athletes to eat meat instead of dried figs (Ibid, p. 17; this story is also repeated by Diogenes Laertius. D. Laertije, *Životi i mišljenja istaknutih filozofa*, BIGZ, Beograd 1973, p. 270). This practice, of course, did not include ordinary citizens but only members of the fraternity. The founder of the fraternity also prescribed that ensouled beings are not to be used for nutrition, since they are kindred to humans by means of community of life, identical elements and relationships between them, as well as by unified breath that pervades them all.

¹⁸ The very idea of sacrifice is often regarded as a morally mediated communication of people with gods or deities.

¹⁹ Trans. J. Burnet. J. Burnet, *Early Greek Philosophy*, The World Publishing Company, Cleveland and New York 1962, p. 223. Germ. ed. H. Diels, W. Kranz, *Die Fragmente der Vorsokratiker I*, Strauss & Cramer GmbH, Weidmann 1985, s. 359, B117. This fragment confirms that the other Italian “Pythagorean” believed in *palingenesia*, i.e. he was convinced that the soul can migrate into other people, as well as into plants and animals.

Empedocles says (DK31A70) that trees represent a primordial form of life (“first living things” (πρῶτα τὰ δένδρα τῶν ζώων), which had survived to his time. They however, had existed before the Sun spread and the day and night were distinguished.²⁰ Doxographer Aetius, who reports the thoughts of the Sicilian, indicates the analogy of plant and animal lives, confirming it by using the term life (ζῷα) for the trees, the word that was usually restricted to the animals. Empedocles, just as Pythagoras, in modern terminology, was convinced that there was no sharp genetic difference between plant and animal worlds. Therefore, without any actual hesitation he makes comparisons and analogies that today may, at least, seem strange. For example, that “tall olive trees bear eggs, “i.e. that the nature of seeds is equal to the nature of eggs. Or, that hair and leaves, and scales and thick feathers of birds are the same, while the philosopher from Sicily refers to ear as the fleshy sprout. When in the fragment 140 (DK31B140) Empedocles says that one should abstain wholly from laurel leaves, he actually had in mind its consumption, and also his referring to “Wretches, utter wretches”, in the next fragment 141 (DK31B141) may possibly have the same indications, telling them not touch the beans with hands. Laurel (lat. *Laurus nobilis*), Apollo’s sacred plant, according to Empedocles, is a kind of the “king” of plants such as the lion is the king of animals. In fragment 127 (DK31B127) he says that, within their own species, laurel and lion are the best habitats for the human soul.

Empedocles’ (and Pythagoras’) followers repeat that people are kin not only to each other or with the gods, but with living beings who do not have the gift of speech. Something common that connects them all is a breath (πνεῦμα), as a kind of soul (ψυχή), which extends throughout the entire cosmos and unites the people with all of them. Therefore, if people would be killing or eating their flesh, they would commit injustice and sin towards deities (ἄσεβήσομεν) to the same extent as if they destroyed their relatives (συγγενεῖς). For that reason the Italian philosophers advised people to abstain from living or ensouled beings (ἐμψύχων).

Anaxagoras, then, often cited the reason as the cause of what is good or right, while in other places he asserts that soul is the cause. The philosopher from Clazomenae states that the reason exists in all living beings (ζῴοις), both large and small, in both the valuable and in those less valuable.²¹ Anaxagoras did not always consider reason

²⁰ In the Bible, in the first book of Moses (“Genesis”), for a comparison, it is said that the night and day, were distinguished and named on the first day and the Sun on the fourth day of creation, while grass, plants and trees were created not earlier than on the third day. For more details see: *Biblija, Sveto pismo Starog zavjeta*, “Prva knjiga Mojsijeva”, Sv. arh. Sin. Srp. prav. crk., Beograd 2007, pp. 9-10.

²¹ *De An.* 404b1-5. Aristotle probably has in mind the parts of Anaxagoras’ fragment 12 (DK59B12). The Stagiritis wondered whether Anaxagoras identified *Nous* and *psyche*, or he made the difference between them (About this dilemma writes H. Cherniss. H. Cherniss, *Aristotle’s Criticism of Presocratic Philosophy*, OCTAGON BOOKS INC., New York 1964, p. 293). The burden of decision-making about this issue is not reduced by reference to Anaxagoras’ fragment 11 (DK59B11), in which he states that in everything there is a share of everything,

(νοῦς) as something that corresponded to practical wisdom (φρόνησις). Aristotle, however, believes that the reason is not equally inherent in all living beings, not even in all of the men, while in some Anaxagoras' fragments νοῦς simply means ψυχή in general. Somewhat later (*De An.* 405a13-14) Stagiritis cautiously repeats that it seems to him that the philosopher from Clazomenae still distinguishes between the soul and the reason. The objection placed at the expense of Anaxagoras is that he treats soul and reason as having the same nature, regardless of the fact that he sets reason as a principle.²²

W. K. C. Guthrie said that in Anaxagoras the degrees of reality showed that the soul at its lowest level is that what gives the living beings power of self-motion, while the ability of cognition of beings is at higher levels. When he postulated reason as *arche* of all movement Anaxagoras linked all the layers of reality. For animate beings *Nous* is an internal faculty but for inanimate things it is an external force.²³ Implicitly present in Empedocles, the idea of degrees of reality will be further elaborated by Anaxagoras, perhaps the first thinker in the long line of the history of theory of levels from Antiquity to N. Hartmann. It is not, therefore, surprising to find the places where it is stated that the plants possess a certain degree of sensation and thought. In addition, Anaxagoras (and Empedocles) (DK59A117):

He said that they [i.e. plants] are driven by desire and argued that they have feelings, joy and sadness.²⁴

Desiderio eas [nämlich plantas] moveri dicunt, sentire quoque et tristari delectarique asserunt.

The philosopher from Clazomenae also states that plants are animals (ζῷα εἶναι), that they can feel "joy and sorrow", and as a proof he cites the changing of leaves. (Pseudo) Aristotle wrote that despite the convincing arguments that plants and a lot of animals do not breathe, Anaxagoras was of the opinion that plants do breathe

except reason, but there are some things in which reason, too, is present. Archelaus, imitating Anaxagoras, held (DK60A4) that reason is equally peculiar to all living beings, i.e. that every living being uses reason and that the difference occurs only in the speed of its use.

²² The Stagiritis probably best expressed his disappointment with Anaxagoras' use of reason in Met.985a18-21. Theophrastus says (DK62.2) that Kleidemos does not hold, as Anaxagoras, that reason is the principle of everything. Probably the *Nous*, according to Kleidemos, may not be different from the rest of the soul. In the following fragment (DK62.3), Theophrastus writes that Kleidemos thinks that plants (τὰ φυτὰ) consist of the same elements as living beings (ζῷοις), and if they consisted of more opaque and colder elements, they would be further from being living beings (ζῷα).

²³ W. K. C. Guthrie, *A History of Greek Philosophy II*, Cambridge University Press, Cambridge 1965, p. 316.

²⁴ Trans. Ž. Kaluderović. Germ. ed. H. Diels, W. Kranz, *Die Fragmente der Vorsokratiker II*, Strauss & Cramer GmbH, Weidmann 1985, s. 31, A117.

(πνοήν).²⁵ The philosopher from Clazomenae, moreover, as well as some other philosophers in the manuscript *De plantis* was presented, as the proponent of the thesis that plants have νοῦν and γνῶσιν. The reason is, according to Anaxagoras, present in all living beings (humans, animals and plants) and it is the same in all of them. The differences between these beings are not consequences of essential differences between their souls, but consequences of differences between their bodies, which either facilitate or hinder fuller functioning of *Nous*.²⁶

The idea of kinship of entire nature was not the exclusive Italian paradigm but its traces can be found in the Ionian tradition as well. Anaxagoras adopted a widely spread notion that life was originally generated out of moisture, heat, and the earth. He simply says that living beings were first created “in the humidity” (ἐν ὑγρῶι) and later from one another. *Aer* for The Clazomenae contains seeds of all things, and they were brought down from air together with water and generated plants. To this Theophrastus’ statement on Anaxagoras, a Christian thinker Irenaeus adds (DK59A113) that previously said applies to animals as well, i.e. that “animals resulted from seeds that fell from heaven to earth”. Irenaeus says about Anaxagoras that he was nicknamed an atheist (*atheus*), perhaps because for him the heaven is no longer a father who needs to fertilize the mother Earth by rain, in order for rain as his seed then to grow in the warmth of the bosom of the Earth. Pericles’ friend explains things by mimicking to some extent mythological forms, however in a rationalized discourse of his viewpoints the seed simply arrived to Earth from heaven by rain and germinated with the aid of heat.

At the end of the series of Presocratics, whose views are relevant for the latter attempts to establish non-anthropocentrism, Democritus is mentioned, together with Empedocles, as the proponent of the viewpoint that it is necessary to identify φρόνησις with αἴσθησις.²⁷ In the manuscript *On the Soul* (404a27-29) it is said that the philosopher from Abdera roundly identifies soul and reason, for he identifies what appears with what is true.²⁸ In the following part of this manuscript

²⁵ *De plantis* 816b26. From such a perspective the attitude Diogenes of Apollonia (DK64B4) that Men and all other animals (ζῷα) live upon air by breathing it, and this is their soul (ψυχή) and their reason (νόησις), while, when this is taken away, they die, and their reason (νόησις) fails, seems very “common”.

²⁶ For more details see: Ž. Kaluđerović, O. Jašić, “Anaksagorine *homeomerije* i *Nous*”, in: *Pedagoška stvarnost*, Vol. LXI, No 1, Novi Sad 2015, pp. 5-17.

²⁷ *Met.* 1009b12-31. In the part of fragment 105 (DK68A105) Philoponus, in Aristotle’s footsteps, states that Democritus says that the soul is not divided into parts and that it has not many abilities, adding that thinking and sensation are the same. Aetius confirms (DK67A30) that for atomists thinking and sensation have to depend on the physical mechanism. Leucippus and Democritus, according to his interpretation, consider that sensations (αἰσθήσεις) and thoughts (νοήσεις) are only changes of the body.

²⁸ See also *GC* 315b9-15. The clues for not making a distinction between νοῦς and ψυχή Democritus, except in Homer, could also find in Herodotus (ἐκ παντὸς νόου, *Istorija*, VIII,97.2).

the thesis about the identity of soul and reason in Democritus is repeated, together with the claim that he does not consider the reason as a kind of power to achieve the truth.²⁹

The philosopher from Abdera who believed (DK68A117), similarly to Parmenides and Empedocles, that there is a small part of the soul in all things, and therefore in plants as well³⁰. Given that he derived thinking (φρονεῖν) from the composition of the body, Democritus (DK68A135 (58) simply says that it occurs when the soul is in a suitable condition with respect to its mixture. Plutarch reports that Democritus' disciples thought that plants are animals that grow from the soil (ζῷα ἐγγεῖα).³¹ Unnamed disciples of the philosopher from Abdera believed, in other words, that there was no substantial difference between plants and animals³², except that the plants are rooted in the soil³³. In the part of the work on the philosopher from Clazomenae paraphrased is the manuscript *On plants* (815b16-17), in which stated is the view of three Post-Parmenides philosophers that plants have reason and the ability to think, which literally reads (DK31A70):

Anaxagoras, however, as well as Democritus and Abrucahis, said that (plants, Ž. K.) have reason and prudence.³⁴

Anaxagoras autem et Democritus et Abr. illas intellectum intellegentiamque habere dicebant.

²⁹ Aristotle similarly records in *De An.* 405a8-13 and in *De Resp.* 472a6-8.

³⁰ Following the trail of Parmenides, Democritus in the same fragment 117 (DK68A117) argues that dead bodies have a share in a kind soul, and that they have ability of sensation as well.

³¹ The same thought Plutarch attributed (DK59A116) to Anaxagoras' and Plato's disciples. Plato in the *Timaeus* (77a) says that the plant is "another kind of animal" (ἕτερον ζῷον) and that "a nature akin to that of man" (τῆς γὰρ ἀνθρωπίνης συγγενῆ φύσεως φύσιν). Somewhat later (*Tim.* 90a), the Athenian says that a man is "a plant not of an earthly but of a heavenly growth" (φυτὸν οὐκ ἐγγεῖον ἀλλὰ οὐράνιον).

³² Democritus (as well as Parmenides and Empedocles) argues that animals have an ability to think. He, moreover, believed that animals are responsible for what they do, and that they may be subject to a just punishment (DK68B257; DK68B258 and DK68B259). For more details about the responsibilities of animals and different modalities of understanding the concept of responsibility, as seen through the prism of Aristotle's works, see the work of the author of this article. Ž. Kaluderović, "Aristotelovo razmatranje *logosa*, "volje" i odgovornosti kod životinja", in: *Filozofska istraživanja*, 122, vol. 31, Fasc. 2, Zagreb 2011, pp. 311-321.

³³ Awareness of the immobility of plants, which undoubtedly represents an evolutionary constraint is the reason why modern scientists claim that their sophisticated biology should be highly appreciated. In fact, just because the plants are unable to leave an unfavourable environment or to migrate in search of food and adequate "mate", many biologists believe they have developed incredibly sensitive and complex sensory mechanisms which allow them to survive in the dynamic equilibrium of the existing ecosystem.

³⁴ Trans. Ž. Kaluderović. Germ. ed. H. Diels, W. Kranz, *Die Fragmente der Vorsokratiker I*, Strauss & Cramer GmbH, Weidmann 1985, s. 297, A70. "Abr." is abbreviation of "Abrucahis" and refers to Empedocles.

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That plants can see, feel, memorize, think and consciously alert their neighbours when trouble is near it was known even two thousand years ago, although at the time it was not possible to use arguments and knowledge associated with the process of photosynthesis, the similarity of the genes of plants with human and animal genes, cell division, growth of neurons and functioning of the immune system. In ancient times it was not possible, nor even necessary, to put the plants on a polygraph, as CIA's test specialist Clive Backster did in the 1960s, in order to prove that plants feel pain and have "primary perception", i.e. "extrasensory perception", when somebody hurts or even just intends to hurt them.³⁵ Presocratics were thinking within the framework of ensouled physicality, intellectualized materiality and logicized sensuality. In other words, for them the belief that already mentioned intrinsic kinship of the entire *physis* exists, and the statement that "the earth is the mother of plants and the Sun is the father" (DK59A117) were sufficient.

Most controversies, according to the author of this paper, are caused by the intention, in the modern environment which is not only temporally but also spiritually distant from the Presocratic epoch, to replace the justified care about the protection of non-human beings with an attempt to draw the plants into the area of *par excellence* human moral phenomena, when by "upward levelling" of plants,³⁶ one is by means of argumentation trying to acknowledge a certain moral status to the plants. The difficulties are reflected in the fact that such a (bio)ethics cannot have any original principles and ideals. It cannot establish and justify moral principles that would relate only to plants. It could be said that the limits of any non-anthropocentrism are in the fact that it unconsciously reinforces anthropocentrism. In the end, urging the man to be displaced from the center of the universe, non-anthropocentric theories are in fact attributing the man the role of the guardian of that very universe.

35 C. Backster, *Primary Perception*, Anza, CA, 2003.

36 This phrase was introduced by professor A. Čović, writing about "absurd method of speciesistic levelling", i.e. on its two aspects, "Aesopian approach" of "levelling in ascending order" and Singers's approach of "levelling in descending order". "Both methods have the same goal - to level the differences between humans and other living beings with the ability to sense starting from the wrong assumption that this is a good way for the development of moral responsibility and legal obligations towards non-human members of sensitive community". A. Čović, "Biotička zajednica kao temelj odgovornosti za ne-ljudska živa bića", pp. 36-37, in: A. Čović, N. Gosić, L. Tomašević (Eds.), *Od nove medicinske etike do integrativne bioetike*, PERGAMENA / Hrvatsko bioetičko društvo, Zagreb 2009.

BIBLIOGRAPHY:

1. Aristotel, *Metafizika*, PAIDEIA, Beograd 2007.
2. Aristotel, *O duši. Parva naturalia*, PAIDEIA, Beograd 2012.
3. Aristotel, *O nebu. O postajanju i propadanju*, PAIDEIA, Beograd 2009.
4. Aristotel, *Fizika*, PAIDEIA, Beograd 2006.
5. Backster, C., *Primary Perception*, Anza, CA, 2003.
6. Barnes, J., *Early Greek Philosophy*, Penguin Classics, New York 2001.
7. Barnes, J., *The Complete Works of Aristotle I-II*, Princeton University Press, Princeton 1991.
8. *Biblija, Sveto pismo Starog zavjeta*, Sv. arh. Sin. Srp. prav. crk., Beograd 2007.
9. Burnet, J., *Early Greek Philosophy*, The World Publishing Company, Cleveland and New York 1962.
10. Chamovitz, D., *What a Plant Knows, A Field Guide to the Senses*, 2012, Scientific American / Farrar, Straus and Giroux; Reprint edition (April 30, 2013).
11. Cherniss, H., *Aristotle's Criticism of Presocratic Philosophy*, OCTAGON BOOKS INC., New York 1964.
12. Čović, A., "Biotička zajednica kao temelj odgovornosti za ne-ljudska živa bića", in: A. Čović, N. Gosić, L. Tomašević (Eds.), *Od nove medicinske etike do integrativne bioetike*, PERGAMENA / Hrvatsko bioetičko društvo, Zagreb 2009.
13. Diels, H., Kranz, W., *Die Fragmente der Vorsokratiker I-III*, Strauss & Cramer GmbH, Weidmann 1985-1987.
14. Diels, H., *Predskratovci fragmenti I-II*, Naprijed, Zagreb 1983.
15. Guthrie, W. K. C., *A History of Greek Philosophy I*, Cambridge University Press, Cambridge 1962.
16. Guthrie, W. K. C., *A History of Greek Philosophy II*, Cambridge University Press, Cambridge 1965.
17. Herodot, *Istorija I-II*, Mat. srp., Novi Sad 1988.
18. Hussey, E., *The Presocratics*, Bristol Classical Press, Indianapolis 1995.
19. Jaeger, W., *The Theology of the Early Greek Philosophers*, Oxford University Press, Oxford 1967.
20. Jahr, F., "Reviewing the ethical relations of humans towards animals and plants", in: A. Muzur, H.-M. Sass (Eds.), *Fritz Jahr and the Foundations of Global Bioethics. The Future of Integrative Bioethics*, Lit Verlag, Berlin – Münster – Wien – Zürich – London 2012.
21. Jamblich, *Pitagorin život*, DERETA, Beograd 2012.
22. Kaluđerović, Ž., Jašić, O., "Anaksagorine homeomerije i *Nous*", in: *Pedagoška stvarnost*, Vol. LXI, No 1, Novi Sad 2015.
23. Kaluđerović, Ž., "Aristotelovo razmatranje *logosa*, "volje" i odgovornosti kod životinja", in: *Filozofska istraživanja*, 122, vol. 31, Fasc. 2, Zagreb 2011.
24. Kaluđerović, Ž., "Parmenidova poema i teškoće kauzalne shematike", in: *Godišnjak Filozofskog fakulteta u Novom Sadu*, Volume XXXVII-1, Novi Sad 2012.
25. Kaluđerović, Ž., "Stagiratinova aitiologija", in: *Znakovi vremena*, Vol. XVI, No 59, Sarajevo 2013.
26. Krznar, T., *Znanje i destrukcija*, PERGAMENA, Zagreb 2011.
27. Laks, A., "Soul, sensation, and thought", in: A. A. Long (ed.), *The Cambridge Companion to EARLY GREEK PHILOSOPHY*, Cambridge University Press, Cambridge 1999.
28. Laertije, D., *Životi i mišljenja istaknutih filozofa*, BIGZ, Beograd 1973.
29. Mattéi, J. F., *Pitagora i pitagorovci*, Jesenski i Turk, Zagreb 2009.
30. Pavlović, B., *Presokratska misao*, ΠΛΑΤΩ, Beograd 1997.
31. Platon, *Timaj*, Mladost, Beograd 1981.
32. Rode, E., *PSYCHE, Kult duše i vera u besmrtnost kod Grka*, Izd. knjiž. Z. Stojanovića, Sremski Karlovci. Novi Sad 1991.
33. Ross, W. D., *Aristotle DE ANIMA*, Oxford University Press, Oxford 1999.

Željko Kaluđerović

O “niveliranju” biljaka “naviše” – ranogrčka perspektiva

SAŽETAK

Autor u radu razmatra znanstvene i bioetičke zahtjeve, inspirirane postojećim ekološkim, i ne samo ekološkim problemima, da treba na drugačiji način regulirati odnos između ljudi i drugih živih bića. Nova relacija pokušava se uspostaviti relativiziranjem razlike između čovjeka i ne-ljudskih živih bića, pridavanjem, često, ne-ljudskim živim bićima specifično ljudskih svojstava i kategorija poput dostojanstva, moralnog statusa i prava, ali i, naročito biljkama, sposobnosti vida, osjećaja, pamćenja, komunikacije, svijesti i mišljenja. U procesu niveliranja ove diferencije navode se tako rezultati istraživanja koja pokazuju da i biljke imaju izuzetno osjetljive i kompleksne senzorne mehanizme, da vode složen, dinamičan i sadržajan život, da reagiraju na signale drugih biljaka, odnosno da među njima postoji interakcija i da imaju kratkotrajnu i dugotrajnu memoriju. Kada je “svjesnost” biljaka u pitanju, konstatira se da postoji njena povezanost po analogiji s ljudskom sviješću. Autor zatim analizira jesu li ova otkrića nova, iznenađujuća i revolucionarna, kako se obično tvrdi, ili se njihova anticipacija može pronaći još kod nekih presokratovaca, filozofski utemeljena na srodnosti svih varijeteta života. Pitagora, Parmenid, Empedokle, Anaksagora i Demokrit su, u tom kontekstu, na gledištu da se biljke pokreću po prirodnoj žudnji, da dišu, osjećaju radost i tugu, imaju dušu, moć rasuđivanja, svijest, sposobnost mišljenja, razum i um. Na kraju, autor osvjetljava limite ne-antropocentričkih pristupa, tj. njihovo nereflektirano etabliranje samog antropocentrizma, teškoću izmiještanja čovjeka iz središta svijeta, a da pritom on sam ne bude zaštitnik tog istog svijeta.

Cljučne riječi: antropocentrizam, ne-antropocentrizam, ljudi, životinje, biljke, čulnost, pamćenje, komunikacija, svijest, mišljenje, razum, um